



FORUM FOR PUBLIC HEALTH IN SOUTH
EASTERN EUROPE

HEALTH: SYSTEMS – LIFESTYLE – POLICIES

A Handbook for Teachers, Researchers
and Health Professionals (2nd edition)
Volume I

Editors:

GENC BURAZERI AND LIJANA ZALETEL KRAGELJ

Assistant Editor: KRESHNIK PETRELA



Jacobs Verlag

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Ulrich Laaser and Luka Kovacic

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Preface

In order to develop the training and research capabilities for public health in South Eastern Europe a project funded by the German Stability Pact started in 2000. It was meant to support the reconstruction of postgraduate public health training programs through different activities, including the development of teaching modules. Originally planned to be on an Internet platform only, the Forum for Public Health in South Eastern Europe (FPH-SEE)¹ and the MetaNET project together with Hans Jacobs Publishing Company decided to publish this training material also as hard copy volumes. The first book was published in 2004 and the sixth one in 2010, together comprising around 3500 pages. After successful and widespread use of the teaching modules of all six books between 2004 and 2011², the project coordinators decided - again together with Hans Jacobs Publishing Company - to publish a 2nd fully revised edition of selected modules as e-book.

The 2nd edition has been prepared for publication in two volumes under the titles **Health: systems – lifestyles – policies** (Volume 1) and **Health Investigation: analysis – planning – evaluation** (Volume 2). Volume 1 comprises the collection of 44 teaching modules, written by 56 authors from 10 countries. The teaching modules in this book cover the health care system, public health, lifestyles and health, environmental health, health promotion, health policy, and global health. The authors had full autonomy in the preparation of their teaching modules. They were asked to present their own teaching/training materials with the idea to be as practical and lively as possible. Having that in mind, the reader and the user of the modules of this book may sometimes find, that some areas of population health as well as of the management and organization of health services are not covered, some are just tackled and some are more deeply elaborated. The role of the editors was more to stimulate the authors to write and to revise modules, than to amend or edit their content.

The project coordinators and the editors of the 2nd edition are very grateful for the continuing interest of the authors to publish their materials and share their experience. We look back to more than a decade of cooperation and networking and are happy to see the fruits of this work grow ripe. We are confident that the selected 2nd edition will stabilize this success and contribute to lead South Eastern European Public Health into a future of excellence and stability.

Zagreb, 25 September, 2013

The coordinators: Professors Luka Kovacic (Croatia) and Ulrich Laaser (Germany)

The editors: Professors Genc Burazeri (Albania) and Lijana Zaletel Kragelj (Slovenia)

¹ <http://www.snz.unizg.hr/ph-see/index.htm>

² Zaletel-Kragelj L, Kovacic L, Bjegovic V, Bozikov J, Burazeri G, Donev D, Galan A, Georgieva L, Pavlekovic G, Scintee SG, Bardehle D, Laaser U (2012) Utilization of teaching modules published in a series of handbooks for teachers, researchers and health professionals in the frame of “Forum for Public Health in South Eastern Europe - Programmes for training and research in public health” network. Slovenian Journal of Public Health 51/4: 237-250

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES	
A Handbook for Teachers, Researchers and Health Professionals	
Title	The role and organization of health systems
Module: 1.1	ECTS (suggested): 1.0
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Keywords	Health care; health systems; health systems organization and performance; primary health care; hospital care; health care reforms
Learning objectives	<p>After this module, students and health professionals should:</p> <ul style="list-style-type: none"> • increase understanding of health care systems organization, their historical development and respective functions; • distinguish national health care systems based on sources of funding (Beveridge, Bismarck and Private Insurance model); • be able to describe scope of activities of health organizations on different levels (self care, primary, secondary and tertiary level of care); • be able to classify health service organizations based on various criteria • describe three generations of reforms in health system; • identify main goals and objectives of national health systems; and • identify common problems and new challenges of health care systems.
Synopsis (Abstract)	<p>The health of the people is a national priority. Health Care System (HCS) infrastructure includes services, facilities, institutions/establishments and organizations. They provide individuals, families and communities with promotive, protective, preventive, diagnostic, curative and rehabilitative measures and services. There are different HCSs all over the world, which are strongly influenced by nation's history, traditions, socio-cultural, economic, political and other factors. But, regardless of all present differences, there are common characteristics, typical for all HCS. In this module three levels of healthcare (primary, secondary, tertiary) are described, as well as their historical development. Concerning sources of funding, there are three main models of National HCS: the Beveridge model, the Bismarck model and the Private Insurance model. HCS are continuously evolving. The quality of HCS is expressed through coverage, access, equity, but also efficiency in use of resources, and financing. HCS face new challenges, among them are aging of the population, new medical technology, innovations, increasing costs, lack of community involvement and intersectoral actions.</p>
Teaching methods	Teaching methods include lectures, literature search and interactive group discussion.
Specific recommendations for teachers	This module should be organized within 1 ECTS, out of which one third are lectures and group discussion supervised by the lecturer. The rest is individual work (searching published literature and Internet mainly) in order to prepare seminar paper.
Assessment of students	Assessment should be based on the quality of seminar paper, which presents the national health system of the students' country. Oral exam is also recommended.

THE ROLE AND ORGANIZATION OF HEALTH SYSTEMS

Doncho Donev, Luka Kovacic, Ulrich Laaser

Introduction

Health systems have a vital and continuing responsibility for people's health throughout the lifespan. They are crucial to the healthy development of individuals, families and societies everywhere. The real progress in health towards the United Nations Millennium Development Goals* and other national health priorities depends vitally on stronger health systems based on primary health care (1).

Improving health is clearly the main objective of each health system, but it is not the only one. The objective of good health itself is really twofold: the best attainable average level – goodness - and the smallest feasible differences among individuals and groups – fairness. Goodness means a health system responding well to what people expect of it, and fairness means it responds equally well to everyone, without any kind of discrimination (2).

According to the World Health Organization (WHO), each national health system should be directed to achieve three overall goals: good health, responsiveness to the expectations of the population, and fairness of financial contribution. Progress towards them depends crucially on how well systems carry out four vital functions. These are: service provision, resource generation, financing and stewardship. Comparing the way these functions are actually carried out provide a basis for understanding performance variations over the time and among countries. There are minimum requirements which every health care system should meet equitably: access to quality services for acute and chronic health needs; effective health promotion and disease prevention services; and appropriate response to new threats as they emerge (emerging infectious diseases, ageing of the population and growing burden of non-communicable diseases and injuries, and the health effects of global environmental changes) (1-3).

Health systems have contributed enormously to better health for most of the global population during the 20th century and beyond. Today, health systems, in all countries, rich and poor, play a bigger and more influential role in people's lives than ever before. Health systems of some sort have existed for a long time as people have tried to protect their health and treat diseases. Traditional practices, often integrated with spiritual counseling and providing both preventive and curative care, have existed for thousands of years and often coexist today with modern medicine. Many of them are still the treatment of choice for some health conditions, or are resorted to because modern alternatives are not understood or trusted, or fail, or are too expensive. Health systems have undergone overlapping generations of reforms in the past 100 years, including the founding of national health care systems and the extension of social insurance schemes. Later the promotion of primary health care came as a route to achieving affordable universal coverage – the goal of health for all. In the past two decades there has been a gradual shift of vision towards what WHO calls the “new universalism”. Rather than all possible care for everyone, or only the simplest and most basic care for the poor, this means delivery to all of high-quality essential care, defined mostly by criteria of effectiveness, cost and social acceptability. This shift has been partly due to the profound political and economic changes of the last 20 years or so with the transition from centrally planned to market-oriented economies, reduced state intervention in national economies, less government control, and more decentralization (2).

Health care services and health services organizations

Health care is the total societal effort, organized or not, whether private or public, that attempts to guarantee, provide, finance, and promote health. Health care consists of measures, activities and procedures for maintaining and improving health and living and working environment, rights and obligations acquired in the health insurance, as well as measures, activities and procedures which are undertaken in the field of health care for maintaining and improving people's health, prevention and control of the diseases, injuries and other disorders of the health; early detection of the diseases and conditions of the health, timely and efficient treatment and rehabilitation, by application of professional medical measures, activities and procedures. It changed markedly during the 20th century moving toward the ideal of wellness and prevention of disease and disability. Delivery of health care services involves the organized public or private efforts that assist individuals primarily in regaining health, but also in preventing disease and disability (2,4).

Delivery of services to patients occurs in a variety of organizational settings (“patient” is anyone served by a health services organization). Health services is a permanent countrywide system of established institutions,

* The goals in the area of development and poverty eradication (to reduce poverty and hunger and to tackle ill-health, gender inequality, lack of education, access to clean water and environmental degradation). These goals are included in the United Nations Millennium Declaration adopted at the Millennium Summit in New York in September 2000, and are now widely referred to as Millennium Development Goals.

the multipurpose objective of which is to cope with the various health needs and demands of the population and thereby provide health care for individuals and the community, including a broad spectrum of preventive and curative activities, and utilizing, to a large extent, multipurpose health workers. All health services organizations can be classified by ownership and profit motive. In addition, they can be classified by whether the patient is admitted as an inpatient or outpatient and, for an inpatient, by the average length of stay (4,5).

Historically, hospitals and nursing facilities have been the most common and dominant health services organizations engaged in delivery of health services. They remain prominent in the contemporary health care systems, but other health services organizations have achieved stature. Among them are outpatient clinics, imaging centers, free-standing emergency care and surgical centers, large group practices, and home health agencies. Multi-organizational systems, both vertically and horizontally integrated, are wide-spread. Health maintenance organizations, sickness funds, preferred provider organizations, and managed care systems are financial and delivery arrangements that became prominent in USA and some European countries, in the 1980s and 1990s. These various health services organizations and others face new environments containing a wide range of external pressures, including new rules and technologies, changed demography and ageing, accountability to multiple constituents, and constraints on resources. As a result, health services organization must allocate and use resources more effectively and strive for continuous improvement and excellence in an increasingly restrictive environment (5).

What is a health system?

In today's complex world, it can be difficult to say exactly what a health system is, what it consists of, and where it begins and ends. It means that the boundaries between health and welfare systems are not sharp and clear. Health system includes all the activities with the purpose to promote, restore and maintain health. It means that the health system is the complex of interrelated elements that contribute to health in homes, educational institutions, workplaces, public places, and communities, as well as in the physical and psycho-social environment and the health and related sectors. A health system is usually organized at various levels, starting at the most peripheral level, also known as the community level or the primary level of health care, and proceeding through the intermediate (district, regional or provincial) to the central level. The intermediate and central levels deal with those elements of the health system that provide progressively more complex and more specialized care and support. Health system infrastructure includes services, facilities, institutions or establishments, organizations, and those operating them for conducting the delivery of a variety of health services and programs. They provide individuals, families, and communities with health care that consists of a combination of promotive, protective, preventive, diagnostic, curative and rehabilitative measures. Health resources are all the means of the health care system available for its operation, including manpower, buildings, equipment, supplies, funds, knowledge and technology. Health sector includes governmental ministries and departments, organizations and services, social security and health insurance schemes, voluntary organizations and private individuals and groups providing health services. Intersectoral action is an action in which the health sector and other relevant sectors collaborate for the achievement of a common goal. Different sectors should be closely coordinated in the health actions. Multisectoral action is usually the synonymous term to the intersectoral action, the intersectoral emphasizing the element of coordination and the multisectoral the contribution of a number of sectors (4,6).

Health systems are defined by WHO as comprising all the organizations, institutions and resources that are devoted to producing health actions. A health action is defined as any effort, whether in personal health care, public health services or through intersectoral initiatives, whose primary purpose is to improve health (2,6). Formal health services, including the professional delivery of personal medical care, are clearly within these boundaries. So are actions by traditional healers and all use of medication, whether prescribed by a provider or not and home care for the sick people, especially in developing countries and rural areas where between 70% and 90% of all sickness is managed. Such traditional public health activities as well as health promotion and disease prevention provided by different sectors, and other health-enhancing interventions like road and environmental safety improvement, are also part of the system. Beyond the boundaries of this definition are those activities whose primary purpose is something other than health – education, for example – even if these activities have a secondary, health-enhancing benefit. Hence, the general education system is outside the boundaries, but specifically health-related education is included. So are actions intended chiefly to improve health indirectly by influencing how non-health systems function – for example, actions to increase girls' school enrolment or change the curriculum to make students better future caregivers and consumers of health care (2,6).

Nearly all the information available about health systems refers only to the provision of, and investment in, health services: that is, the health care system, including preventive, curative, rehabilitative and palliative interventions, whether directed to individuals or to populations. Efforts are needed to quantify and assess those activities implied by the wider definition, so as to begin to gauge their relative cost and effectiveness in contributing to the goals of the health system. Even by this more limited definition, health systems today represent one of the largest, most complex and most costly sectors in the world economy. Global spending on health care was about 8% of world gross domestic product (GDP), in the first decade of the 21st century.

According to OECD the U.S. health care costs in 2010 eat up 17.6 percent of GDP or \$8,233 spent on health per person. The average spending on health care among the other developed OECD countries was \$3,268 per person (2,7).

With rare exceptions, even in industrialized countries, organized health systems in the modern sense intended to benefit the population at large, barely existed a century ago. Hospitals have a much longer history than complete systems in many countries. Until well into the 19th century they were for the most part run by charitable organizations, and often were little more than refuges for the orphaned, the crippled, the destitute or the insane. And there was nothing like the modern practice of referrals from one level of the system to another, and little protection from financial risk apart from that offered by charity or by small-scale pooling of contributions among workers in the same occupation. Towards the close of the 19th century, the industrial revolution was transforming the lives of people worldwide. At the same time societies began to recognize the huge toll of death, illness and disability occurring among workers, whether from infectious diseases or from industrial accidents and exposures. About the same time, workers' health was becoming a political issue in some European countries, but for quite different reasons. Bismarck, Chancellor of Germany, in 1883, enacted a law requiring employer contributions to health coverage for low-wage workers in certain occupations, adding other classes of workers in subsequent years. This was the first example of a state-mandated social insurance model. The popularity of this law among workers led to the adoption of similar legislation in Belgium in 1894, Norway in 1909, Denmark in 1935 and in Netherlands a few years later. The influence of the German model began to spread outside Europe after the First World War (in 1922, Japan, in 1924, Chile) (2,8).

In the late 1800s, Russia had begun setting up a huge network of provincial medical stations and hospitals where treatment was free and supported by tax funds. After the Bolshevik revolution in 1917, it was decreed that free medical care should be provided for the entire population, and the resulting system was largely maintained for about eight decades. This was the earliest example of a completely centralized and state-controlled model.

Not least among its effects, the Second World War damaged or virtually destroyed health infrastructures in many countries and delayed their health system plans. Paradoxically, it also paved the way for the introduction of some others. Wartime Britain's national emergency service to deal with casualties was helpful in the construction of what became, in 1948, the National Health Service, perhaps the most widely influential model of a health system. The Beveridge Report of 1942 had identified health care as one of the three basic prerequisites for a viable social security system. The government's White Paper of 1944 stated the policy that "Everybody, irrespective of means, age, sex or occupation, shall have equal opportunity to benefit from the best and most up-to-date medical and allied services available", adding that those services should be comprehensive and free of charge and should promote good health, as well as treating sickness and disease (2,8).

Today's health systems are modeled to varying degrees on one or more of a few basic designs that emerged and have been refined since the late 19th century. One of these aims was to cover all or most citizens through mandated employer and employee payments to insurance or sickness funds, while providing care through both public and private providers. Much debate has centered on whether one way of organizing a health system is better than another, but what matters about a system's overall structure is how well it facilitates the performance of its key functions. Socioeconomic growth of societies followed by the demographic expansion and increasing of the life expectancy, as well as the epidemiological transition with predominance of chronic non-communicable diseases, caused subsequent changes of the needs and demands of an aging population. It was followed by creation of more organized and institutionalized healthcare systems instead of the earlier fragmented services of competing health professionals and health institutions. Today, health facilities and human resources are unequally distributed within and between countries. Lower-income countries have three to four times lower rates of doctors and nurses than high income countries, and access to clinical services is still limited to certain groups and wealthy people. In these countries, community health workers act as first-line contacts of the health system.

Models of national health care systems based on the sources of funding

Based on the source of their funding and degree of state intervention, three main models of national healthcare systems can be distinguished: the Beveridge model, the Bismarck model and the Free-market private insurance model (8-11) (Table 1).

The Beveridge "public" model was inspired by the William Beveridge Report for social insurance presented in the English Parliament in 1942. Funding is based mainly on taxation and is characterized by a centrally organized National Health Service where the services are provided by mainly public health providers (hospitals, community GPs, specialists and public health services). In this model, healthcare budgets compete with other spending priorities. The countries using this model, beside United Kingdom, are Ireland, Nordic countries, Spain, Portugal, Italy, Greece, Canada and Australia (Table 1).

Table 1. Three main models of health care systems based on the sources of funding (8-11)

Model of Health Care System and country in which the model exists	Source of funding	Main features	Type of providers
Beveridge model (UK, Ireland, Norway, Finland, Denmark, Sweden, Iceland, Spain, Portugal, Italy, Greece, Canada, Australia and New Zealand)	Taxation (State Budget) Not related to income	- Universal access to health care for all citizens based on residency - Comprehensive coverage with basic health benefits - Strong controls by Ministry of Health and finances facilities - Bureaucracy, underfunding, rigidity	Public: - Predominantly public providers and governmental ownership - National Health Service and self-employed GPs are PHC gatekeepers - Purchaser-provider split
Bismarck model (Germany, Holland, Belgium, France, Austria, Switzerland, Israel, Japan, CSEE and FSU countries)	Compulsory health insurance, earmarked premiums paid by employers and employees Related to income	- Health care as guaranteed, insured good, Coverage of 60-80% with basic "basket" of health services - Intermediate role of the state in regulating the system - Client-friendly, professional autonomy, earmarked budgets - High costs difficult to control	Mixed: - Public and private providers with dominant social ownership
Free-market private insurance model (USA)	Private insurance and funding Medicare Medicaid	- Health care as a commodity - Weak state control, in general - Providers are private entrepreneurs	- Predominantly private providers with autonomy - Managed care

The Bismarck "mixed" model was inspired by the 1883 Germany Social Legislation and National Health Insurance Plan for workers introduced by Otto von Bismarck, the Chancellor of Germany. Funds are provided mainly by premium-financed social/mandatory insurance and, beside Germany, is found in countries such as Netherlands, Belgium, France, Austria, Switzerland, Luxembourg, Israel, Japan, Central and South East European (CSEE) countries and Former Soviet Union (FSU) countries. Also Japan has a premium-based mandatory insurance funds system. This model results in a mix of private and public providers, and allows more flexible spending on healthcare.

The "private" insurance model is also known as the model of "independent" customer. Funding of the system is based on premiums, paid into private insurance companies, and in its pure form actually exists only in the USA. In this system, the funding is predominantly private, with the exception of social care for poor and elderly through Medicare and Medicaid governmental funded programs. The great majority of providers in this model belong to the private sector.

All three types of health system models should be considered as pure types that can be found in many combinations and varieties. All three types are imperfect and expensive, too. They are aiming at "perfection", i.e. they try to achieve an optimal mixture of access to healthcare, quality of care and cost efficiency. According to the WHO, the healthcare systems present in different countries are strongly influenced by the underlying norms and values prevailing in the respective societies. Like other human service systems, health care services often reflect deeply rooted social and cultural expectations of the citizenry. Although these fundamental values are generated outside the formal structure of the healthcare system, they often define its overall character and capacity. Healthcare systems are therefore different all over the world and are strongly influenced by each nation's unique history, traditions and political system. This has led to different institutions and a large variation in the type of social contracts between the citizens and their respective governments.

In some societies, healthcare is viewed as a predominantly social or collective good, from which all citizens belonging to that society should benefit, irrespective of whatever individual curative or preventive care is needed. Related to this view is the principle of solidarity, where the cost of care is cross-subsidized intentionally from the young to the old, from the rich to the poor and from the healthy to the diseased.

Other societies, more influenced by the market-oriented thinking of the 1980s, increasingly perceive healthcare as a commodity that should be bought and sold on the open market. These marketing incentives possibly allow a more dynamic and greater efficiency of healthcare services and a better control of growth in health care expenditure. But, nowadays, this concept, which perceives health care services as a commodity does not prevail in Europe.

Levels of organization of health care systems and health care delivery

All models of health care systems are imperfect and there is no one model which is the best and broadly accepted and recommended. There are big differences among countries in relation to the goals, structure, organization, finance and the other characteristics of the health care systems. These differences are influenced by history, traditions, socio-cultural, economic, political and other factors. But, regardless of all present differences, there are some common characteristics, typical for all organized health care systems. First of all, those characteristics relate to the so called "levels of health care".

In accordance with the size of the population served, and specificities of the diseases and conditions treated at certain level, as well as with some organizational characteristics, it is possible to recognize four levels of the health care system and health care delivery (8,10,12-17) (Figure 1).

Self care is the first level, which is nonprofessional care. It is performed within the family, and the population group counts from one to 10 persons. Self-care implies largely unorganized health activities and health-related decision-making carried out by individuals, families, neighbors, friends and workmates. These include the maintenance of health, prevention of disease, self-diagnosis, self-treatment, including self-medication, and self-applied follow-up care and social support to the sick and weak members of the family before or after contact with the health services. By community involvement and participation, individuals and families accept responsibility for their, and the community's health and welfare and develop the capability to contribute to their own and the community's development (4). This type of care has its own long tradition and it is a part of all cultures. WHO has shown interest and pointed out that traditional and alternative medicine consist big potential, which might be useful for improvement of the health status of the population. WHO strategy "Health for all" and the concept of Primary Health Care paid an appropriate attention to self care and need for health education of the individuals, family and population as a whole in order to enable and to empower them in taking responsibilities and making decisions about their own health and the factors which influence health (6,13,17).

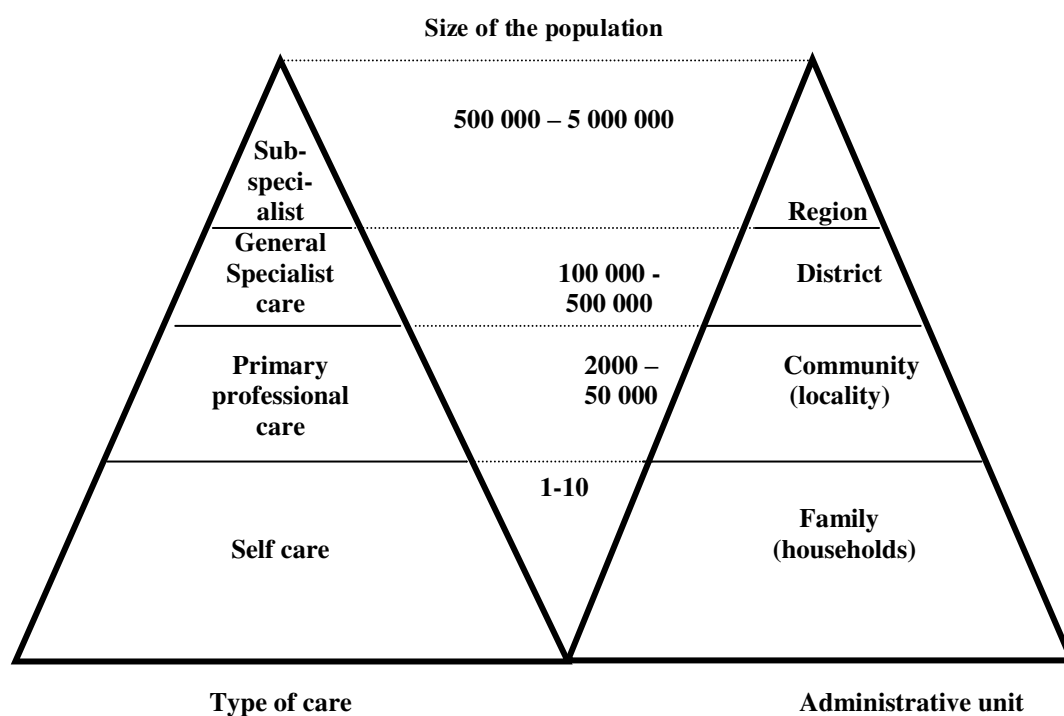
Health promotion advice on important lifestyle issues such as nutrition, exercise, consumption of alcohol and smoking cessation is most effective if it is persistent, consistent and continuous, and if it is offered to families and communities at all levels. Within this population context, individual advice can be given on an opportunistic basis to those who attend health services for whatever reason (6,18).

Primary professional (medical) care is a care of the "first contact" of the individual with the health care service, which is provided in ambulatory settings by qualified health professionals (general practitioner-GP, family doctor, or nurse) when a patient came, usually for the first time, with certain symptoms or signs of disease. The primary professional level of care includes a doctor and members of its team: nurse, birth attendant, home visiting nurse, social worker, and sometimes a physiotherapist, too. The administration/territorial unit for this type of care is a local community, and the population size vary from 2000 persons per one GP or family doctor to 10.000-50.000 inhabitants per health facility within the community/municipality (health station, health center). Beside medical care (diagnostics, treatment and rehabilitation) the primary professional care team performs various activities toward maintenance and improvement of the health and prevention of diseases. The most common role of the physician is "gate keeper", which means that the doctor is motivated and empowered to treat and cure broader scope of illnesses and conditions (up to 85% of health care problems in a community without recourse to specialist), and to select and refer patients to higher levels of the health care system when necessary.

Secondary or intermediate level of care is general specialist care, delivered by "general specialist doctor" for more complex conditions, which could not be resolved by the general practitioner or primary professional care level. General specialists (surgeons, internal medicine specialists, gynecologists, psychiatrists etc.) usually deliver this type of care through specialized services of district or provincial "general hospitals". The administrative unit for secondary level of care is a district, and the population size is from 100.000 to 500.000 inhabitants. Usually the patient is directed by the general practitioner from primary professional level to the secondary level as the first referral level of care through referral.

Tertiary or central level of care is sub-specialist care including highly specific services, which might be delivered in specialized institutions or by highly specialized health professionals - sub-specialists i.e. neurosurgeons, plastic surgeons, nephrologists, cardiologists etc. The specialized institutions, which provide this type of care are also educational institutions for health manpower (university hospitals, university clinics, etc.). The administrative unit for tertiary level of care is a region, and the population size is from 500.000 to 5.000.000 inhabitants. In some countries, mainly developing countries, this level of care is the same as the national level. A patient should be referred to this level from primary or secondary level of care.

Figure 1. Levels of care within the health care system (common structure)



Secondary and tertiary care support primary health care by providing technologically-based diagnosis, treatment and rehabilitation. WHO recommend that in most Member States, secondary and tertiary care should more clearly serve and support primary care, concentrating on those functions that cannot be performed effectively by the latter. Planning secondary and tertiary care facilities in accordance with the principle of a population-based "regionalized" system allows for more rational use of expensive technologies and of the expertise of highly trained personnel (6).

Typical functions of the overall health care system are:

- Health services (environmental, health promotion, prevention of diseases and injuries, primary care, specialist medicine, hospital services, services for specific groups, self-help);
- Financing health care (mobilization of funds, allocation of finances);
- Production of health resources (construction and maintenance of health facilities, production and distribution of medicines, production, distribution and maintenance of instruments and equipment);
- Education and training of health manpower (undergraduate training, postgraduate training);
- Research and development (health research, technology development, assessment and transfer, quality control);
- Management of a National Health System (health policy and strategy development and its implementation by action plans, information, coordination with other sectors, regulation of activities and utilization of health manpower, physical resources and environmental health services).

The main objectives of each national health system (8) should be: 1) universal access to a broad range of health services; 2) promotion of national health goals; 3) improvement in health status indicators; 4) equity in regional and socio-demographic accessibility and quality of care; 5) adequacy of financing with cost containment and efficient use of resources; 6) consumer satisfaction and choice of primary care provider; 7) provider satisfaction and choice of referral services; 8) portability of benefits when changing employer or residence; 9) public administration or regulation; 10) promotion of high quality of service; 11) comprehensive in primary, secondary, and tertiary levels of care; 12) well developed information and monitoring systems; 13) continuing policy and management review; 14) promotion of standards of professional education, training, research; 15) governmental and private provision of services; and 16) decentralized management and community participation.

Outpatient care

Outpatient care is very important part of the health care system representing the first contact of the consumer with the professional health care and the first step of a continuous health care. Outpatient care is delivered to a “moving” patient (not tight to bed), through institutions in which the consumer comes for a short visit for consultation, examination, treatment and follow-up, usually once a week or rarely, and in the most of the cases, the contact is realized with an individual health worker. Such kind of services and institutions might be a part of the hospital, community health center or certain polyclinic and dispensaries (4,12,15,17).

Historically beginnings of outpatient care appeared in 16th century, when medical care organized mainly through in-patient institutions connected to churches and monasteries started to change and move to be under the state authorities. Differentiation within the medical profession started by dividing the doctors into two basic groups: the first group continued to be tied to hospitals, but delivering also outpatient services from the position of specialists or consultants, and the other group of doctor were oriented to work in out-patient offices for poor or in doctor’s offices with advanced payment for treatment for defined period of time, usually for a week. In that way began the differentiation of the profession, which is a synonym for outpatient care – a general practitioner. An official Act on health insurance was adopted in Great Britain in 1911 and a doctor of general medicine or general practitioner was authorized as a main provider of outpatient care, usually through independent doctor’s offices for general medicine and, later on, through health centers. The importance of the outpatient care and responsibility of the governments for improving the health status of the population in their own countries was emphasized by WHO at the historical Conference on Primary Health Care, held in Alma Ata in 1978, based on the core principles of primary health care formulated in the Declaration of Alma-Ata: universal access and coverage on the basis of need; health equity as part of development oriented to social justice; community participation in defining and implementing health agendas; and intersectoral approach to health (8,19).

Primary health care is essential health care made universally accessible to individuals and families in the community by means acceptable to them and at a cost the community and country can afford, with methods that are practical, scientifically sound and socially acceptable. Everyone in the community should have access to it, and everyone should be involved in it. It means that people have the right and duty to participate individually and collectively in the planning and implementation of their health care. Related sectors should also be involved in it in addition to the health sector. At the very least, it should include education of the community on the health problems prevalent and on methods of preventing health problems from arising or about controlling them; the promotion of adequate supplies of food and of proper nutrition; sufficient safe water and basic sanitation; maternal and child health care, including family planning, the prevention and control of epidemic and locally endemic diseases; immunization against the main infectious diseases; appropriate treatment of common diseases and injuries; and the provision of essential drugs. Primary health care is the central function and main focus of a country's health system, the principal vehicle for the delivery of health care, the most peripheral level in a health system stretching from the periphery to the centre, and an integral part of the social and economic country development. The form it takes will vary according to each country's political, economic, social, cultural and epidemiological patterns. The relationship between patient care and public health functions is one of the defining characteristics of the primary health care approach (1,4,19).

Outpatient institutions and services

There is a variety of organizational forms of the outpatient care across the world. The main objective of the outpatient care is to reduce hospitalization and to provide treatment of diseases and injuries in much cheaper conditions, whenever it is possible. The outpatient departments of hospitals were the first institutions described which are still available nowadays. They provide services in some urgent and life threatening conditions, in some acute diseases that require urgent intervention, in chronic diseases that require follow-up and control measures, as well as act as a referral level for primary health care or make decision for hospital admission when necessary.

The reorganization and reform of the outpatient care, after establishment of the Ministry of Health in Great Britain, in 1919, was directed toward creating a new institution of outpatient care so called Health Center. Health Center, in accordance with the Bertrand Dawson’s Commission for health care reform in Great Britain in 1920s, is an institution which is responsible to integrate preventive and curative activities, to provide health care to the population living within certain territorial units, and to collaborate with the local authorities for all issues related to the health of the population. Additional equipment for laboratory and x-ray diagnostic services within the health center should be available, as well as general practitioners and nurses for team work. And, later on, in 1948, when National Health Service in Great Britain was established, the general practitioner became the most important gate-keeper at the entrance to the other levels of health care system. The development of health centers in Great Britain was facilitated by the act on family doctor, adopted in 1966. The idea for establishing health centers for outpatient care was accepted in many European countries, especially in former Soviet Union after the Bolshevik Revolution (2,8).

After the Alma Ata Conference, held in 1978, Primary Health Care became more and more important part of the health care system in each country – member of WHO. Even health services continued to have various organizational forms in different countries the health center was the most typical institution for outpatient care.

The institutions for Primary health care have special importance playing a role as institutions of the “first contact” of the patient with health care system. Beside primary medical services those institutions contribute to maintain and improve overall physical, mental and social health and well being of the individuals, groups and of the population as a whole. The institutions for primary health care provide individual and group practice/services delivered through health centers or independent outpatient doctor’s offices, as well as within the home of the patient, school and workplace.

Consultative-specialist health care is an intermediary level of providing health care, between primary health care and hospital treatment, where in the shortest period of time all necessary examinations and analyses should be performed, and a decision should be made whether the patient is going to be referred to hospital treatment or sent back to the level of primary health care, usually with precise diagnosis and certain directions for further treatment.

Home care or "hospital at home" is treatment at home of the diseased, which includes examination, diagnostic procedures, therapeutic and rehabilitation measures. Home care, as alternative of in-patient/hospital/stationary treatment, is a combination of medical and non-medical treatment and a factor that connects primary and hospital health care. It should be conducted in an organized way by hospitals and in accordance with certain programs, which in addition to health service include other factors, such as: social protection services, children's public care, health insurance and pension-invalidity insurance funds as well as local communities. Home visiting by a doctor and medical technicians in the function of home care should be performed in a series and successively, according to a program defined by the same physician, and keeping evidence should be performed on special hospital-temperature lists, which are going to be a base for compensation of the performed tasks and services. Several researches have demonstrated that for about 30%, or even more, of the treated patients in hospitals there were no real indications for hospital treatment, which means that their treatment could successfully be conducted through introduction of "substitution policies" i.e. day care hospitals, ambulatory care or organized home care by hospitals if there is satisfactory standard for accommodation of the patient at home, under supervision of the team for primary health care (4,6).

Home visiting by a doctor and medical technician considered as an “emergency medical service” is performed without formerly determined plan and on a patient's call and are shown as individual services through ambulatory protocols and reports for the performed home visiting.

In-patient care and institutions

In-patient/hospital care means admission into hospital or other stationary health organization, including diagnosis, treatment and rehabilitation, with in-patient care and treatment of the most severely ill patients who cannot be treated in ambulatory-polyclinic institutions or at home. Stationary health organizations are institutions, which, in addition to supplying diagnosis, treatment and medical rehabilitation, also provide hospital accommodation, treatment, care and food. They include hospitals, nursing homes, health resorts and rehabilitation centers. Hospital is a health organization which provides consultative-specialist health care and hospital in-patient care with accommodation, treatment and food for the patients in a certain area and for more types of diseases and for persons of all ages, or only for persons diseased from certain illnesses, or for certain group of citizens (4,12).

Hospitals have been present in a variety of forms for millennia. Almost 5,000 years ago, Greek temples were the first, but similar institutions can be found in ancient Egyptian, Hindu, and Roman societies. These “hospitals” were very different than the hospitals of today, and over the span of time they have gone through a dramatic evolution from temples of worship and recuperation to almshouses and pesthouses and finally to sources of modern-day health in-patient institutions (5,12). In late 1980s (quasi-) market model had been promoted in UK with purchaser-provider split and contracting services from competing hospitals. Many of these ideas were picked up by policymakers in South East Europe (SEE) and over the past two decades the health systems in SEE have undergone far-reaching reforms, triggered by the search for more effective and efficient health care provision (20).

Hospitals are institutions whose primary function is to provide diagnostic and therapeutic medical, nursing, and other professional services for patients in need of care for medical conditions. Hospitals have at least six beds, an organized staff of physicians, and continuing nursing services under the direction of registered nurses. The WHO considers an establishment a hospital if it is permanently staffed by at least one physician, can offer in-patient accommodation, and can provide active medical and nursing care (8).

By convention of common use a general (community or district) hospital is an acute care hospital that provides diagnoses and treatment for patients with a variety of medical conditions or for more than one category of medical discipline for general medical and surgical problems, obstetrics and pediatrics. The title is used whether the hospital is not for profit or for profit. A general hospital provides permanent facilities, including

inpatient beds, continuous nursing services, diagnosis, and treatment, through organized professional staff organization, for patients with a variety of surgical and non-surgical conditions. This is in contrast to special hospitals, which admit only certain types of patients by age or sex, or those with specified illnesses or conditions. Such type of hospitals are children's, maternity, psychiatric, tuberculosis and chronic disease hospitals, as well as geriatric, rehabilitation, or alcohol and drug treatment centers, which provide a particular type of in-patient services to the majority of their patients (5,8).

Hospital bed is any bed that is set up and staffed for accommodation and full-time care of in-patients and is situated in a part of the hospital where continuous medical care is provided. A bed census is usually taken at the end of a reporting period. The supply of hospital beds is measured in terms of hospital beds per 1000 population. This varies widely between and within countries. Increasing or decreasing/closing of hospital beds is one of the difficult and controversial issues in health planning and health policies. It is even more difficult and painful procedure to close redundant or uneconomic hospital beds, because this means a loss of jobs in the community unless coupled with transfer of personnel to other services. Total beds per 1000 population include all institutional beds utilized for in-patient medical care, but not geriatric custodial care. Acute care bed ratio is a more precise and comparable indicator representing the number of general, short-term care beds per 1000 population.

Hospitals are increasingly technologically oriented and costly to operate. Hospital services in the European Region underwent considerable expansion in during the 1960s, 1970s and the beginning of the 1980s but have since experienced increasing difficulties. Managing health systems with a fewer hospital days requires reorganization within the hospital to provide the support services for ambulatory diagnostic and treatment services as well as home care. The interaction between the hospital-based and community-based services requires changes in the management culture and community-oriented approaches. Many developed countries are actively reducing hospital bed supplies, facilitating alternatives to hospital care, using incentive payments to shorten the length of stay by increasing the efficiency in diagnostic procedures, decreasing unwarranted surgical procedures and adopting less traumatic procedures, and to promote day-hospital treatments, ambulatory and home care. In the more eastern part of the Region, the very large number of hospital beds (a legacy of health care policy in the past), combined with a severe economic crisis during the 1990s has created an extremely difficult situation characterized by dilapidated buildings, worn-out equipment, lack of basic supplies and a financial inability to profit from new breakthroughs in hospital technology (6). During 1980s and 1990s in USA, especially in California, an intensive process of mergers or acquisitions of for-profit hospitals took place aiming to increase organization's capacity, financial viability and efficiency of the new unit, and ability for competition in its current markets (8, 21).

Classification of hospitals

Hospitals are classified in several ways by: length of stay, type of service, and type of control or ownership, as well as size of the hospital (4-6,8,12,14).

Length of stay is divided into acute care (short term) and chronic care (long term). Acute care (of short duration or episodic) is a synonym for short term. Chronic care (or long duration) is a synonym for long term hospitals. Short-term stay hospitals are those in which more than half of patients are admitted to units in the facility with an average length of stay shorter than 30 days. Long-term stay hospitals are those in which more than half of patients are admitted to units in the facility with an average length of stay of more than 30 days (7). The most of hospitals are short term. Community hospitals are acute care (short term). Rehabilitation and chronic disease hospitals, nursing homes and hospices are long term. Psychiatric hospitals are usually long term. Some acute care hospitals have units to treat acute psychiatric illness. Hospitals in the European Region now often serve both acute and chronic patients, but these two categories need to be better differentiated in order to optimize the use of resources and staff expertise (6).

Day care hospitals provide stay and treatment of patients during the day-time in the premises of the hospital, not including accommodation for lodging. Day care hospital is an important novelty in the hospital treatment, which has positive social, psychological and economical implications, if its work is adequately organized. There are three main types of day hospital: 'day treatment programs', 'day care centers' and 'transitional' day hospitals (4,6,14,22).

Types of service denote whether the hospital is "general" or "special". General hospitals provide a broad range of medical and surgical care, to which are usually added the specialties of obstetrics and gynecology; rehabilitation; orthopedics; and eye, ear, nose, and throat services. "General" can describe both acute and chronic care hospitals, but usually applies to short-term hospitals. "Special" hospitals offer services in one medical or surgical specialty (e.g., pediatrics, obstetrics/gynecology, rehabilitation medicine, or geriatrics) or treatment to certain diseases or groups of diseases (TBC, psychiatric diseases, heart and lung diseases etc.). Although special hospitals are usually acute, they may also be chronic. A tuberculosis hospital is an example of the latter. University hospital as a special or specialized health institution for the education and training of health manpower with secondary and advanced training in health with university degrees in medicine, medical research and specialist treatment of in-patients (4,12).

A third classification divides hospitals by type of control or ownership: for profit (investor owned), or not for profit, governmental (federal, state, local, or hospital authority), religious or voluntary organizations.

Functions of hospitals

The basic function of acute care hospitals is to diagnose and treat the sick and injured. The nature and severity of a patient's illness determine the care received and, to some extent, the type of hospital in which it is provided. Care might be delivered on an in-patient or out-patient basis. All acute care hospitals treat the sick and injured. Their emphasis on the other functions noted here depends on organizational objectives (5).

A second function is preventing illness and promoting health. Examples are instructing patients about self-care after discharge, referring them to other community services such as home health services, conducting disease screening, and holding childbirth and smoking cessation classes. The competitive environment has caused hospitals to mix illness prevention and health promotion with generous amounts of marketing.

A third function is educating health services workers. Physician education in residencies and fellowships is common. Acute care hospitals train staff such as nurse aides who will work in them. Clinic is a health organization that performs sub- or super-specialist health care in certain field and educational activities, professional training of health workers (medical students, physicians in specialist training, and others highly qualified health professionals) and scientific-research activity. The clinic performs the most complex types of health care from a certain medical branch, creates and carries out professional and medical doctrinaire criteria from their field and offers professionally-methodological help to the health organizations from the related medical branch or dentistry.

A fourth function is research. Clinical trials for new drugs and medical technology, assessing the procedure and quality of care, patient satisfaction surveys, and others are the most common researches in the hospital.

Conclusion

Health care delivery system is the organized response of a society to the health problems and needs of the population. Countries differ considerably by the levels of income and economic potential, diversity of health problems and needs, the way they organize their response, as well as in the degree of central management, sources of financing and control of their health care system regarding coordination, planning and organization. The quality of healthcare system is expressed through coverage, access, equity, but also efficiency in use of resources, and financing. Healthcare systems are facing new challenges, among them are aging of the population, widespread lifestyle risk-factors and growing burden of non-communicable diseases, new medical technology, innovations, increasing costs, lack of community involvement and intersectoral cooperation and actions. Substantial changes in the health systems are necessary to be implemented with greater role of the primary health care, increasing the efficiency by market forces and the use of economic incentives for providers of health care.

Exercise: The role and organization of health care system

Task: Students should visit www.observatory.dk to become familiar with different Health Care Systems and actual reforms initiatives. Students are encouraged to write drafts describing HCS in their respective country or district.

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title	Management cycle: from planning to evaluation
Module: 1.2	ECTS (suggested): 0.3
Authors	Luka Kovacic, MD, PhD, Professor Andrija Stampar, School of Public Health, Medical School, University of Zagreb Zelimir Jaksic, MD, PhD, Professor Emeritus Andrija Stampar, School of Public Health, Medical School, University of Zagreb
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Keywords	Evaluation, health management, health planning, management cycle.
Learning objectives	After completing this module students should: <ul style="list-style-type: none"> • know to list the elements and their characteristics of the management cycle; • be familiar with the steps of the cycle; • be familiar with the content of elements of the cycle.
Abstract	The planning process in health care known as management cycle or cycle of organization and management is described. The cycle is divided in four main elements: planning, organization, implementation and evaluation. Each element is defined and described.
Teaching methods	Introductory lecture, small groups work, individual work and panel discussion.
Specific recommendations for teachers	<ul style="list-style-type: none"> • work under teacher supervision/individual students' work proportion: 50%/50%; • facilities: a computer room; • equipment: computers (1 computer on 2-3 students), LCD projection equipment, internet connection, access to the bibliographic databases; • training materials: recommended readings or other related readings; • target audience: master degree students according to Bologna scheme.
Assessment of students	The final mark should be derived from the quality of individual work and assessment of the contribution to the group discussions.

MANAGEMENT CYCLE: FROM PLANNING TO EVALUATION

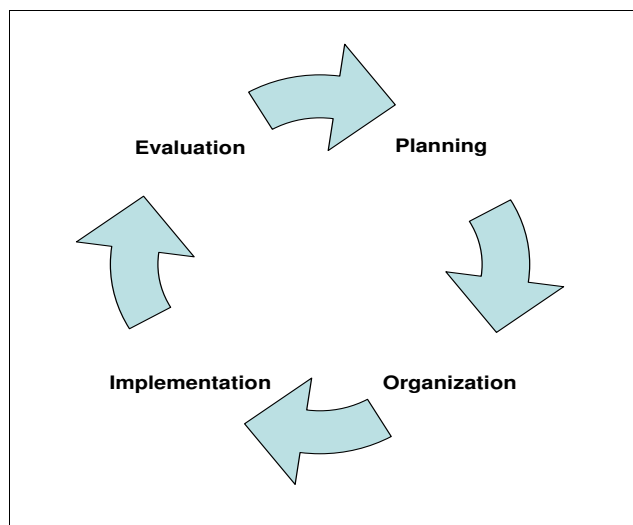
Luka Kovacic, Zelimir Jaksic

Theoretical background

Introduction

Health care is a set of measures, goods and services designed to promote health, including “preventive, curative and palliative interventions, whether directed to individuals or to populations” (1). In order to maximize effects and minimize cost of applied measures health care should be planned. The planning process includes several steps making a cycle. The cycle is known as management cycle or cycle of organization and management. The health care planning cycle could be divided into different number of steps or elements, depending on the level on which the health care is organized. Here are presented four main steps for the illustration of the management cycle (Figure 1).

Figure 1. Four main elements of the management cycle



In each step there are several functions, and the cycle can be divided into more elements. Each step has specific characteristic and tasks of those involved in the step of the cycle. In different parts of the cycle different actors are involved. Elements of the cycle follow each other, some tasks are common for two or more cycles and some are overlapping, which makes the health care system very complex.

Planning

Although in reality, at one moment in time, the planning cycle could be in the different steps, for the purpose of the training we will start with the **planning** step.

In this first step the main task is setting aims, defining the goals, identifying health problems, selecting priorities among them and choosing the strategic course of interventions. This is the task of **health policy** and the process is usually done on country or province level.

This step of the cycle is based on the careful analysis of present health situation, on health situation assessment, which could be also a separate step in the cycle. Good and comprehensive diagnosis will lead to effective and efficient intervention.

In this part of the political process the economic possibilities and constrains should be analysed, political interest of different social and professional groups taken into account, feasibility of health care services calculated, and other elements must be analysed and taken into consideration. This political process is responsibility of representative and/or political bodies (parliament, government, political parties).

Health professional organizations (or their representatives) are usually involved (chambers, association of health workers, etc.). From technical point of view the outcome of this part of the cycle should be a set of indicators and milestones to be reached in certain a period of time (short-term, middle-term or long-term period). The indicators are set up mostly as aims and goals for the region, state or larger region for longer periods of time, while objectives and targets are set up for smaller areas and shorter periods of time. It is important to set up the

level of indicators which are realistic and reachable in a defined period of time to prevent social disappointment in the future when planning time will pass.

To come to the reachable and realistic level of health indicators it is recommended to analyse the situation in neighbouring countries and countries with similar economic and social situation. Besides the set of health indicators in this part of the cycle it should be also defined the main strategy (e.g. support the primary health care, introduction of DRG system, implementation of screening programs for certain diseases, share of GDP for health, etc.), involvement of citizens in decision making process, and other important issues.

In this step of the cycle all actors should understand their role and responsibility, should be familiar with the planning process and work together with all political actors. Public health professionals should explain and inform them, and not take their role in defining aims and goals instead of them.

Once health policy is defined, the health managers are responsible for achieving it through the next steps, **organization, implementation and evaluation**, usually on a lower level of the country's organizational structure, district, county or municipality.

Any health planner faced with the task of formulating long term goals, objectives and setting targets needs some assessment of the present situation, some description of the point he is to regard as starting point, and some knowledge of the processes which have led to the present situation.

The **planning and programming** is a part of the management circle dealing with arrangement for carrying out some **future** activity. From the viewpoint of management it is an unavoidable and everywhere existing part of the managerial process. Often we are not conscious of it, as in planning some routine everyday activities. On the other side it is a major formal procedure involving many people to work together and even prescribed by laws and regulations.

The meaning of words planning and programming is practically the same and used interchangeably, however, to a certain extent there is a different connotation. The word programming comes from a Greek word and is more underlining contents and goals of future activities. The word planning is originally a French word and is underlining different arrangements of resources, time, etc., necessary for implementation of future activities. Considering hierarchy of these terms in technical jargons one will find that the word program is used to define the goals and orientation defined at the highest level, based on what plans are designed. There is for instance program of a political party, of a president or prime minister. That program will be later elaborated into plans. Some groups of experts might feel that planning is indicating a higher level than programming, because usually the state plans are further elaborated into programs of different organizations and institutions. Actually both groups are right. To avoid misunderstandings in the national managerial process, the WHO avoided the use both terms and preference was given to programming. The programming could be split in the three sub-processes: **the broad programming, detailed programming, and plan of action**. These words distinguish also three phases in the process of planning.

One has to differentiate:

1. Choosing and defining objectives along with the given policies and strategies (the closest is the word programming or broad programming);
2. Arranging ways and means of activities to reach objectives and targets under given conditions (the closest are the words planning or detailed programming);
3. Detailing and scheduling of activities (plan of action).

Broad programming can be described as translation of health policies into strategies for achieving clearly stated objectives.

Detailed programming is conversion of strategies into technology, manpower, infrastructure, financial resources and time required to implement programs.

Plan of action is formulation of lines of action to be taken by different subjects.

The desired end-states (outcomes) are defined as goals, objectives and targets.

Goal is the most general, not constrained by time and existing resources, rather descriptive than quantified, not necessarily attainable, but an ultimate, desired state expected as a result of a policy or broad programming.

Objective is the intermediate, specified in time, usually measurable and attainable end-result expected of broad or detailed programming.

Target is the most specific, measurable with precision in short-term periods, useful as an indicator for monitoring the detailed program achievements. They may be used in different horizons of time as milestones along the way toward an objective.

The planning/programming process varies according to circumstances in which it is carried out so that several classifications are possible. Among the most important are classifications by:

Subjects who perform planning:

- central planning/programming;
- decentralized planning/programming;
- participatory planning/programming;

- convergent planning/programming.

Period for which it is envisaged (horizon):

- long-term or perspective (10-20 years);
- medium-term or strategic (5-10/ years);
- short-term or tactic or operative (1-3 years).

Basic orientation in resource allocation:

- input planning (oriented towards existing resources);
- impact planning (oriented toward end-results);
- output planning (oriented toward processes, e.g. work of health services);

There are numerous inter-relations and combinations of different types of planning/programming. For instance, the central national plans tend to be long-term or at least strategic. They are also more oriented to impact and development of inputs, than to outputs.

According to circumstances the middle-level managers perform planning (programming) in a special way, differently from national as well as grass-root managers.

Specific characteristics of middle-level (regional, district) planning/programming

Specific characteristics of planning the middle level are:

- short-term horizon;
- input (resource) orientation;
- intuitive solutions of complex problems;
- flexibility;
- detailed planning;
- stress on implementation;
- community participation;
- reserve for interventions in unpredictable crises.

It depends on the socio-political situation and administrative arrangements in each particular place how many decisions and in which areas are given to the middle-level management. In a decentralized system there will be more freedom and that will be reflected in deciding on targets and allocation of resources. In a centralized system the planning would cover mostly detail scheduling of activities and distribution of tasks and duties. However, in both situations the result of planning is formulated as **plan of action** and has the same elements.

The format of the plan of action has 10 elements. The format is usually prescribed by rules and regulations, but essentially they include always the same elements:

1. objectives and targets;
2. covered population;
3. legal and administrative requirements;
4. specification of activities to be performed;
5. time-table for their implementation;
6. budget;
7. manpower (incl. recruitment, training, management);
8. constructions, transport, equipment, supplies, logistics;
9. evaluation and monitoring;
10. information support.

The effective planning is negatively influenced by **obstacles and constraints**. **Obstacle** is a created difficulty preventing the planned activity. It is mostly created by an opposing interest group and often is an expression of political conflicts or tensions. **Constraint** is a set of limits due to economic, social, administrative, professional and cultural conditions. They are common in all levels of management, but the following are quite typical for middle-level planning either because of imposed limitations or poor knowledge and motivation of local planners:

- poor data analysis;
- priority given to centrally planned (vertical) services;

- orientation to services and not to communities;
- limited powers in allocation of resources;
- competition or poor cooperation with other sectors;
- strong influence of “local authorities”;
- limited influence on infrastructure (training, logistics etc.).

The circumstances in which we assume that future activities will be performed are determining **feasibility of our plans**. Feasibility has the same meaning as possibility. A plan is feasible when we have the power and resources to implement it, to make it possible. The examination of feasibility is done in a systematic way, scrutinizing all possible obstacles and constraints.

Priority setting

Priority setting means that the different problems are listed according to priority. It is an important task as not all problems can be attacked simultaneously. The setting of priorities requires the planner to formulate the criteria own wishes to use when choosing priorities. Very elaborate lists of criteria do exist, but each planner does well to establish his own criteria. However some criteria often used are:

- the size of the problem (in terms of people affected by the problem);
- the severity of the problem (how serious is the problem affecting people);
- the inter-linkage of the problem with other problems (what are the chances that attacking that problem will also influence and diminish other problems);
- the cost-effectiveness of the measures likely to attack the problem;
- the technical feasibility of attacking the problem;
- the trend in the size of the problem (is it an increasing problem or a problem which is already on its way to diminish by itself).

When all criteria have been chosen, the planner has to decide for himself whether he considers all his criteria equally important or not. In other words, he has to give relative weight to his criteria. Only after this weighing has been done (e.g. with the aid of a simple numerical scale ranging from one to three, or by expressing it in %), the rating of the problems (again by putting them in a scale, according to the different criteria can be undertaken. The process of rating the problems in order of overall priority finally gives the planner the final picture, the comprehensive diagnosis.

Although this numerical rating is a helpful tool for the planner, he is advised to check with his own feelings whether, after the whole process the outcome is consistent with his intuition.

Just as in clinical medicine, the more comprehensive the diagnosis can be established the more it will be possible to perform an effective and causal therapy. Treating hypertension with drugs lowering the blood pressure is not as effective and causal as combining this with reducing the patient's overweight, changing his diet and trying to diminish the stress in his life. In health planning this is even more so. The processes and factors linked to health are complex, the time spans during which decisions have their consequences are long and usually a considerable number of people are affected by the decisions and significant amounts of resources are involved. A wrong or superficial “symptom diagnosis” like “a shortage of hospital beds” can divert and mislead the planner from the real underlying causes and withdraw valuable resources from essential causal measures attacking the roots of the problem like preventing diseases or treating these at earlier stages.

Yet unfortunately, even when they know the comprehensive diagnosis, health planners must content themselves with symptomatic measures because the measures necessary to eliminate the underlying causes are beyond their direct control. Even in these cases, however, knowledge of the comprehensive diagnosis is essential for the health planner. It enables him to proportionate his symptomatic measures and to enter the dialogue with those whose influence is closer to the roots of the problem.

Diagnosis without consequences is useless and costly, consuming time and resources. However, both in clinical and in administrative health work, an un-proportionally big effort is often spent in diagnostic procedures, without adequate influence in practice. Either the diagnosis is “overdone” (more examinations, data, etc. than necessary for decision), or the proposed solutions are not relevant (because available resources and other general conditions do not permit their application).

Because of that, during the diagnostic procedure the probable outcomes and consecutive interventions have to be envisaged (tentative diagnosis, alternative solution, hypotheses). In real life an inseparable part of diagnostic thinking is what one has to do later: how to help a patient, or, which strategy to choose in controlling an epidemic. Contemporary research has shown that a manager, similarly to a doctor or other health worker, will come to better diagnosis if:

- he/she during examination keeps in mind the **wider range of possible measures** to be taken after diagnosis;
- he/she is critically analysing **existing opportunities and constraints (feasibility)**;

- he/she is **flexible to play with concepts**, relations and combinations of facts even if it appears strange, unusual and “lateral”.

A good manager needs an openness, “brain-storming” initiative, and creativeness together with a strict, critical and logical internal evaluation of facts: a combination of imagination and realistic experiences, initiative and hierarchical discipline, together with a clear vision of goals.

Intervention

Intervention means interfering with the usual, “natural” course of events. Often the diagnostic process by itself makes the first part of intervention. For instance an epidemiological survey is at the same time a health education activity. Intervention means a change. How intensive and deep that change will be, is determined by the intervention model we have to use.

Listing of all possible interventions or actions which can help in counteracting each of the problems listed in earlier step. It is useful to indicate also at which level each action should be undertaken (national, provincial or local level).

Selection of those interventions which are likely to have influence on as many problems as possible and which can be considered as technically feasible. These can be regarded as the “building blocks” for the strategy.

All selected interventions are now grouped in a logical time-scale in which levels and “critical pathways” are indicated.

Critical pathways indicate the sequence of different interventions which can only be realized in one given order. For this purpose it can be used scheduling and network planning techniques such as Gantt chart, PERT, CPM and others.

Organization

In this part of management cycle the manager has to deal with an **organization as a process**, and an **organization as a structure**. The organization as a process is the arrangement of parts which form an effective whole. The organization as a structure is a group of people with a special purpose, e.g. a unit of health services, an institution.

The organization may be regarded as an open dynamic **socio-technical system**. It is a dialectical relation of a given technology and social aspects of its application, i.e. work connected with that technology (division of labour, relations toward means of production, inter-personal and group relations). Because of that, the organizations of the health units with different types of technology have different work relations and different organizational problems. For instance, a big hospital in comparison with a health centre.

The organization may also be regarded as having different characteristics due to size, level of complexity and phase of development. Macro-organization deals with big overall systems, and micro-organization with small units (e.g. a rural hospital or a district health centre). In every-day life expressions such as “young organization”, “traditional organization”, “handicapped organization”, etc. are used and they indicate the lively social dynamics of organizations.

Organizing implies the ability to coordinate activities necessary for implementation in such a way that:

- the right things are done;
- in the right place;
- at the right time;
- in the right way and
- by the right people.

To reach that, a manager has to observe:

1. **Objectives** - each group of tasks in an organization must have an objective that contributes to the main objective/s of the organization, the system or the program;
2. **Definition of tasks** - each group and individual must have clearly defined tasks so that everyone knows exactly his tasks and duties;
3. **Command** - each group must have one person in charge and all concerned must know who this person is.

There are a several important rules related to command:

- Responsibility - the person in charge is responsible for the performance of the people in his group;
- Authority - each person in charge of a group must have authority equal to his responsibility;
- Span of control - no person in charge of a group should be expected to control more people than his knowledge, time, energy and effectiveness permit (1:5 - 15);
- 4. **Balance** - the person in charge of several groups must see that the groups' interests, opportunities and conditions of work are in balance.

Evaluation

Evaluation could be simply defined as “**finding out the value of something**”. The terms to assess or to appraise have the same meaning.

Evaluation is a systematic process of assessing the extent to which an action achieved its objectives and/or to which extent it is regarded as beneficial. This broad definition includes two possible types of evaluation: the one in which the objectives are not well specified in advance (close to general goals or aims) and the second in which objectives are predetermined explicitly (close to targets). In both situations the information generated by evaluation is serving as a feedback to planners and concerned about future activities.

The evaluation process consists of:

1. comparing the objectives and outcomes of activities; and
2. adding a value judgment to obtained results.

The value judgment is based on objective findings, but also takes into account complex set of factors influencing results, consider marginal opportunities and benefits, and apply the value system of those who perform evaluation. In this way evaluation is a combination of objective finding and subjective (moral, political) interpretation. Obviously it is most important who is doing evaluation and why. For instance, if evaluation of health services is done only by health administration the result may differ from those by users. The second important consequence is that the process is not completely “objective” and “scientific” as it is usually suggested in managerial text books.

The comparisons of predetermined objectives and obtained results may be considered as objective but it cannot cover the whole range of evaluation in health care. The question is who is predetermining the objectives, and how one is judging the difference between findings and objectives. For instance, the budget for operation of primary health care units in a district was not completely used and 10% of “savings” are accounted. There are several possibilities in evaluation of that finding:

1. It may be regarded as very positive (e.g. by district health authorities), because the savings are considered as results of better organization of work;
2. The results could be judged as negative (again by higher health authorities), because “savings” are result of acceptable, but incomplete, fulfillment of requirements;
3. The results may be regarded as negative (e.g. by users), because the work of health units being poor quality and “cheap”, below of expectations;
4. It could be regarded as positive (e.g. by local health workers), because health outcomes measured as change in infant mortality rates shows improvements. The question is which position we will take in evaluation. All may be right to a certain extent. In principle, the right decision should be based on understanding the main purpose of evaluation, i.e. the future improvements of health care.

Evaluation should be a continuous process, but for practical reasons it has to be summarized and reported at given times and specified intervals, coinciding with data collection routine, preparation of new plans, new budgeting periods and similar. For narrow operations and programs it will be more frequent (weekly or monthly), for national policy formulation every 3-5 years.

In routine activities the evaluation has to be done in specified regular intervals, as part of monitoring activities. Besides, it is recommendable from time to time to have a review, a comprehensive (“in dept”) evaluation.

In special projects and when new activities are introduced the evaluation should be applied when plan is completed (**preliminary evaluation**), based on a theoretical consideration of probable outcomes), during the implementation (**process or formative evaluation**), and at the end (**final or outcome evaluation**).

The comparison of findings is the most important part and basis for value judgments. In most cases it will be the comparison with expected, planned and predetermined targets. In some cases, and also as a useful addition, two further types of comparisons are useful: the before/after comparison (comparison with findings obtained last time, e.g. last year, or obtained before start of the activities we would like to evaluate), and the comparison with other areas, where similar activities have been undertaken.

The measures used in evaluation are based on relation between main elements of the working process. The main elements are needs, input, process, output and outcome.

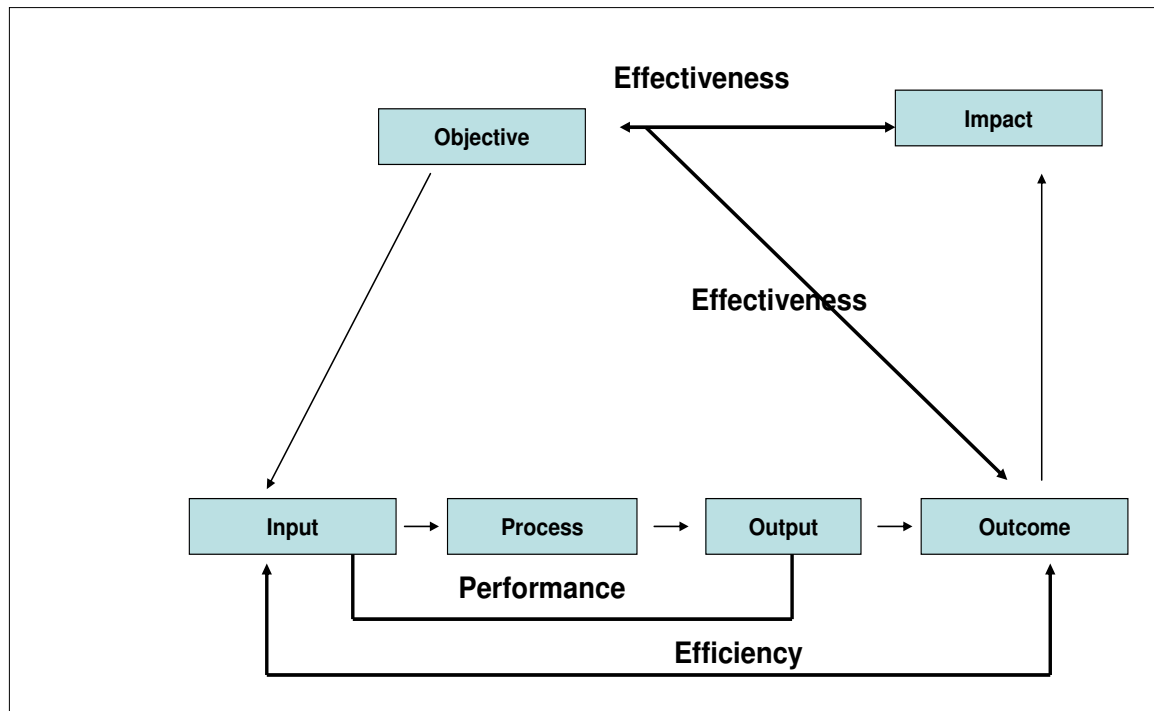
In the process of health services it is particularly important not to mix output and outcome. Output is the product in terms of services, supplies etc., and outcome is the effect or result of these services.

The most frequently used measures in evaluation, specified as indicators, could be grouped into the following groups and describe the specific results of health services:

Relevance is assessed by relating needs and outcomes. It should answer the question: Does the working process satisfy the needs? Relevance is one of the most important indicators, the very basic one, because if health services do not satisfy real needs, all other measures are irrelevant, or change their meaning. For instance, if we evaluate some laboratory procedures we may come to conclusion that they are effective and cheap in identifying a

disease (e.g. malaria), but this is worthless and even very costly if applied in situation with no malaria. Relevance is most important in evaluating the costly high-tech procedures, but it is rarely done.

Figure 2. Relations between main elements of the health care process (adapted from Wollas)



Adequacy relates output of services with needs. The relation can be observed in terms of type (kind) and quality (appropriateness) and in terms of quality (sufficiency). The indicator should answer z.

The question is if there are right and sufficient services provided to satisfy needs. For instance, the adequate immunization would mean that sufficient number of children (e.g. 85%) were immunized in an appropriate way with fully valid vaccines. In this case even three factors are important: quality, quality of work, quality of vaccine.

Coverage is measuring population covered by services, and can be regarded as a special case of adequacy. It is a complex measure close to sufficiency. Needs are expressed as number of people who need and/or demand different services (formal coverage), or who actually utilize services (actual coverage).

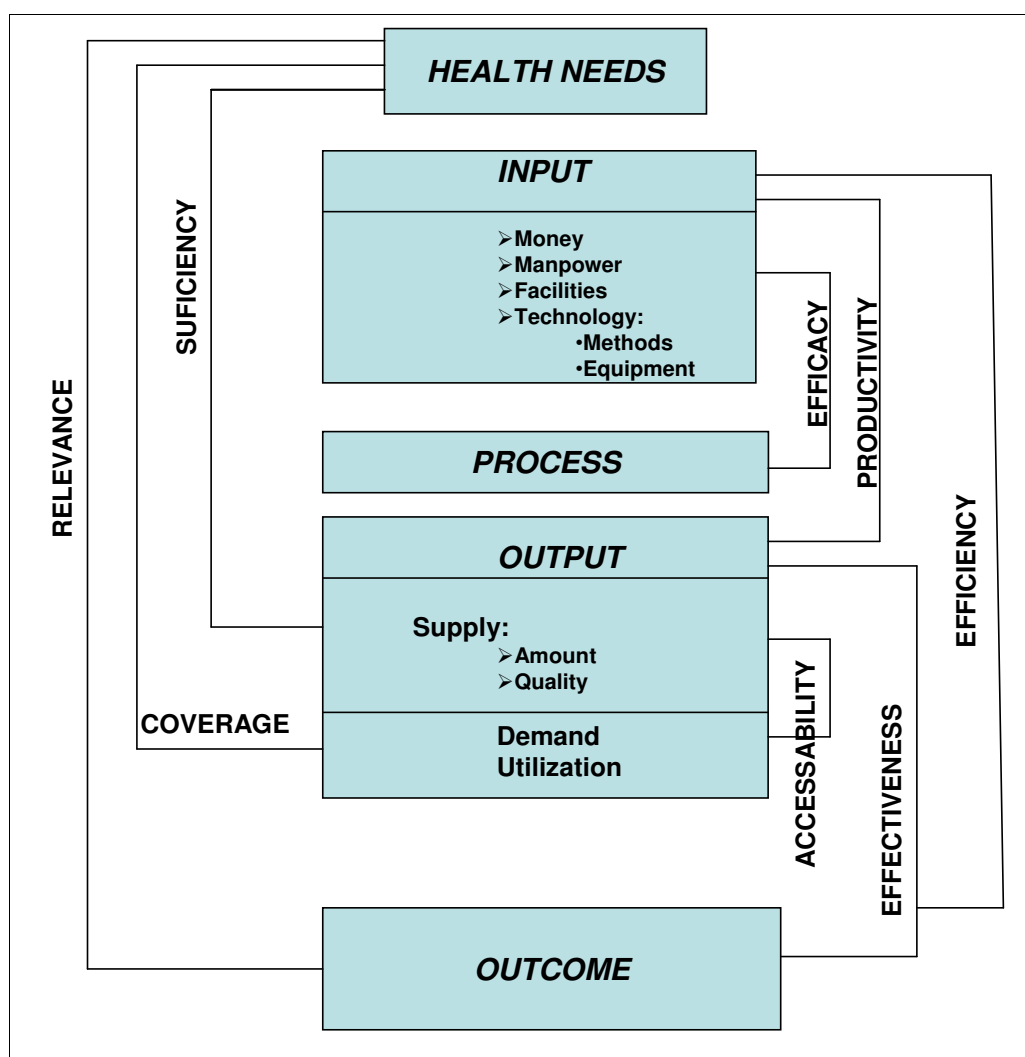
Coverage may be expressed in terms of total population, population having particular risks, certain population groups (social, professional, etc.), or defined territory (people who live in defined territory).

While coverage is a measure of formal nature, in real life situation, 3-A indicators would demonstrate what extent to which coverage is transformed into utilization is.

Accessibility is answering the question to which extent and which services can be physically reached by people. The reason why people do not use services might be that services do not exist (**availability**). Among barriers of different kinds, one most important is that people may not utilize available services because they are too costly (**affordability**).

Effectiveness is measuring the desired effect of services, relating output and outcome elements of the working process. It is answering the question: Providing these services, how much will be reached of the desired health effects? For instance, by finishing the program of health education on health diet, how much will be changed regarding dieting and nutrition of the community. After screening a population for cancer, how many new cases will be discovered in right time for treatment. Effectiveness usually has a technical connotation. How effective are drugs or diagnostic procedures and tools, but it can also be used in a managerial meaning when we speak about organization. For instance, how effective is a hospital, or health centre, or epidemiological services.

Figure 3. Measures for evaluation in the health care process



Special case of effectiveness is **efficacy** which is defined as effectiveness in real life situation. For instance, if a drug is very effective under experimental conditions, it does not mean that it will be as effective when applied in a rural hospital or at home. Or, a screening procedure applied in different population groups will not give the same effect.

Efficiency is related to the use of resources, and the term has primarily a managerial connotation. It has to answer the question: How much of the resources have to be used to reach the planned level of effectiveness? It relates input to output.

Efficiency is the major managerial tool. It includes all types of resources like financial, human, technical, and also time. For instance, we will tell that a service is more efficient either if less financial or other material resources are spent, or the work is done in less time, or by less people. Efficiency is the starting point to be specified as financial, organizational or other efficiency. However, all different factors are often translated into financial terms and expressed as cost.

There are two additional indicators of general nature on relating the observed activity (working process) as the whole in the relation to time and to the environment:

1. **Impact** is measuring the effect of evaluated activities on broader issues, the environment, on the overall health development, health status of the whole community and on related social and economic productivity, demographic changes etc.;
2. **Progress** is an indicator used for assessing development of project or services in relation to time. The question is: What are the changes occurring during the last year in terms of meeting project deadlines, but also other improvements of services, coverage, etc.? It is an important measure of overall development in time, and not only control of planned schedule.

The evaluation is part of the control and administrative procedures, but it has to become also a contribution to technical improvements and social changes. This will be achieved only when the comprehensive

evaluation is done in a participatory way, including into the process users, people and communities, and on the other side health workers whose work is evaluated, technical experts and professionals.

The evaluation has an impact on those whose work is evaluated, which is not always what was intended. Insisting on utilization of formal and objective data will pretty soon produce expected type of report, regardless of what is happening in real practice. Data have to be used only after double checking and careful interpretation.

Exercises

Task 1: Selection of goals, objectives and targets

From WHO or other Data base select several indicators which will respond to goal, objective and target. Find their values as millennium goals, Europe, own country, district or county. Put the value in the table below. Discuss them in the group.

Indicator: _____

	Source	Goal	Objective	Target
Millennium goal				
Europe				
Own country				
District or county				

Indicator: _____

	Source	Goal	Objective	Target
Millennium goal				
Europe				
Own country				
District or county				

Indicator: _____

	Source	Goal	Objective	Target
Millennium goal				
Europe				
Own country				
District or county				

Task 2: Priority setting

In order to propose the new screening program in your country in a situation with limited resources (economic and health services) your task is to select two malignant diseases (cancers) to start the screening program. To solve this task you should do process of priority setting.

1. In a small group (3-4 participants) you decide by consensus after discussion:
 - Select and list criteria for assessment;
 - Give the relative weight to selected criteria (you can use a simple numerical scale);
 - List the diseases you think that screening is a relevant intervention.
2. Do ratings (give score for each disease and criteria).
3. In the same small group:
 - Compare your scorings;
 - After discussion construct the new scoring table (use consensus);
 - Select two diseases for the screening program;
 - Write comments (what additional criteria except “objective” scorings you use for your decision);
 - Present your decision in plenary.

Criteria	A	B	C	D	E
D1					
D2					
D3					
D4					
D5					
D6					
D7					
D8					

Legend: D = Disease

Task 3: Evaluation of achievements in primary health care

Your task is to evaluate the success of health services and health workers in your district/county. You should select 1-3 indicators in order to evaluate the following categories: relevance, coverage, effectiveness, efficiency.

Indicator category	Indicator 1	Indicator 2	Indicator 3
Relevance			
Coverage			
Effectiveness			
Efficiency			

Your comments:

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Recommended readings

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title	Hospitals as part of cultural and social development
Module: 1.3	ECTS: 0.2
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Keywords	Hospital, Organization of Health Services, Public Health.
Learning objectives	After completing this module students and public health professionals should: <ul style="list-style-type: none"> • be aware of the role of the hospital in the community; • be aware of the historical development of hospital services; • recognize needs for analysis of the hospital functions; • list the characteristics of different models of organization of hospital services; • improve knowledge and understanding of the social and cultural factors of community regarding the treatment of patients.
Abstract	During the history, hospitals have been continuously changing so that diversity is one of their main characteristics. Being a part of a local culture, they reflect local and general global trends. At present, the winds of globalisation are stronger, following an overall trend in technology and economics. Changes in technologies support the pattern of “industry-like” hospital, where specialists work in their narrow fields on a production-line and might be in conflict with patient culture and expectation. With changes in population structure the need to strengthen a patient-centred and humanistic approach integrated in health care is growing.
Teaching methods	Introductory lecture, exercises, individual work and small group discussions.
Specific recommendations for teachers	<ul style="list-style-type: none"> • work under teacher supervision /individual students’ work proportion: 50%/50%; • facilities: a teaching room; • equipment: PC, internet link and LCD projection; • training materials: readings, handouts.
Assessment of students	The final mark should be derived from the quality of individual work and assessment of the contribution to the group discussions.

HOSPITALS AS PART OF CULTURAL AND SOCIAL DEVELOPMENT

Zelimir Jaksic

Theoretical background

Introduction

The future of hospitals and health services was a fashionable subject in the current discussions at the turn of the Century (and the Millennium!) (1-5). Nevertheless, it is a permanent challenge because of the complexity and uncertainties in dealing with one of the oldest social institutions, deeply rooted in every culture. History has to be called upon to recognize the role of different attitudes in development and functioning of hospitals.

The exercise is useful as a chance for critical consideration of complex facts combining three essential fields:

1. **Specific types of hospitals**
 - a. buildings
 - b. organizational structures and
 - c. managements
2. **The influence of external factors**
 - a. health needs
 - b. socio-economic circumstances
 - c. cultural patterns
 - d. scientific and technologic possibilities, and
 - e. socio-political preferences
3. **Performing essential hospital functions:**
 - a. providing care for ill people
 - b. protecting the disadvantaged
 - c. utilizing given advantages (e.g. spas or climatic circumstances)
 - d. training and teaching of health experts
 - e. scientific development and testing
 - f. societal functions such as employment and profit making opportunities.

Starting points

Speaking about types of hospitals, we should consider them in the broadest way, not only their shape and organisation, but also the main structural traits like mission and aims. In the same time it is important to consider role and position of staff and patients, relatives and wider community. The hospitals have grown out of local resources to respond to health needs and general health culture and expectations of people. They were a support of the people's social and health security, real and symbolic. However, they used to replace various types of home care and excluded ill and suffering people, temporary or sometimes permanently, out of their normal living conditions.

The diversity of types of institutions called hospitals is asking for an operational definition. We will use one which was adopted by Expert Commission on health Statistics 1963: "*A hospital is a residential establishment which provides short-term and long-term medical care consisting of observational, diagnostic, therapeutic and rehabilitative services for persons suffering or suspected to be suffering from a disease or injury, and for parturient. It may or may not also provide services for ambulatory patients on an out-patient basis*" (6).

This definition replaced an older one which was broader defining "*The hospital is an integral part of a social and medical organization, the function of which is to provide for the population complete health care, both curative and preventive, and whose out-patient services reach out to the family in its home environment; the hospital is also a centre for the training of health workers and for bio-social research*" (7).

Our exercise will just be between those two quoted definitions. Namely, the second older definition has emphasized the dominant role of hospitals inside the system of health services. No one definition is final, as hospitals are permanently changing due to health and social needs of population, available medical and social knowledge, skills and technologies to satisfy those needs, accessible resources and dominating policies in the community.

Hospitals had a glorious past (1). They will continue to fulfill certain essential needs of people being one of the strongest features of humanism, solidarity and charity, as well as of creative potentials in science and technology. However, they also have to fulfill social and cultural expectations, such as basic equity and justice of people and openness to human cultural needs ("**personal medicine**") (8).

Therefore hospital should not isolate themselves into golden tower of medical technology and segregate the patients/clients from usual habits and life in their families and communities, making them powerless objects of imposed medical rules. Hospitals' management and staff have to understand and help people and optimally help them to participate in the hospital life, readapting the rules of life in hospital, as far as it is possible, to health and social conditions of patients, their social and cultural needs. This is especially important when they are dealing with a chronic condition (9,10).

Physical arrangements and sanitary comfort are just beginnings. The daily timing of obligations, nutrition, ways of using private time and sleeping hours might be the second step. As far as local conditions permit possibilities of free movement and family visits and participation might be the most important ('open' or 'friendly' hospitals), communication with staff and other patients, sharing proper information, supporting and openly reflecting on various views and values should not only be covered by formal lectures or official religious ceremonies. The reserved space and time for private contacts with staff may help security and quality of care and fundamentally influence satisfaction of clients. Finally, exposure to art exhibition and other events of an artistic or cultural meaning (in a narrow sense), opportunities for religious meditation, physical and cultural relaxation, reading and hearing music a shortening of long hours of waiting are beneficial if are free chosen and not felt as an obligation (11-16).

There is an old saying that those who do not know their past only narrowly understand the present and envisage the future. During history hospitals were continuously changing so that diversity is one of their characteristics. Being a part of a local culture, they also reflected general wider trends. At present, the influence of globalisation is stronger, following an overall trend in technology and economics. Now they started to be even more expensive and consequently not equally affordable for different groups of population and in different countries. In extreme examples, some prestigious hospitals in many countries serve only the needs of powerful minorities, and are equipped with expensive technologies. This might be misused at the expense of relevant primary health interventions for a broader circle of poor people. Hospitals are here to stay, but appropriate "social diversity" has to be protected for the benefit of people and efficiency of resource utilisation. The inter-relation between hospitals and others forms of health and social services, and cultural role of hospitals becomes the more important point.

This is a possible reminder of hospital heritage. What may one conclude? Let us underline only general and lasting characteristics:

1. Importance, deep cultural influences and social embedding of hospital;
2. Distinct, closed and powerful structure, beyond the role as a unit of health services;
3. Diversity based on different mixtures of continuously same missions (caring for the needy, enhancing social security and quality of life of ill people, protecting community, and collecting experiences and teaching medical arts);
4. Capability of adapting to deep changes under the influence of external developments in spite of solid general structure.

Exercise

The objective is to compare different types of hospitals in a historic perspective and to recognize the differences and changes in external influences (economic, social, including cultural), and correspondingly in functions (care of patients and other clients, training and science, and societal functions like employment and profit making). As the most important is to try to describe an empathic picture how the patients felt in hospitals (their isolation outside regular life in community, their family and community). Finally, the main purpose is to synthesize the new understandings and recommend steps to improve the cultural role of hospitals in the community and open hospitals for free choice of cultural aspects of lifestyles both for hospital staff and patients without imposing as far as it is possible the technological or social living styles. At the end the feasibility, costs and obstacles have to be taken into account.

Task 1. Read the Case study (Short historical review about hospitals in Croatia and consider new types of future hospitals). Compare with your own country or district/region: what is common and what different? Choose several typical hospitals.

Task 2. Construct a table listing 2-3 chosen types of hospitals (certain and concrete, known to you) with main external influences, function and culture (the following is just an example):

Type of hospital	External influence	Main functions	Feeling of patients/clients
Modern public general 1500 beds	Economic, technologic	Medical care, science, training	Isolation, paternalistic strict rules
Modern private specialized 200 beds	Market, competition	Centre of excellence	Comfortable, patient-centred
<i>Further choices...</i>			

Task 3. Extend in writing your answer to the question Feeling of patients/clients.

Task 4. Compare your table with the choices of other members in the group. Summarize and describe main points of discussion.

Task 5. Discuss in the group your results of the Task 3, and make a concept of recommendations for the management and staff of the hospital how to improve the cultural needs of patient and open the hospital to social and cultural life in communities.

Readings and case studies

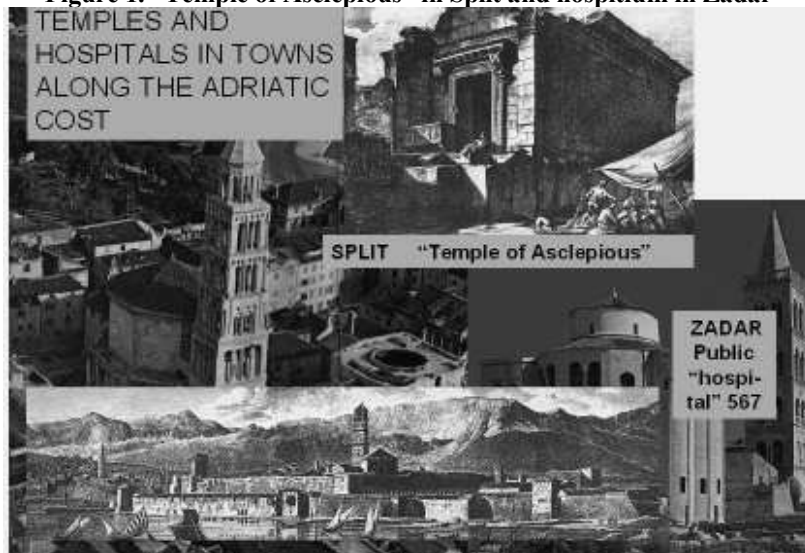
A review of different types of hospitals during the history of Croatia

Speaking about types of European hospitals, taking examples of hospitals in Croatia, we should consider them in the broadest way, not only their shape and organisation, but also the main functions performed and connecting that experience with probable main external factors influencing their development. For our purpose we will choose some types which have played a greater role in the history of Europe and which have influenced our thinking today. Compare their appearance with hospitals in your country and estimate the main external influencing factors.

When we start thinking about established institutions, we have to describe some of the famous ancestors of hospitals (17):

- The Asclepian temples in Ancient Greece (where in front of statues of “saint-mortal” Asclepius, his daughters Hygiea and Panacea and other members of his families, priests and priestesses interpreted oracles and ordered treatment).

Figure 1. “Temple of Asclepius” in Split and hospitium in Zadar



- Valetudinaria (originating from Latin word valetudo – health) and Thermae in Roman Times were soldiers and civilians searching for health.

This early recorded examples were sacred places combining the powers of gods and nature for recovering from illnesses, but also strengthening health and capabilities of people. In the same places and with the same idea, we today have spas, rehabilitation centres, thalassotherapeutic, recreational and tourist centres, etc.

Following these old European roots, we come to immediate ancestors:

- Hospitia (original Latin meaning of places offering hospitality) were predecessors of a number of hospitals developed by Christian religious orders in monasteries widespread in the Middle Ages. Hospitia and these hospitals served pilgrims, travellers, poor people and others, following the traditional hospitality and seven works of mercy.
- As in the previous times the main aim was to reduce suffering but even more important was to save souls. Very similar arrangements but at a smaller scale, as a shelter for very old and chronically handicapped or ill or very poor, were organised by priests and nuns in rural areas, close to parish churches, and sometimes by neighbourhoods for people without relatives. Some of these continue to serve until now.

Figure 2. “Aquae Iasae”, Varaždinske Toplice

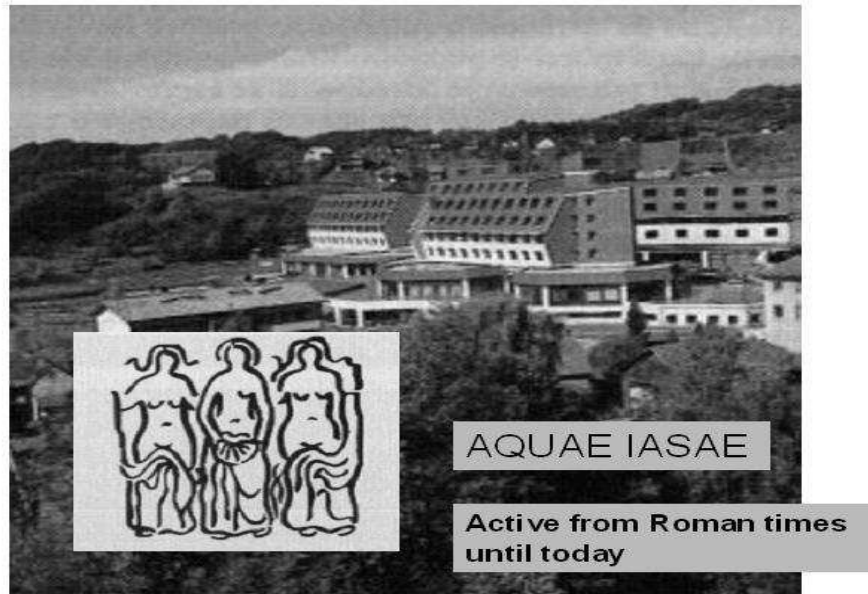
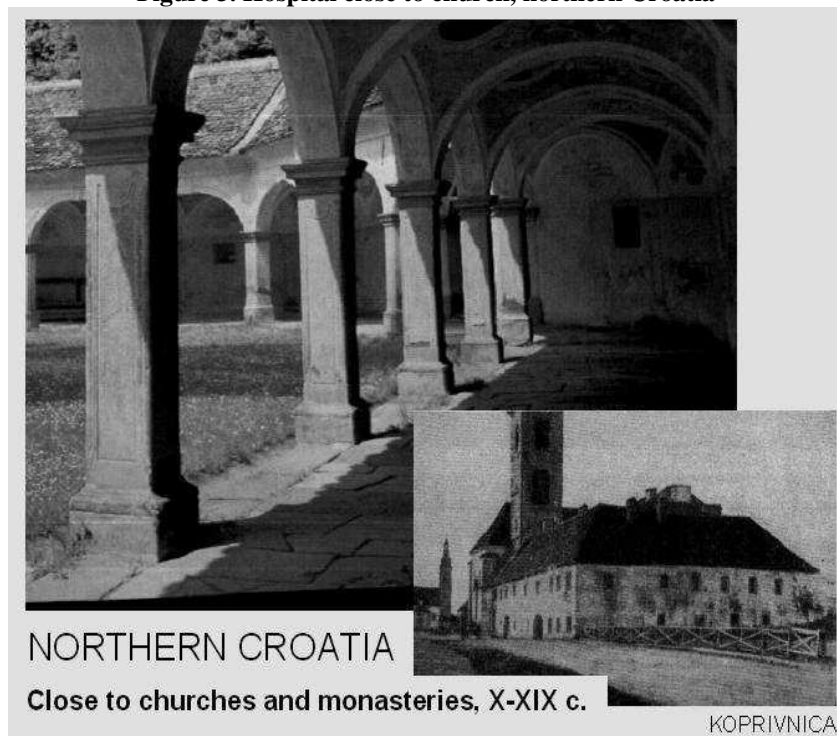


Figure 3. Hospital close to church, northern Croatia



- A completely different mission had quarantines, leper-houses, army creases, military lazarettes, and poorhouses organised by local and urban governments at about the same time. The aim was to protect the community and prevent the spread of epidemics.

Figure 4. The first quarantine, Dubrovnik



- Younger hospitals in urban areas were off-springs of hospitals related to monasteries and poorhouses, organised by public authorities to shelter ill people who could not afford it themselves. They were run by physicians and sisters, so that treatment and care were organised according to a new experience of medicine. On one hand, it were to help suffering patients, and on the other serving to protect the urban community to satisfy feelings of justice, solidarity and charity. In the 17th century they started to be separate from asylums, and it was a real beginning of an institution which we now call a hospital.

It is difficult to regard present hospitals as direct successors of all these institutions because medical science, technology and management changed thoroughly. In spite of that, some of the principle perceptible can be found in most types of the present hospitals: general hospitals, homes for the elderly and handicapped and similar socio-medical institutions, acute and long-term hospitals, modern hospiciums for palliative care etc. are all closely related by origin.

Modern technology, the birth of scientific medicine and development of complex diagnostic and treatment technologies influenced several types of institutions:

- Specialised hospitals, dispersed (cottage hospitals) and pavilion-type hospitals reflect also specialisation in medicine, different types of patients' needs and relevant technologies, difficulties in transportation in some areas, and better feelings of patients.

Figure 5. City hospitals, Zagreb



Figure 6. The first mental hospital

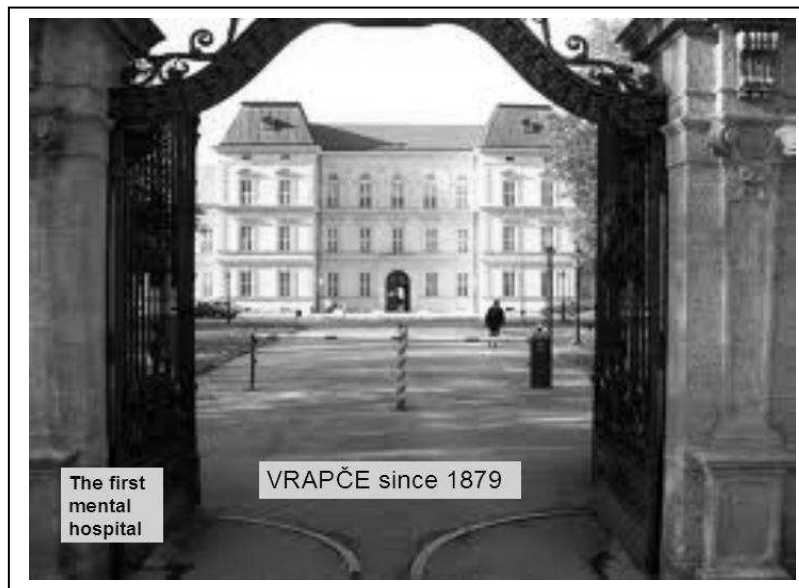
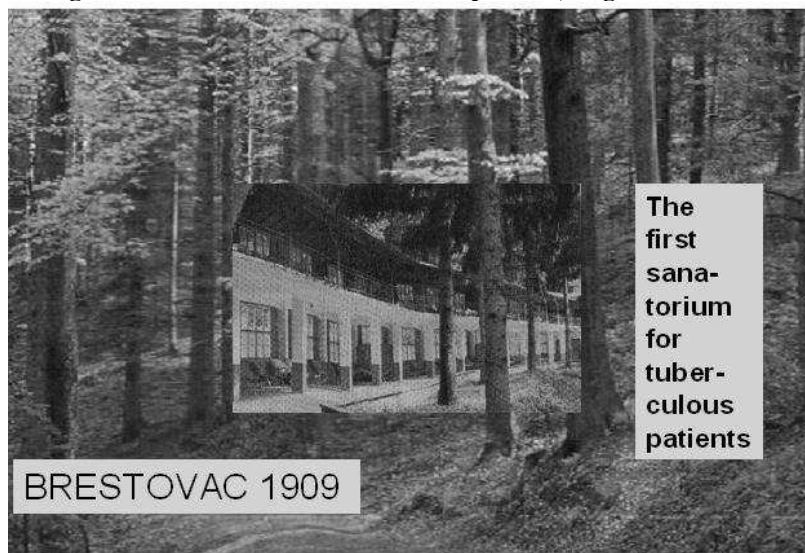


Figure 7. Sanatorium for tuberculosis patients, Zagreb mountains



- “Industrial” or mono-block hospitals were the result of concerns for costs, best use of expensive technologies and experts. Mono-block hospitals are still most preferred. A typical industrial hospital is efficient but presses the staff to work on-lines in an industrial manner, contributing to developing narrow specialism.

Lately, for various reasons, such as a changed medical technology, a growing urbanisation, better means of communication, multi-morbidity etc. the division of hospitals to special and general hospitals has gradually changed to classification of hospitals to acute (short-stay) and chronic (long-stay) hospitals.

The growing costs and expenditures raised economic concepts of market principle and competition among and between hospitals. Besides attempts to control cost/efficiency ratio of hospitals and better use of expensive technologies, there is a growing tendency to attract rich parts of population. The health policies stimulate less expensive health institutions and services like ‘daily hospital’, home care, general/family teams, health centre (or health homes) and out-patient polyclinics, and concentrate (specialize) centres of excellence, related to optimal diagnostic, surgical, palliative and rehabilitation centres.

Figure 8. “Industrial” mono-block hospital, Zagreb clinical hospital

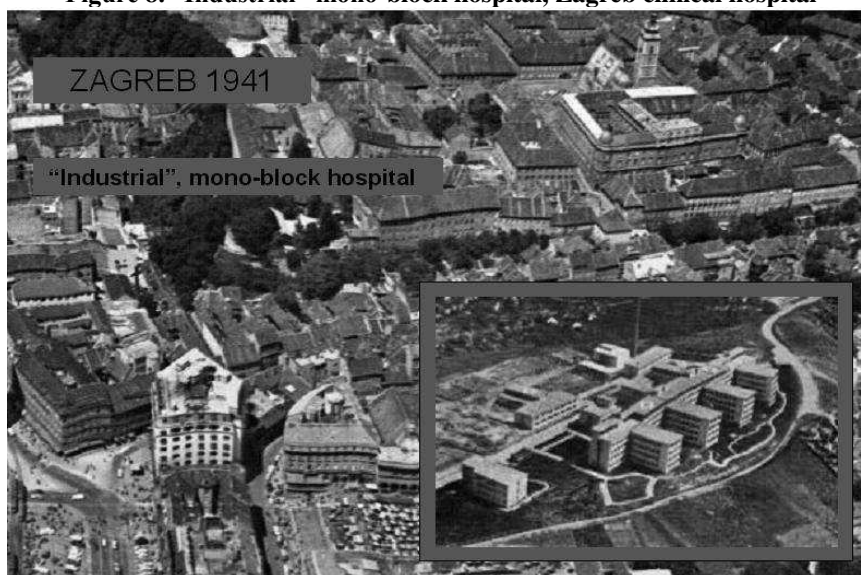


Figure 9. A noticeable building in Zagreb of a private chain of polyclinics serving as centres of excellence in urban settings providing also their own private health insurance



The history of hospitals in Croatia is similar to those in the Southern Europe, and later in the 18th century to the Middle Europe, namely the Habsburg Empire. A new change started after 1990 and the following fights for independence, similar but more difficult, in comparison to other ‘countries in transition’.

Should one consider new types of future hospitals?

The form and name of hospitals will change. We already observe spring ups, such as “hospital substitutes”, “hospitals without beds” (day care hospitals), “hospitals at home”, “virtual hospitals”, “tele-medical hospitals” etc. (18-20). There is a great interest for comparing and evaluating in-patient hospital care and home care (21-24). One has to conclude that new types of hospitals are probable and one has to be prepared for changes. It might be important to consider new types built on foundations of the existing hospitals.

Deep changes have to be expected because of changes in technology. There are already experiences how to deal with them. After a certain time of adaptation, finally one has to build a new structure, which is new, in spite of carrying the old name. The other kind of change is under pressure of people’s needs and demands. In this case new buildings might be constructed based on old concepts but often under a new attractive name. The new name shows a tendency to cover bad feelings and experiences with the traditional institutions, although the contents might be similar.

Under such circumstances the answer to the posed question whether reforms or (re)inventions would be needed – both is probable. For instance, reform of teaching hospitals might be needed, invention of health oriented contemporary valetudinaria (as it is described below) and reinventing of new community hospitals.

A “collaborative” network of hospitals is developing

Collaborative hospital is the objective of a broadly supported policy. One can state that it is widely accepted, but only with first steps in realization (25). The main agent is the introduction of virtual electronic networks. The role of financing is decisive: payment by local or central levels of government, the health and social insurance, local private initiatives and contributions. The immediate problem of collaboration is that all those who should collaborate are counting on the same resources and because of that they compete and do not trust each other even in minor issues of collaboration. The obvious problem is that those hospitals who are bigger and stronger institutions may dictate conditions for collaboration. One of the major difficulties is rather deep mutual misunderstanding with others because of multiple essential differences.

Could teaching hospitals become leaders?

A traditional teaching hospital fulfilled tasks in research, training and the most complicated part of medical treatment (“tertiary health care level”). It was always complex and difficult, but now it has become almost impossible. As a consequence, one may observe a movement in different directions.

In most teaching hospitals the research part became the biggest and started to dominate the other two functions. Among other reasons, not an unimportant one is to get resources from research funds, in many countries more copious than health and educational funds. Consequently the stay of patients in teaching hospitals is shortened and applied technologies are sophisticated. Medical services are focused on diagnosis, most complicating treatment procedures and critical events. In that way, clinical training of undergraduates is narrowed to demonstrations using training environment suitable mostly for postgraduate training of specialists.

Teaching hospitals encompassing larger parts in different research fields and absorbing more experts became large institutions, or a system of interconnected institutions. In some examples, this caused them to play a role of a separate part and isolated them from the general health system. The problem of relative isolation led them away to research irrelevant for practice of health care for the time being, and oriented more towards international relations than problems at home.

A related problem is that teaching hospitals are linked to health sector in the government and to universities. To solve that in the few countries where teaching hospitals have not grown too big, teaching hospitals alone with all other capacities for education of health workers were put in the center of the system in charge to manage regional health care. That was reported to be beneficial for relevant teaching, quality of regional health care, research oriented towards current local problems, but hindering capacity to follow advances in basic biomedical sciences and guarantee prompt and safe transfer of technologies.

In other cases the system was purposely dispersed, and diverse hospitals and institutions took over parts of previous tasks of teaching hospitals in training or research. Co-ordination and rational use of resources became a problem and efficiency was questioned. In spite of that, for most countries a decentralized system is a necessity. The empirical evidence has not provided proof that large institutions are more efficient.

In the times of globalization, it has become more important how the teaching hospitals will serve as a bridge between countries, while protection against hostile international market is growing. Therefore, the reform of the complex traditionally called teaching hospital is on top of priorities, even though the solutions are not obvious.

Croatian teaching hospitals are largely decentralized, poorly coordinated and so far mostly swinging between tasks of tertiary care and education. Some important research institutions have been built separately. Croatian teaching hospitals have a certain regional influence but not a built-up responsibility neither for development of services nor for inter-regional and inter-national collaboration. The shortage of resources for all sectors covered by teaching hospitals (scientific research, health care and education) is at present hiding deficiencies and diverse interests inside institutions, diminishing the total production and generating inappropriate quality of work.

The new valetudinarium (a public rehabilitation and training center)

It is well known that the change in population structure of Europe and increased longevity produces greater need for care of the infirm, disabled and lonely persons as well as a growing concern for health, fitness and interest for active recreation. More people need help to warrant better quality of life, rehabilitate their physical, psychological and social functions, to prevent the deterioration of their conditions and to care about themselves. These demands are not new but we have recently been in the middle of an epidemic situation and reasonable forecasts tell us that after 2010-15 and later it has to be expected to become a normal endemic situation in all countries of Europe.

The experience from Croatia today demonstrates a situation of a small country, a poor economic situation and a system in transition to libertarian market conditions changing the mostly centralized hospital system to temporarily decentralized system and then again back. Therefore dynamics of changes in the described direction

will differ, but probably speeding-up in the coming years. This is clearly a common and important element of a renewed system of hospitals.

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Recommended readings

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title	Integration of hospitals with other health services
Module: 1.4	ECTS: 0.2
Author	Zelimir Jaksic, MD, PhD, Professor Emeritus Andrija Stampar School of Public Health, Medical School, University of Zagreb
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Keywords	Hospital, Organization of Health, Services Public Health.
Learning objectives	After completing this module students and public health professionals should: <ul style="list-style-type: none"> • be aware of the importance of integrated system of health services and role of vertical integration; • recognize how different types of hospitals may fit into the system of health services; • list the objectives and prospects of different local and international projects in ‘opening’ of hospital services; • improve the knowledge and understanding of the function of health care system.
Abstract	The hospitals tend to isolate themselves but in the same time dominate the whole system of health care. These tendencies may become an obstacle to quality and costs of general health care of people and diminish improvements and further development of quality and relevance both of hospitals, some specialized institutions, primary care, home care, training of health workers etc. To overcome such development various policies, projects and research and organizational experiments are in progress. It is beneficial to review some examples of these attempts, discuss and estimate their impact and feasibility.
Teaching methods	Introductory lecture, study of presented cases, exercises in analysing them, developing of individual work and small group discussions.
Specific recommendations for teachers	<ul style="list-style-type: none"> • work under teacher supervision/individual students’ work proportion: 30%/70%; • facilities: a teaching room and field visits; • equipment: PC, internet link and LCD projection; • training materials: readings, handouts.
Assessment of students	The final mark should be derived from the quality of individual work and assessment of the contribution to the group discussions.

INTEGRATION OF HOSPITALS WITH OTHER HEALTH SERVICES

Zelimir Jaksic

Theoretical background

Introduction

Hospitals are important part of the system of health services. However, in majority of cases processes of prevention, first suspicion that it might be a disease and not only a temporary discomfort, first diagnostic screening and early decision how to treat them are performed before entering hospitals, at home in consultation with friends and family members, later with general practitioners. After care, various rehabilitative procedures, physical, pharmaceutical, dietetic, psychological and social support are performed in different other hospitals and out-patient services. The best outcomes of all mentioned services and interventions may be obviously if they follow the same intentions, are well coordinated and possibly use a certain protocol. This is often called integrated services. Unfortunately, the word integration is used in different meanings, according to circumstances. Here we will use the following as the most appropriate definition: *“The integration is management and delivery of health services so that clients receive a continuum of preventive and curative services, according to their needs over time and across different levels of the health system.”* (1). Sometimes it is referred to as “vertical integration”.

Past experiences

During the last decades there have been permanent waves of health reforms initiated by international organisations and powerful political and economic centres (2). During the seventies, Health for All policy (HFA) was globally spread together with all other “for All” (egalitarian) policies initiated by United Nations. It stressed the importance of community based primary health care, and was critical to some medical practices. It gained support in governments of many, especially developing countries, but it faced resistance by groups of medical experts and some international organisations. It was implemented in some developing countries as selective (vertical) primary care. In most of developed countries it was transformed to a kind of primary medical care based on teams of general practitioners. The reorientation of hospitals was requested towards embedding it within the frames of health services, as a support and consulting agency of primary health care. The reduction in the number of hospital beds was seen as important strategies to turn upside down the triangle representing the health system with hospitals on top and primary health care at the bottom, particularly regarding health expenditures. The most important point was equitable distribution of services. The impact of HFA policy was slow, but improvements were globally documented.

In Table 1 possible perspectives of health systems in modern and post-modern times are tentatively presented (3). Selected trends in technical and managerial aspects of development are listed, mostly those in which changes one could witness every day.

Table 1. Perspectives of health system development: Selected technical aspects which are important for hospitals’ future

INDUSTRIAL AGE HOSPITAL	HOSPITAL IN AGE OF INFORMED MARKETS	HOSPITAL & RESPONSIBLE GLOBALITY
➔	➔	➔
Public insurance/funds	Managed markets	Sustainable/fair funds
Providers’ dominance	Consumers’ importance	Partnership
Medical informatics	Tailored tele-medicine	Cyber medicine
Disease management	EBM and alternative care	Prevention/rehabilitation
Individual patients	Families and groups	New forms of unity
Stationary+ambulatory	Home and family care	Comprehensive care
Rationality	Quality (demand oriented)	Social accountability
Efficiency	Self care	Equity

In Table 1 these characteristics are shown in parallel, indicating how many inter-related and complex processes one can expect. After considering changes in such a way, it becomes clear that many and various

results could be foreseen. Different developments are possible in the future. Our individual activity in searching for the best solutions might become the most relevant issue.

One has to conclude that the issue of health in the recent changes of health policies remains unsettled. A search for a new balance between productivity and equity in health is persistent. Is a third sustainable way just another utopia or a valid possibility? Although it is a general political question, there is plenty of room for technical innovations, which will finally decide the way of hospital perspective and social practice.

Contemporary issues

Today, basic issues focus around two expressions: quality and equity. We may describe them in terms of present-day “Sacred cows”, the most au courant concepts, so often quoted in the form of acronyms (Table 2).

However, it is difficult to differentiate them clearly because the terms have changed their connotations for what Quality and Equity are the best examples (4). Quality has changed from the traditional meaning of a technical excellence of services towards market oriented meaning of “satisfying people’s perceived needs and demands”. Equity has changed from the traditional concept of an essential part of human rights to equity in legal rights, fairness (“the art of possible”) and partnership (“shared responsibility”) (5-7).

Table 2. Current opposite views in terms of “sacred cows”

QUALITY	EQUITY
EBM - Evidence Based Medicine	PR – Patients’ Rights
TQM – Total quality management	H/FC – Home/Family Care
PEL – Professionalism, Ethics and Leadership	PHC – Primary Health Care
LO – Learning Organisations	PP – Patients’ Partnership
EE – Efficiency and Effectiveness	SS – Sustainability and Subsidiarity

So we have to conclude that in searching for the best definition of hospital missions there is a tendency of moving towards integration, an attempt at least to break through the traditional institutional walls, in spite of many real life difficulties.

Hospitals as hub of health services and misunderstandings

Hospitals often developed as a referral centre for most advanced diagnostic and therapeutic procedures with highest level of professional skills and technologies not otherwise available in communities. Besides, they usually served as training centres for local health workers. Often hospitals were bigger and stronger institutions and were working in the same place through decades. In relation with others they could dictate conditions for collaboration. They naturally were accepted as the hub of health services in a region. They have overtaken the dominant role and sometimes their central role was legally determined.

Table 3. Some characteristics making difference between hospitals and out-patient services, primary health care units

CHARACTERISTICS	HOSPITALS	OUT-PATIENT SERVICES
System’s property	Closed	Open
Environment	Medical establishments	Community
Priorities	Diagnosis and treatment	Solving health problems
Focus of activities	Solving problems	Work with people
Feeling of safety	Higher	Lower
Way of thinking	Convergent	Divergent

In practice the total merge of hospital with out-patient services were often unsuccessful and of low benefit for both sides: hospitals and out-patient services. One of the major difficulties is rather deep mutual misunderstanding with others because of multiple essential differences. One can demonstrate it by considering just a few basic differences between hospitals and primary health care units (Table 3).

Here is no chance to overcome these deep systemic differences by nice words. In summary, all described policies look acceptable and sound well. However, they have their shortcomings. It is understandable that many hospitals are cautious, as well as their partners in health field and in circle of policy decision-makers. How could somebody believe that the most powerful of all health institutions will start to change beyond what is

necessary for marketing purposes and their own interests? The way to show a substantial interest is not to declare intentions in big words but to start changes and evaluate them step by step.

Exercise

The objective of this exercise is to find out best policies to develop an integrated system of health services by analyzing the ways to implement it in practice and expected results.

Task 1. Review the described examples of planned and on-going projects run through and by hospitals, and those mentioned as activities by other partners and finally two unsuccessful case studies from Croatia.

Task 2. After making individual preferences start a group discussion and define the list of criteria which were individually used in choosing preferred strategies.

Task 3. Classify the items in the list (Table 3) in several groups related:

- to implementation feasibility,
- to costs (e.g. financial, manpower re-orientation, new communication networks and similar)
- to stakeholders (groups and institutions who will be interested to develop and carry-on the project, do not forget patients)
- to negative side-effects,
- to maintenance and sustainability,
- to other factors and recombinations.

Task 4. At the end conclude about what to monitor and evaluate during implementation of innovations

There are many alternative designs of exercises using the same information but stress other problems of integration of the system of health services, like short term and long-term plans, manpower training.

Case studies

Examples of projects and policies aiming to open and adapt hospitals to integrated health services

The mission of integrating of hospitals into the system of health services was translated into policies (8-15). Among important policies, expected to solve problems and also open new lasting perspectives, we may identify the following:

- health policies encouraging informed patients' participation - **The patient-centred hospital;**
- the change in contents, orientation towards health and quality of life - **The health promoting hospital;**
- quality management and manpower development, by "learning organisations" - **The training/learning hospital;**
- **The centre of excellence:** conservative elitist approach or a leading scientific and teaching hospital
- close relations inside the health system, particularly of primary health care, supporting various local initiatives such as "hospital at home", convalescence homes etc. - **The collaborative, "well embedded" hospital, or new community based hospital.**

There is a positive intention in each of the mentioned policies and in some of the examples of their implementation. A combination of them in different quantities may fit to needs and wishes of hospitals in diverse situations. At the same time they raise opponents and consequently difficulties and constraints.

Patient-centered hospital

Patient-centered hospital in its full meaning should not be just a hospital where all services are organised around patients but where both the patients and the public are well informed about their work and performance and could participate in decisions on strategies for development (16-19). It obviously could help in communication, and "marketing", but the decision making process should not be delayed or distorted. Would it be necessary, for instance, to introduce a new type of procedures or even new services (nurse clinics dealing with questions of continuity of care, patient information and participation)? It also raises a far reaching question, how much of medical "secrets" one should "disclose" to the public? Apparently, nobody is waiting for an answer, because the process is already running. (See, for instance, web sites of National Committee for Quality Assurance, Health Care Report Cards, etc.). The time will tell us if it is going to be related to benefits or detriments of patients, medical experts and hospitals as institutions. The pending questions about tactics remain: Is it wise to change the tradition at the time of growing alternatives emerging in the market not even thinking about presenting the objective results of their work? Are all parts of the health system willing to start the same and how could it be controlled?

Health Promoting Hospital Project

The European Pilot Project supported by World Health Organization is now over then 20 years old (20-21). The Budapest Declaration of 1991 specified strategies and responsibilities of potential participants in an

international network. It was followed by a formal Agreement (1993) and Vienna Recommendations. The core group of 20 hospitals evaluated and reported an impressive set of sub-projects. Subprojects were related to health of patients (patient satisfaction, nutrition, health education, rehabilitation, hygiene and safety), to health of staff, to health of community (promoting children health, prevention of accidents, control of alcoholism, young people information service, etc.), and to metaphorically conceived “healthy organization” of hospitals (effective communication with patients, decentralization, networking etc.). Largely, the projects are improving and complementing hospital services, building out-reach services, and better networking with others, aiming to involve or influence a broader group of European hospitals. Most of the participants at present are in the group of hospitals with 200-500 beds. Obviously, one has to consider new roles of different types of hospitals to avoid a change of terms only and to avoid mixing of roles with different other partners in the health system, particularly primary health care. The critical points consider a potential problem in building new hospital based on outreach services using the existing resources in an expensive way.

The Training/Learning hospital

The development of learning/teaching networks supported by modern technologies of interactive telecommunication seems unavoidable. Sooner or later most health institutions will be interconnected (“virtual integration”), and vertical integration, are grounding great potential gains (22-24). As a simple start one may describe a project called EuroTransMed. It involved a growing number of several hundred hospitals in Europe for lunch-time interactive lectures every Tuesday during the teaching semesters. These were coded satellite lectures and discussions were possible in real time. However, after several years the project could not survive in competition with interest in the medical market.

Several similar national networks exist in countries of Europe often under title of ‘telemedicine’. Many world-wide possibilities are open through the Internet. Unfortunately not all of them are serving as marketing and mostly one-way commercial use. More and more the critical point is not how to get information but how to choose the right ones and organise their use and better coordinate and support actual working practice. The flood of information may be counterproductive, thus increasing the danger of hidden control by sponsors and others looking for their individual interests and not for common benefit. It is not at all an easy task for users to judge the quality of information. The clearing and control of information, on the other side, may destroy all potential benefits. Some applications of tele-medicine might suppress the local expertise and experience instead of supporting it. Often it is easier to teach others than to learn by ourselves how to assimilate scientific information with own clinical experience. This is best done in small permanent groups of comparable level of experience inter-related with scientific sources (‘learning groups’). There is an obvious disbalance between hospital and dispersed out-patient units. In hospitals, they are part of daily formal and informal routine, and in dispersed outpatient service (for instance solo general practitioners) it has to be an additional organizational effort.

Centres of excellence

Centres of excellence are important as references for quality and as the only way to organise and protect one’s own values and rationality in the field of technology transfer under pressures of global economics. There are many unresolved questions (25-26). Should centres of excellence be nominated or let to develop? They could get more resources and a “trade name”, so that many would like to be considered for such a position. The essential factor for success is an able team of experts with a wide understanding of local health culture and policies, potentials and needs, and at the same time practicing scientific approach and rigour. Experts have to show outstandingly firm integrity. Such teams develop over years. Further structural questions are: Would it be better to concentrate teams in one place (centralised approach) or distribute and disperse them in several institutions? Are teaching hospitals by definition centres of excellence? There is not a pattern showing definitive advantages and the answers depend on local conditions (27). Therefore, this policy will be open to permanent local struggles and a political issue in most countries.

From isolated provincial hospitals to a possible new type of community-based personal hospital

When we consider possible changes of hospitals expecting benefits for the entire health system, a community hospital may have the priority (27-29). It should become a centre for regional co-ordination of health services, a local focus for accumulation and transfer of knowledge and experiences. The idea is that smaller regional or sub-regional hospitals should be transformed into an institution functioning as a vital local support of primary health care and general/family practitioners, as well as social care and socio-medical institution for palliative care, community based rehabilitation units, etc. These old ideas might become a new community hospital. The new community hospital itself should be a combination of a traditional general hospital, a health promotion hospital and a learning hospital. Its characteristics might be described with the following attributes:

- short-term (neither ultra acute, one day hospital without beds, nor predominantly a long-term hospital);
- general (not specialized for any particular disease);
- middle sized (200-400 beds);

- active in health promotion, prevention and rehabilitation;
- community oriented, transparent and visible to the community,
- performing and supporting some of out-reach, home-centred health care activities and ‘day hospital’ activities;
- flexible in organization and arrangements;
- keeping open door policy for local health professionals;
- performing and supporting teaching and evaluation as part of quality assurance.

A different strategy: to start building from periphery

The system of health services consists of quite a number of elements which by definition have one common objective, but differ in many ways. To reach optimal results they have to be informed and to understand the roles and duties they have to fulfill. In a very simplified way one may consider horizontal, vertical and diagonal relations. They also are often placed on three levels mostly in regard to training, performance and skills of professional teams at each level. To optimise the results they should be well embedded in the environment they work (horizontal relation) and well coordinated among levels (vertical coordination and integration). If all would work at the same level or out of touch with partners horizontally, the results would be poor.

The elements of the system may be very different not only technically, but also socially and economically. Therefore they have to be mutually recognized, they should understand each other, but also to realize that they have their own diverse interests, distinct experiences and singular ‘culture’ of work. The managements both sides have to identify common interests and clear understanding of rules they have to follow, and their mutual responsibilities. In various stages of development of the system as a whole their relations usually change. The importance of different services may change but also the hierarchical vertical position of levels inside the same service. Sometimes it might be very difficult or even impossible to build the system successfully from hospital down to the community although it might look as a natural and the most rational way. The high level medical knowledge without understanding social and cultural situation in the community may be expensive but fruitless. One has to learn both side, one has to use knowledge and experience. The organizational chart often presents hierarchical positions, but fundamentally systems will best operate if they are socially, economically and ethically at the same basic level. If not, in a longer period it begins to diminish efficiency and satisfaction of all elements of the system.

If the centre (hospital) is concentrating most resources periphery remains weak. Do we intend to increase quality of existing home care and/or organize detached hospital at home? The choice of proper strategy should start by understanding the existing reality, reviewing all existing elements and resources. The apparently diminishing home care of ill people is already for some time under scrutiny (30-38). Strengthening of home/family care activities, volunteers’ contribution, collaboration with social services, experiments with public-private initiatives, out-patient specialized polyclinics as separate units, existing general/family practitioners, primary care units and so on. Not a few trials have found that home care is safe, often cheaper and best satisfies ill people and their close relatives, but it does not happen by itself. The results have to be monitored and appreciated by all elements of the system. Not only economic, but technical, social and cultural aspects have to be observed.

An experience from Croatia: the 'medical centre', vertically integrated hospital

The strongest impulse to organization of health care in the territory of former Yugoslavia was the work of A. Stampar after the World War I. His socio-medical views were oriented towards “people’s health”. With great energy and skill he created a system of Institutes of Public Health and health centres. Active in the League of Nations and having been one of the founders of the World Health Organization, Stampar was known as a “bear of the Balkans” because of his energy and, recently, as “the grandfather of primary care” because of his principles (39). Hospitals were not his stronghold and he could understand them only as a supportive part of a comprehensive health system. In his time, hospitals were isolated as centres of medical and social power. To balance that power and private practitioners, his strategy was to develop health and equity oriented primary care.

On these foundations it was not by chance that later “Andrija Stampar” School of Public Health started in Zagreb the first vocational training of general practitioners (“specialization” in general practice, Professor A. Vuletic) (37). A network of health centres was spread throughout the country, consisting of services provided by GPs and by dispensaries for socially important maternal and child health, tuberculosis, and other public health activities. At the same time, “stationary capacities” were built, as an expression of a tendency towards regional self-sufficiency. The tensions between hospitals and primary services, well known in many countries, were pronounced.

In those circumstances, the integration of hospitals with other services was early recognized as a problem. In regional centres for a territory up to 200,000 inhabitants, the merge of general hospitals with all other outpatient, public health and primary care units into one organization, started in 1957 and was in full strength in 1970. The organization was called “Medical centre” and 24-25 of them comprised practically all general hospitals in provincial towns, except 8 in four biggest towns of the Republic (40). Medical centres were

meant to functionally interweave prevention and care, in- and out-patient services, even allowing interchange of physicians in and out of hospitals in the same disciplines or services. The marriage existed for more than 20 years with ups and downs, but rarely fully meeting their original objectives. Evaluation studies showed that the success shown in better efficiency was largely dependent on local managers who could envisage and insist on a mission of integrated health care. Without that additional leadership the organizations were lost in solving individual problems separately, further dividing interests with an additional problem of hidden transfer of resources to the stronger part, which was the stationary part in the hospital. Finally, just before the divorce, the flow of resources was legally stopped, so that only administrative frame remained from the original idea of integration.

This experience might be important while considering the future of hospitals as a warning not against the idea but about the difficulties in the implementation. Unfortunately, because of coincidence of many external economic and political factors influencing the described outcomes, the main reasons for failure have never been clearly identified.

Another experience from Croatia: unsuccessful development of community based rehabilitation

Tradition in Croatia was that people used to treat themselves for common 'rheumatic' and quite a number of other diseases in a 'natural way' spas, so that inns and traditional hospices, later hotels and hospitals, and finally rehabilitation centres were raised around them. Moreover, rehabilitation was organised in hospital departments of general and some special hospitals (e.g. traumatology), and at last also in special institutes connected with teaching hospitals. The popular treatment of rheumatic troubles of the elderly and other handicapped, of a growing number of injured in traffic accidents was performed in hospitals or by outreach units of hospitals, while primary health care was largely left out and treated the major group of the same patients by pharmacological means. This was a double, expensive and disintegrated way of rehabilitation process gradually discouraged by limitation of insurance funds.

During the last war, because of many wounded and disabled persons, a project was launched with international help to start Community Based Rehabilitation (41). It started in difficult times and developed as a separate project with evident advantages. However, misunderstandings and resistance were strong, based on traditional attitudes about medical rehabilitation as a hospital specialty and little interest of primary health centre to be involved. Many other needs and demands have been identified in local communities besides disabilities of war victims. It was also shown that community based rehabilitation was an effective and efficient component making the whole rehabilitation system less expensive and improving the final results. In spite of that, after the greatest post-war needs have been over, the project lost support. The question remained if Community Based Rehabilitation could survive competition, misunderstandings and all kinds of passive and active resistance. It might happen that a new type of open door institution has to face the same type of difficulties.

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Recommended readings

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title	Hospital management coping with crisis
Module: 1.5	ECTS (suggested): 0.2
Authors	Zelimir Jaksic, MD, PhD, Professor Emeritus Andrija Stampar School of Public Health, Medical School, University of Zagreb
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Keywords	Hospital, Organization of Health Services, Public Health.
Learning objectives	After completing this module students and public health professionals should: <ul style="list-style-type: none"> • be aware of the contemporary economic and social crisis as reflected in health care in different countries; • recognize essential aspects of hospital management; • list the major policies in different types of hospitals (public-private-mixed, big-small, general-special, acute-long-stay); • reflect about optimising different models of management and impact on quality, efficiency, manpower and sustainability of hospital services; • improve the knowledge and understanding of the meaning of cooperating within the larger health system.
Abstract	The contemporary general financial, economic and social crisis has put strong restrictions on financial resources in health care and particularly in hospitals as the major consumers in the health system. The downsizing of beds and so called ‘hotel’ services, savings in logistics are not sufficient. The further development and following of scientific and technological advances should not be stopped but growing inequity and restricted utilization should be hindered. Restructuring is necessary and intensive efforts to define strategy in national and international competition. The management of staff and role of patients, reorientation and motivation, efficient use of equipment have to be intensified.
Teaching methods	Introductory lecture, presenting and analysis of real cases in small working groups, plenary reports of groups followed by discussions.
Specific recommendations for teacher	It is recommended for teaching this module: <ul style="list-style-type: none"> • work under teacher supervision/individual students’ work proportion: 50%/50%; • facilities: a teaching room; • equipment: PC, internet link and LCD projection; • training materials: readings, hand – outs.
Assessment of students	The final mark should be derived from the quality of individual work and assessment of the contribution to the group discussions.

HOSPITAL MANAGEMENT COPING WITH CRISIS

Zelimir Jaksic

Introduction

The governing and management of hospitals is a complex, interdisciplinary skill (1-5). It is dynamic in usual routine work because of permanent changes in outer world and internal relations. From time to time the problems become critical and new ways of structural changes and hectic operation have to be implemented. For instance:

- Introduction of new technologies (medical, communicational, etc.) will induce changes in management (“new plants do not survive in old pots”). For instance, new imaging technologies need a better clinical feed-back, and the pattern of ‘industry-like’ hospital, where specialists work in their narrow fields so that work on a production-line becomes appropriate for a number of them (6,7).
- Changes of global ecological conditions and population structure (e.g. Climatic changes, meteorological disasters, agglomeration of people in urban areas, ageing) and multiple burden of health problems like infections, chronic diseases, socio-psychological stress, new urgent needs for large scale prevention and health education, request also permanent education of professionals (8-10).
- Human resource management becomes more important than economic and technical management dominating in usual normal work when patient-centred approach is introduced. Shortage of nurses and other health workers involved in care of patient becomes critical particularly regarding international mobility. Professional autonomy (responsibility and accountability) is needed, but when problems of patients’ security are in question, it may be more important to agree on rules of behaviour than encouragement of anarchy (11-13).
- Turbulences appear as stimulation for new practice of management, and new opportunities for improvements. Innovations and flexible organisation become more important than maintenance and survival strategies, in some critical situations (14,15).
- Management has to develop magic communication skills (all types of skills) being sensitive to requirements of patients (customers), to appreciate professional freedom of experts and to improve relations with competing and sometimes unscrupulous rivals in the market.

General circumstances

In the same time, as Health for All policy was declared in Alma-Ata 1978 the general economic and political situation changed from favouring egalitarian to a radical, so called neo-liberal manner (16,17). It was largely ideological and political, based on ideas of neoliberalism. The earthquake produced by the fall of the Berlin wall prompted a tsunami of health reforms not only in countries being previously behind the Iron curtain, but also in all other countries. It also divided international agencies: on one side World Health Organisation, and on the other side World Bank and other Bretton Woods institutions. United Nations and other top international forums become active to discuss health risks and intervene (18,19).

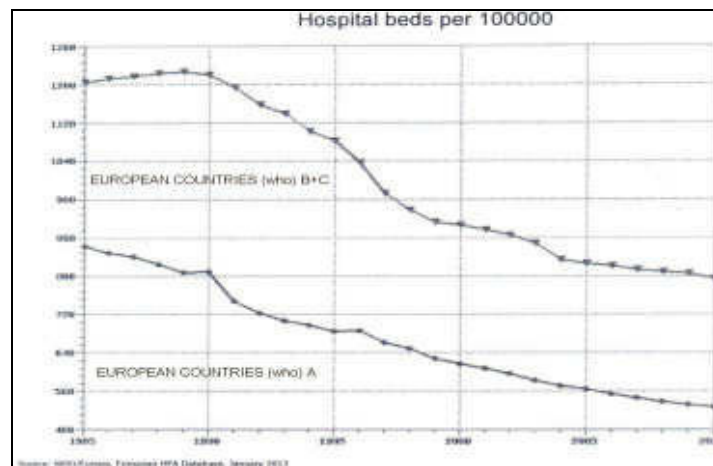
Structural adjustment as a new economic and social policy produced the Health reform as a policy for health sector. Health reform was an attempt to raise health concern of people and stimulate medical productivity of health services by pushing health into the area of private interests and competitive state of affairs. Governments were under political and economic pressure from inside and from international agencies to reduce (“target”) social provision and introduce competitive and contractual conditions in public funds. Specifically in the health field, the arrangements were made to separate providers from purchasers and to foster competition among the providers. Health was largely regarded as a private good and health care as a commodity trade. The expectations were to reach better quality of services and higher productivity by spending less public resources. It was welcomed in many countries of Central and Eastern Europe as a sign of freedom, a chance for entrepreneurship and personal achievements, after years of shortages, suppression and imposed discipline (20-24).

Although in a number of countries hospitals were partly protected from radical changes, there were attempts in others to strengthen the competition among them as providers by different means, including their “privatisation”. These efforts were not always successful so that already in mid nineties the pendulum was swinging back. However, the tendency to reduce the number of acute hospital beds continued and their substitution by other types of services was promoted (25-28).

The described health reforms changed the previous picture of health services in many countries but also destroyed some of the traditional resources without empirical proof of advantages of market relations in comparison with Bismarck or Beveridge principles in the field of health care. Besides, many reforms were under influence of short-term expectations based on efficiency and narrowly conceived vertical health programmes as

is usual in projects influenced by outside donors. A considerable part of liberated energy of health experts was lost in reorganisation and financial management instead being used to improve health care provision. The greatest cost of reforms was seen in the field of growing inequalities in health between the rich and the poor, and also in ethnic majorities versus ethnic minorities, between genders, and among different age groups. Deterioration of health condition of deprived social groups was demonstrated in many developing and developed countries.

Figure 1. Number of hospital beds per 100 thousand people in European countries 1985-2010*



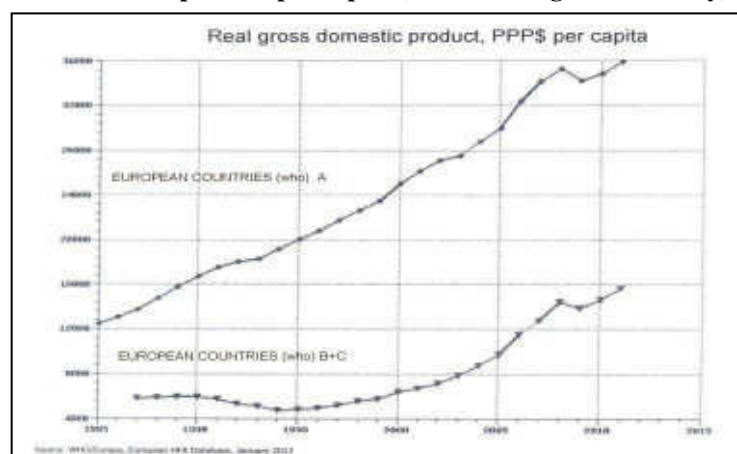
* Countries A: 27 countries in the WHO European Region with very low child and adult mortality, Countries B+C: 26 countries in the WHO European Region with higher levels of mortality (28).

The political, monetary and trade powers supported irresistibly the spreading of libertarian ideas to all corners of social life. It started to be a global phenomenon during the last decade of the past century. It should have brought benefits through liberalisation of trade and fast exchange of information. Because it is targeted towards growth and productivity, the potential threats have been recognised in deterioration of ecological conditions, suppression of local cultures, and prescription of political solutions by big powers, because it appears that some people are more globally oriented than others. Direct health damages are possible in human trades (migrations, unemployment), spread of social diseases and violence, epidemics, power of transnational corporations with trade and non-health interests in medical industries and similar.

Contemporary financial crisis started around 2007

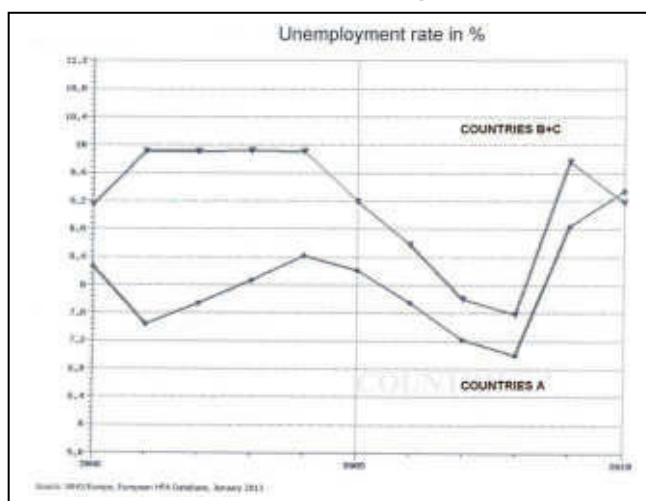
As financial capital started to be most influential in global perspective, even in middle of the first decade of new millennium a number of commentators have suggested that if the monetary liquidity crisis continues and international debts will grow, there could be an extended economic recession (general slowdown in economic activity) what will produce crisis with their psychological and social consequences, especially visible in high unemployment rates, followed by a fall in purchasing power and productivity, shortage of financial resources, and threatening social and political insecurity (29-31).

Figure 2. Gross domestic product per capita (in Purchasing Power Parity) in European countries*



* The recession is registered roughly one year after crisis started. Countries A: 27 countries in the WHO European Region with very low child and adult mortality, Countries B+C: 26 countries in the WHO European Region with higher levels of mortality (28).

Figure 3. Unemployment rate (%) as an early warning of crisis and recession (2005-2010) [countries as described in Figure2]



In many countries, to save financial resources priority was given to preserve financial and other institutions supporting free trade, and impose strict savings to services such as education and health care. Saving was achieved by organizational and managerial means, by also change in financial remuneration of services and by limiting payment of staff.

Past experiences about hospitals in critical situation

As an answer to critical situation changes in policies, governing and management are expected and an additional effort to increase resilience. Policy is a program or set of principles to achieve rational outcomes of a situation, often according to the way how they are reached policy is public or governmental, institutional or even individual. Governing as is more oriented in directing hospitals towards their mission and position in the broader system, and management as dealing with formulating objectives, planning, implementation, organizing, controlling and evaluation of activities. The major question in governing is whether it will be better to give clear suggestions and design rules for behavior, or to give more autonomy and support more initiative and innovations in the given situation. For management in crisis arise many old, but also new problems, essentially how to protect and optimize the available resources. Resilience is enduring and getting better after stress (e.g. crisis). As a preparatory step the 'epidemiology' of probability and impact of risks has to be estimated by research, measurement or experience. For World Economic Forum 2013 a special report was prepared comparing economic, environmental, governance, infrastructural and social subsystem of risks. Fiscal imbalance was among the most threatening (32).

Here are tentatively summarized experiences about hospitals in financial crisis. They are general and in some instances controversial due to interests of authors (to centralize or give more autonomy, to give stronger position to governments or private initiative, to give priority to manpower or material savings and so on). The following experiences are just to point the complexity of critical problems (32-46):

1. One has to be confident that hospitals will continue to exist as an important part of the health system. Rather, it will develop in many diverse directions.
2. Firm mission and flexible management are considered as vital in times of crisis. First one has to understand own limits. However, by having in mind our mission and expectations of people and communities, one has to try to continue even during crisis to further contribute to the development of existing resources. The better future is depending not only on skillful adaptation to turbulences and solution of emerging problems, but in contribution to restructuring by innovations, experiments and daring to change. The solution is in openness to new perspective and not in protecting the old citadel.
3. The hospitals share the destiny with other social institutions influenced by:
 - socio-economic factors such as ageing structure of populations, economic inequalities, immigrants, growth of tensions and violence, problems of affluence;
 - fast medical and technological changes in surgery, genetic and molecular interventions and other altering deeply the present medical treatment;
 - needs, expectations and attitudes of patients, customers and the public;
 - shortages in appropriate staff for human personal care, inter-disciplinarity of staffing and other shifting in human health resources.

4. In spite of strong influence of the globalization trends, there will be diversity in attitudes of hospitals in different parts of Europe in accordance with different social, cultural and religious traditions, social policies, role of states, position of families and local communities, etc. There will be unstable mixing of five historically developed pivots: Nordic and Mediterranean, East and West, with a discrete Middle, with possible addition of substantial newcomers outside Europe.
5. Relations and opening to surrounding community might be a promising strategy for most of hospitals (except some national teaching hospitals). In the long run, it might prove superior to closing, defending the gained position or relying predominantly on trans-national medical and pharmaceutical power structures. In sustaining lasting relations with communities win/win strategy should dominate, relying on proper initiatives, collaboration, stimulation and support, avoiding whenever possible the win/lose philosophy, based on replacement or suppression of other local resources and tendency to market domination.
6. It is a challenging time for the leadership and management of hospitals. Open-minded flexibility and entrepreneurship has to be combined with wisdom and critical professionalism. The investment in development of experts and stimulating work conditions has to be balanced with comfort, privacy and satisfaction of personal needs and rights of patients. Support of inter- and trans-disciplinary teams and networking with other institutions are among the most difficult tasks, equal only to survival in flood of information and diversity of unexpected day-to-day running problems.

The importance of issues can be illustrated by a quotation from the Open letter to the European Council signed June 22, 2012 by A Turnbull president of the European Public Health Alliance and presidents of 68 organizations and for respected individuals under title ‘EU leaders must focus on sustainable, equitable Europe that fosters, an is sustained by, a healthy population.’

“... In order to achieve Europe’s full potential for prosperity, solidarity and security we need you to act decisively, boldly **implementing reforms that are not regressive, but tackle some of the underlying problems within our health systems.** The priorities for public spending should not be left to economists and the whims of the financial market, but must reflect the needs and challenges facing society, while tackling directly fear and fragmentation within our societies. **Inequity has been one of the drivers of the crisis: greater equity and equality must be one of the solutions...**” (47).

Exercise

The objective of this exercise is to design a rescue plan in the circumstances of a wide spread crisis, predominantly social and economic, as it is the contemporary crisis.

- One has to assume that in most circumstances will be most important to save a calm head and enough time to think over best strategies and tactics. However, in some cases a rather aggressive re-adaptation will be necessary and it would be better to think in advance how to prevent damages.

Task 1: Discuss possible difficulties a hospital management is facing in case of serious financial restrictions due to an international recession. If it is possible interview a hospital manager or visit a hospital having budget restriction.

Task 2: After discussion list difficulties ordering them according to severity of risks in a long run. Formulate a strategy to prevent damages and secure continuing of essential functions.

Task 3: Compare your proposal with recommendations of the resolution (quoted below) and discuss differences and formulate how you would decide about priorities:

- Preserve all existing functions or sacrifice some to maintain standard quality of essential (specify);
- Give priority to staff or equipment (compare long-range consequences);
- Care more about equity of access to those who ask for help or to screen for defined diseases (give examples);
- Try innovative solutions or strictly follow used routines (realistic examples needed);
- Implement strong discipline in spending and performing different procedures or be flexible and allow autonomy of professionals (what and when).

Health in times of global economic crisis: implications for the WHO European Region

The recommendations presented below are the outcome of the high-level Conference that took place in Oslo on 1-2 April 2009.

1. Distribute wealth based on solidarity and equity.
2. Increase official development assistance (ODA) in order to protect the most vulnerable.
3. Invest in health to improve wealth; protect health budgets.
4. "Every minister is a health minister".
5. Protect cost-effective public health and primary health care services.
6. Ensure "more money for health and more health for the money".
7. Strengthen universal access to social protection programs.
8. Ensure universal access to health services.
9. Promote universal, compulsory and redistributive forms of revenue collection.
10. Consider introducing or raising taxes on tobacco, alcohol, sugar and salt.
11. Step up the education of health professionals and ensure ethical recruitment
12. Encourage active public participation in the development of measures to mitigate the

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title	Primary health care
Module: 1.6	ECTS (suggested): 0.2
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Keywords	Primary Health Care, Public Health.
Learning objectives	After completing this module students and public health professionals should: <ul style="list-style-type: none"> • be aware of principles of primary health care; • recognize the main principles of primary health care; • know the main of primary health care; • improve knowledge and understanding of primary health care.
Abstract	Primary health care is the essential health care made universally accessible to individuals and families in the community. It is a base and entrance to the whole health care system, often has the role of gate keeper. It has to be organized according to social realities in which communities live and work. The health system is developed relatively well among the countries in the South Eastern European region. The health personnel are well-trained and public health services are well established and organized. Around 30% of general practitioners are specialists in family medicine. Health care services in Croatia are organized on three levels: primary, secondary and tertiary. On primary level operate general/family medicine, paediatric, gynaecological and dental practices, public health nursing, diagnostic laboratories and supporting services and pharmacies. The core of primary health services in Croatia are general/family medicine, paediatric services and community nurses. According to the Health Insurance Act in Croatia, there are three main health insurance schemes: basic, supplementary and private health insurance.
Teaching methods	Introductory lecture, exercises, field visits, individual work and small group discussions.
Specific recommendations for teachers	<ul style="list-style-type: none"> • work under teacher supervision/individual students' work proportion: 30%/70%; • facilities: a teaching room; field visits to at least two types of municipalities (urban and rural); • equipment: transparencies, colour flow masters, overhead projection equipment; computer, LCD projector; • training materials: readings, hand – outs.
Assessment of students	The final mark should be derived from the quality of individual work and assessment of the contribution to the group discussions.

PRIMARY HEALTH CARE¹

Zelimir Jaksic, Luka Kovacic

Theoretical background

Primary health care is essential health care made universally accessible to individuals and families in the community by means acceptable to them, through their full participation and at a cost that the community and country can afford. It forms an integral part both of the country's health system of which it is the nucleus and of the overall social and economic development of the community.

Alma Ata Declaration (1)

Introduction

The strengthening and further development of primary health care is a policy accepted in many countries. The question is how this concept is implemented in practice.

In the difficult economic and social conditions (to mention only increasing unemployment and international debts), there is both a need for adequate, socially sensitive and well balanced primary health care, and also a growing opposition to these ideas. Under financial restrictions the weaker partner usually suffers more. This is a decisive moment for the future of primary health care and for the health of people in general. There is no time to delay decisions or wait.

The social aspects of primary health care are essential

Primary health care has to be organized according to social realities in which communities live and work. Because of that, a variety of solutions might be expected. Principles have to be applied with full understanding of conditions and with expectation of changes in the period of dynamic development. The socio-economic relations, community structures, differences in power and interest, existing communication and other social networks have to be taken into account. There are also specific ecological conditions which influence the differences in epidemiological situation, health risks and needs.

The orientation of health care towards the needy and the underprivileged (rural populations, youth, elderly, etc.) is one of the important principles. The growing inequalities in health have to be opposed by an essential change in socio-economic relations. The problem cannot be solved by establishing a second - class service for such groups, as it is often in reality. Primary health care has to be differentiated from "primitive" health care.

Another social aspect of primary health care is covered by **community participation and involvement**. Communities have to decide what they want in the way of health care and how to achieve it. More than in any other field, there are many false and disappointing ways by which this concept is put into practice. Unrealistic expectations are raised, without changing the general social and political conditions.

New approach to the **technology of primary health care** is needed. In some instances it will be sufficient to adapt existing technologies to needs, but many new ones have to be developed. Self-care, group care and community care are few examples. In reality, however "high-technology" approach has suppressed primary health care, considering it only as a vehicle for delivery of services. Primary health care should be developed as a health **discipline in its own right**. Research and education should support this development.

Primary health care is expected to build a **bridge between traditional and contemporary specialized medicine**. Therefore, it should be organized using the intermediate and combined type of technology. It has to be different from haphazard practices of traditional medicine and also from specialist polyclinics, which are regarded as the prototype of medical "industry".

The organization of volunteers and support of free initiative might be examples of success in practice, but continuity of activities should be secured, the reference and communication with other parts of the health system provided and profit making malpractice avoided.

Organizational forms of primary health care

Different **organizational solutions** in implementation of PHC have to be expected under different conditions, i.e. in individual countries and health systems. This does not mean, however, that every solution is

¹ Adapted from: Jakšić Z, Folmer H, Kovačić L, Šošić Z, eds. Planning and management of primary health care in developing countries. Training guide and manual. Zagreb: Andrija Štampar School of Public Health, Medical School, University of Zagreb, 1996 (2).

appropriate. Integration of health programmes, interaction and coordination of work of health and other sectors, continuity and **building of permanent infrastructure are intended principles. In reality, a strong confrontation among different** programmes is a common finding. The controversy between "selective" and "comprehensive" primary health care reflects deep differences in political interests and social policies.

Fig 1. Horizontal and vertical organized primary health care

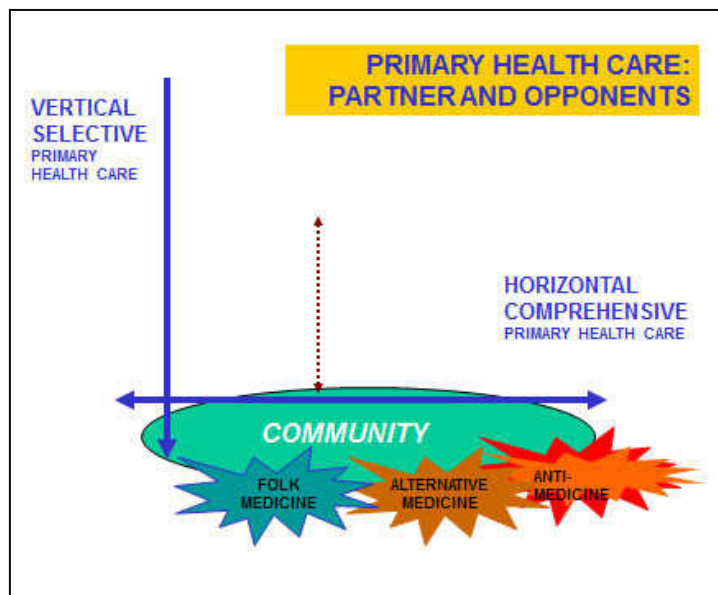


Table 1. Characteristics of two types of PHC organization

Characteristic	Vertical PHC	Horizontal/comprehensive PHC
Foundations	Technical, scientific	Social, experienced
Objectives	Solution of selected health problems	General improvement of health and quality of life
Target population	Groups, areas	Families, communities
Management	Centralized, administrative	Distributed, participatory
Time scale	Short term: years	Long terms: decades
Impact	Focused on problems	Cultural

The main characteristics of two types of primary health care organization are illustrated on Figure 1 and Table 1.

Primary health care is envisaged as a general solution for all types of communities and all people. It was repeatedly stated that primary health care approach should be the general answer to health needs of all people, regardless whether they live in better developed areas or in poor and underprivileged circumstances, in urban or in rural settings. However, very often primary health care is wrongly conceived as a special project for delivery of health services for poor rural population. Some of these population groups really need to have priority, but they should not be considered in isolation. Primary health care is not a second class service for the underprivileged.

On the other hand, programs aimed at fighting single diseases have helped many, but they have also weakened public health systems. There is widespread agreement that such vertical programs have led to a fragmentation of primary health care.

To combine two approaches it was introduced a new type of organization of PHC, so called diagonal PHC. A diagonal approach to building primary healthcare systems was recommended mainly in resource-limited settings: women-centered integration of HIV/AIDS, tuberculosis, malaria, MCH and NCD initiatives (3). Vertical and horizontal approaches of PHC organization can complement each other.

A system of **community-based health centres** provide a working model, but bureaucratization and over institutionalization have to be avoided. Without strong political commitment and planned intervention under the name of PHC a service will develop with emphasis on medical cure and care.

The community-oriented health workers and family practitioners (volunteers, auxiliaries, nurses, midwives and physicians), their team work and leadership in the health field should be the focus of the system. They should be accepted and close to local culture and because of that accepted by people. In reality their attitudes,

interests and training are often far from people's interest and culture. Besides, their power and position in the hierarchy of health services are very low.

The implementation of PHC demands **active support** by the **whole health system**. Among the most important requirements are the appropriate political atmosphere, planning of adequate resources, reorientation of health workers, inter-sectorial collaboration and networking of the involved institutions.

Verbal support is usually given to these PHC principles but restrictions are imposed. Sometimes, the financial and best human resources are oriented to other parts of the health system. Besides this, PHC is often organized as a special project to other vertical health programmes. The networking is often formal and every sector carefully watches its own resources.

There are differences between intentions and realities in implementation of PHC, but at least intentions are now well formulated. They have to be protected from corruption. Hard work and a long way are ahead.

The question is why the difference, the gap between intention and real practice is still widening in many places. Is it because the economic conditions diminished implementation, simply because not enough was done by responsible groups, or because there is another intention hidden growing a “new vine in old bottles”.

Case study

Organization of health care in Croatia

Health care services in Croatia are organized on three levels: primary, secondary and tertiary.

Primary level: General/family medicine, paediatric, gynaecological and dental practices, public health nursing, diagnostic laboratories and supporting services, pharmacies. The core of primary health services in Croatia are general/family medicine, paediatric services and community nurses.

Secondary level: county hospitals with specialized polyclinics, specialized hospitals for chronic diseases, county institutes of public health.

Tertiary level: teaching hospitals, clinical hospital centres and state's institutes of health (e.g. National Institute of Public Health).

Facilities discharging health activities are either in state, county or private ownership. Teaching hospitals, clinical hospital centres and state institutes of health are state owned. Health centres (“Home of Health”), polyclinics, general and special hospitals, pharmacies, institutions for emergency medical aid, home care institutions and county institutes of public health are county-owned. Polyclinics, pharmacies, general practice and family medicine units, speciality medicine units, as well as laboratories can be private.

Although the county is responsible for organization of the primary and secondary level, the state for the tertiary level, the most important responsibility for the operation of health care is financial responsibility, which is organized by the Croatian Institute for Health Insurance.

The health system is developed relatively well among the countries in the region. The health personnel are well-trained and public health services are well established and organized. Around 30% of general practitioners are specialists in family medicine.

During 2003 and 2004 started a new intensive project of training of primary physicians as family physicians (180 each year) with the financial support from Croatian Health Insurance Institute (CHII). Some of health delivery indicators are shown in table 2, and health services indicators in table 3.

Table 2. Health service delivery indicators for Croatia

Indicators	1992	1995	1998	2001	2003	2006	2011
No. of hospital beds, per 1000 population	6.2	5.8	5.6	6.0	5.6	5.5	6.0
No. of physicians, per 100 000 population	197.5	203.6	228.8	237.8	261.8	271.0	281.1
Inpatient care admissions, per 100 population	11.7	13.4	14.2	15.8	16.2	17.0	17.5
Average length of stay, all hospitals, in days	15.2	13.2	12.6	11.8	11.0	9.9	9.3
No of nurses per 100 000 population	444.6	403.5	447.2	500.0	504.2	526.0	571.9
No of dentists per 100 000 population	42.5	56.0	67.7	68.1	71.7	74.8	70.2
No of pharmacists per 100 000 population	36.5	37.1	45.5	50.4	56.6	59.9	67.0

Sources: Croatian Health Service Yearbook, Croatian National Institute of Public Health (4).

Table 3. Number of health institutions in Croatia by type

Institution/Year	2000	2003	2006	2011
Health centre (Home of health)	120	69	47	49
General hospital	23	23	22	22
Clinical hospital and clinic	12	12	12	7
Teaching hospital	2	2	2	5
Special hospital	30	29	29	33
Health resort	5	7	6	7
Emergency care station	4	4	4	13
Polyclinic	154	257	314	363
Nursing care institution	102	138	153	167
Pharmacy	121	163	177	184
Private practice units (Doctor's offices, labs, pharmacies, etc.)	6137	6598	6571	6001
Occupational health institutions	1	12	12	9
Institutes of Public Health	21	21	21	22
Health company	6	5	46	300

Source: Croatian Health Service Yearbook, Croatian National Institute of Public Health (4).

Financing and reimbursement of health care

Two basic acts regulate health care and health insurance: Health Care Act and Health Insurance Act. In accordance with the former, Croatian citizens have health insurance based on the equal entitlement to overall health care with a high level of solidarity.

Health care in Croatia is financed from several sources. A major part of the Croatian health system is financed according to the national health insurance model. The funds are collected from the contributions from employees' salaries that are paid by employers based on salary percentage, from the farmers' contributions, and transfers from the central government budget or county budget for certain categories of the population. Croatian government budget is providing more than 85% of funding for health care services (Croatian Health Insurance Institute-CHII funds are collected from compulsory health insurance contributions that are paid from salaries of insured persons). In Croatia health care allocations amount to 9% of its GDP, which is significantly higher in comparison to the CEE and SEE countries.

According to the Health Insurance Act in Croatia, there are three main health insurance schemes: basic, supplementary and private health insurance.

Basic health insurance is compulsory and is provided by the Croatian Health Insurance Institute (CHII). Supplementary health insurance is also provided by the CHII as well as by private insurance companies. Private health insurance provides higher standard of health services than provided by the basic, obligatory insurance coverage.

The CHII insurance scheme provides basic health services to insured persons through their legal right on the so-called 'package/basket of health services'. This 'package/basket' strictly identifies health care services covered by the CHII, as well as health services that are paid through the supplementary health insurance scheme.

Apart from the participation charge, some health services are paid directly by the patients, such as non - prescription drugs. The citizens pay full price for some health services in private health institutions. This especially refers to dental health care, specialist-consultation service, and some services provided at private polyclinics, special state-owned or private hospitals (5).

Access to health care

Every citizen has right to choose his/her own primary health medical doctor: general practitioner/family physician or paediatrician (for children), and gynaecologist for pregnancy control and gynaecological problems. Parents can also choose the GP for their children. This is mostly the case for the rural and underserved areas, but recently also for urban areas in the case that GP is family physician specialist. Individuals with chronic diseases are followed-up by general practitioners/family physician (or paediatrician for children). GP can ask advice from the specialist if she/he cannot solve the problem of the patient (diagnostic procedure, recommendation for treatment). Prescriptions for the chronic patient are done by GP.

For acute patients the procedure is the same as for the chronic patient. In the case of emergency, the emergency service is called by the patient or family. Emergency cars (ambulances) are equipped by physician, technician and driver. After the health problem is solved by emergency services and hospital (if needed), the patient will continue his/her care by his/her own doctor.

Patients with long term care use the health services in the same way, if they stay at home. If they need the nursing care there is community nursing service that can do nursing services at home. The patient's GP is

asked to prescribe such services. If the patient needs such services for a longer period than health insurance administration should confirm such needs. If the patient is not able to live at home there is possibility to be hospitalized in the hospital for long term care, or he/she can go to elderly home. Each elderly home has rooms for bed-ridden patients. Nursing care in such situation is taken by nurses and assistant nurses employed by elderly home. Medical care in the elderly home is provided by GP.

Dental care is at primary level and the access to this care is free for everybody. The most of dental care practices are private, but they have the contract with the health insurance for free treatment of population.

Physiotherapy is organized at community level; patients need the referral ticket from GP to the specialist (physiotherapist), who can order physiotherapy.

Patients can be seen by GP free of charge (before April, 2008 patients had to pay tax of 10 kunas per visit – up to 30 kunas per month). For the use of specialist service patient have to pay certain amount. This payment is covered by additional voluntary insurance, and patients who have this type of insurance will not pay tax.

Exercises

Task 1: Comparison of intentions and realities in primary health care

Primary health care is a crucial term for the studies in public health and related specialties. Its well known descriptive definition and explanation of meaning is described in the Declaration of Alma Ata (1). There are several layers in the meaning of that term. In this exercise we shall simplify it by speaking about principles and components or elements of primary health care. Dividing these two aspects may help in clarifying the exact meaning as we conceive it in practice.

You should answer the questionnaire individually and then compare the answers with the opinion of others in the group. Individual and group attitudes, estimates and judgements of principles and elements of primary health care as they appear "in theory" and "in practice" will be specified.

In expressing your own opinion in the questionnaire you should consider **real circumstances**. There are **no good or bad answers**, but differences in attitudes and individual experiences. You will find that some questions are ambiguous and general so that it is difficult to answer them. In such situations you should try to think in examples.

If you find differences between your answers and answers of your colleagues, you will discover that speaking in **concrete examples** and pictures contributes to mutual understanding far better than sophisticated abstract discussions. You will also find that, the same example may be judged differently from different points of view.

When summarizing the experience in the group, consider that the most common "miss – interpretations" of primary health care fall in some of the following categories:

PHC = **primitive** health care

PHC = **peripheral (rural)** health care

PHC = **personal** health care, primary **medical** care.

Besides, there are deep ideological controversies hidden under the term of primary health care. Is it meant to be the same as **basic health care**, or is it **selective** or **comprehensive** (integrated) PHC.

Expected outcomes for the task 1:

1. Answered questionnaire (see Annex)
2. Comments to answers, item by item, after consideration in your working group, discussing particularly differences between optimal and actual, and among situations in various countries.
3. Short summary report and suggestions to the plenary session.

Task 2: Comparisons of primary health care under different conditions

During the visits organized to different places in the country many data are collected about different organizational patterns of primary health care services. This was especially true for the old and new part of big urban areas and for rural areas with dense as opposite to scattered populations. This exercise is aiming to summarize your observations.

Table 4. Comparisons of different organizational patterns of primary health care

SPECIFIC AND TYPICAL CHARACTERISTICS	URBAN SETTING OLD	URBAN SETTING NEW	RURAL SETTING DENSE	RURAL SETTING SCATTERED
Population structure, social networks, community organization and participation				
Specific health risks and services needed				
PHC levels and health institutions				
Main organizational problems and dilemmas				

Using notes and impressions as well as results of discussions with colleagues after different visits summarize specific and typical characteristics of visited places in relation to population structure, specific health risks, structure and organization of primary health care. The task has to be fulfilled in small working groups and reported to the plenary session of participants for consideration.

The organization of health services is directly or indirectly dependent on population structure and dominant health problems, but also on tradition and leadership. Consider inter-relations of these factors. What you can learn after comparing the visited places with your own circumstances? Have you identified some elements or details which would be useful for your services? Have you learned some negative experiences to know what has to be avoided?

Expected outcomes for the task 2: Table 4 has to be completed and compared with observations of colleagues.

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Annex: principles and components of primary health care questionnaire

Put cross on each scale:	how it should be No- ----x----Yes 0 1 2 3 4 5	how it is now (under existing conditions) No-----x-----Yes 0 1 2 3 4 5
1. Principles		
a. PHC makes a part of community development	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5
b. PHC satisfies priority needs and demands of all people	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5
c. Community participates in the decisions on PHC	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5
d. Community participates in health care activities	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5
e. The poor people have better attention	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5
f. Traditional arts in prevention and healing are included in PHC	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5
g. Principle of equity is implemented in allocation of resources	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5
h. The self-reliance is the final goal of PHC	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5
i. Special programmes (like tuberculosis) are integrated into PHC	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5
j. PHC is an intersectoral approach to solving health problems (e.g. in nutrition)	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5
k. The PHC is predominantly oriented to rural areas	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5
l. Health services are available and accessible	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5
m. Hospitals are oriented to support PHC	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5
n. Hospitals are predominantly providing PHC services	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5
o. The auxiliaries and voluntary workers make essential part of the PHC	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5

p. The supervision of PHC services is strict and authoritarian	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5
r. The referral system is well organized	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5
s. PHC includes all types of health services and integrates them	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5
t. The training institutions should lead services towards PHC goals	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5
u. PHC has to get the major part of financial means	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5

2. The following are the essential components of PHC:

a. Education concerning prevailing health problems	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5
b. Promotion of food supply and proper nutrition	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5
c. Adequate supply of safe water and basic sanitation	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5
d. Maternal and child health care including family planning (or birth spacing)	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5
e. Immunization against major infectious diseases	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5
f. Prevention and control of locally endemic diseases	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5
g. Appropriate treatment of common diseases and injuries	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5
h. Provision of essential drugs	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5
i. Mental health	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5
j. Occupational health	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5
k. Programmed care for disabled	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5
l. Service for chronically ill persons (hypertension, and diabetes)	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5

m. Care for the aged	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5
n. Dental care	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5
o. Provision of emergency services	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5
p. AIDS	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5
r. Other (specify)	No-----Yes 0 1 2 3 4 5	No-----Yes 0 1 2 3 4 5

YOUR COMMENTS:

HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title	Mental health care
Module: 1.7	ECTS (suggested): 0.1
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Keywords	Mental care, mental disorder prevention, mental health promotion, Slovenia.
Learning objectives	After completing this module, students should have increased knowledge about mental health, and they should be aware of the magnitude of the mental health problem in Europe and understand the major obstacles for mental health service and mental disorder prevention planning.
Abstract	Mental health conceptualize a state of well-being, perceived self efficacy, competence, autonomy, intergenerational dependence and recognition of the ability to realize one's intellectual and emotional potential. Mental health care are services provided to individuals or communities by agents of the health services or professions to promote, maintain, monitor, or restore mental health. Students will become familiar with extensiveness of the problem, and levels of preventing it. It is illustrated by the case of Slovenia.
Teaching methods	Teaching methods include lectures, exercises, individual work, interactive methods such as small group discussions, seminars etc. Plenary lectures are followed by discussion and project work in exercises. The work is done partly individually and partly in small groups.
Specific recommendations for teachers	<ul style="list-style-type: none"> • ECTS: 0.25 • work under teacher supervision/individual students' work proportion: 50%/50%; • facilities: a computer room; • equipment: computers (1 computer on 2-3 students), LCD projection equipment, internet connection, access to the bibliographic data-bases; • training materials: recommended readings or other related readings; • target audience: master degree students according to Bologna scheme.
Assessment of students	Assessment could be based on structured essay, seminar paper, case problem presentations, oral exam and attitude test.

MENTAL HEALTH CARE

Vesna Svab, Lijana Zaletel-Kragelj

Theoretical background

Definitions and explanation of basic terms

Mental health

According to World Health Organization (WHO), mental health is more than the mere lack of mental disorder (1-3). The WHO states that mental health conceptualize a state of well-being, perceived self efficacy, competence, autonomy, intergenerational dependence and recognition of the ability to realize one's intellectual, and emotional potential. It is also a state in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his/her community (4). In this positive sense, mental health is the foundation for well-being and effective functioning for an individual and for the community. This core concept of mental health is consistent with its wide and varied interpretation across cultures (4).

Mental disorder

Mental disorder refers to a psychological or physiological pattern that occurs in an individual and is usually associated with distress or disability that is not expected as part of normal development or culture. It is any of various conditions characterized by impairment of an individual's normal cognitive, emotional, or behavioral functioning, and caused by social, psychological, biochemical, genetic, or other factors, such as infection or head trauma (5).

Mental health care

According to Last et al. (6), health care are services provided to individuals or communities by agents of the health services or professions to promote, maintain, monitor, or restore health. Health care is not limited to medical care, which implies therapeutic action by or under the supervision of a physician. According to this general definition of health care, mental health care are services provided to individuals or communities by agents of the health services or professions to promote, maintain, monitor, or restore mental health.

Mental health services

According to Last et al. (6), health services are services that are performed by health care professionals or by others under their direction, for the purpose of promoting, maintaining, or restoring health. In addition to personal health care, health services include measures for health protection, health promotion, and disease prevention. According to this general definition of health services, we could define mental health services as services that are performed by mental health care professionals or by others under their direction, for the purpose of promoting, maintaining, or restoring mental health of a population.

The aims of mental health services at the local level are to provide coverage by services according to peoples' needs, provide quality interventions and to collaborate with other agencies to provide a network of care. Mental health services conduct selected and indicated prevention programmes. At the individual level they assess and answer mental health needs, ensure participation of people with mental health disorders and their families in treatment and care, provide information for patients and carers, prevent relapse and assist recovery and social participation (7)

Community mental health

Community mental health is a decentralized pattern of mental health, mental health care, or other services for people with mental diseases accessible and responsive to local needs because it is based in a variety of community settings (8), being culturally responsive. Community care means services close to home. A modern mental health service is a balance between community based and hospital based care, which replaces the traditional system dominated by mental hospitals and outpatient clinics (9). Community mental health assessment, which has grown into a science called psychiatric epidemiology, is a field of research measuring rates of mental disorder upon which mental health care systems can be developed and evaluated (8).

Mental disorder prevention

General concept of disease prevention and its levels (primordial, primary, secondary, and tertiary; detailed description of these levels is out of scope of this module) (6), can be applied to all different fields of population health, also to the field of mental health. Mental disorder/disease prevention could be described as

interventions to avert the initial onset of mental disorder, interventions to treat these disorders and prevent comorbidity and interventions used to prevent relapse, and disability.

Mental hygiene

In public health, the concept of “mental hygiene” is more and more important. Felix and Bowers (10) defined mental hygiene as knowledge and skills requisite to reduce mental disorders and maintain mental health.

Levels of mental disorder prevention

Before discussing levels of mental disorder prevention according to public health classification, we need to expose one of most important supportive elements not only for primordial level of prevention, where is usually classified, but for all levels of mental disorder prevention - a healthy mental health policy - a special document, containing the goals for improving the mental health situation of the country at all levels (11).

Similarly as in prevention of other disease groups, also in mental disorders we divide prevention in four groups, being primordial, primary, secondary and tertiary.

Primordial prevention

Primordial level of mental disorder prevention is aiming at keeping mental disorders from ever occurring.

Activities at this level are mainly focused at total population and are acting by using non-specific measures. The most important activities are taken at the field of:

1. Policy:

The most important element for providing good mental health of the population is mental health policy targeting reduction of social exclusion, unemployment and stigma. It is to be described in a special document, containing the goals and steps towards improving the mental health situation of the country population. In this category mental health policy (healthy mental health policy), and social policy targeting reduction of social exclusion, unemployment and stigma, are classified.

Stable and supportive political system, secure environment supporting violence prevention, good housing conditions, good and accessible educational system, good employment policy, and good care for occupational health are of great importance for well-being of an individual and population, and also determine mental health of a population. Reducing unemployment and enhancing job security, that both proved to be one of the main primary prevention actions in mental health, since unemployment is strongly connected with anxiety, depression and substance abuse.

2. Health promotion:

Mental health promotion with providing mental health supportive social environments, especially to endangered and vulnerable population groups (e.g. mothers and young children, workplace mental health promotion, addiction prevention programmes, etc.), as well as promoting healthy environment on general (healthy food supplies, accessible transport, etc.), is the next category. Mental health promotion is defined as a process of enabling people to increase control over the determinants of their mental well-being and to improve it (11). It covers a variety of strategies, all aimed at having a positive impact on mental health. Like all health promotion, mental health promotion involves actions that create living conditions and environments to support mental health and allow people to adopt and maintain healthy lifestyles. It works through strengthening individuals and communities and with reducing social barriers to health, the most important of them being discrimination and social exclusion. Mental health promotion thus addresses inequalities by promoting access to education, employment, housing and support to vulnerable groups (12). It gives support to mothers and young children, includes workplace mental health promotion, addiction prevention programmes, healthy food supplies and accessible transport, and promotes healthy lifestyles and coping with stress, at the individual level (13). This includes a range of actions that increase the chances of more people experiencing better mental health at the community level (4). Examples of mental health promotion interventions include (13):

- improving the social environments in schools,
- designing facilities to encourage meeting and social interaction in communities,
- promotion of healthy lifestyle,
- follow up and support for healthy and good parenting,
- promoting healthy upbringing and education,
- mental health promotion campaigns in workplaces, etc.

The key areas of mental health promotion in the community to be addressed are therefore directed to:

- antistigma and antidiscrimination - stigma is one of the most responsible causes for social exclusion of people with mental disorders, and undertreatment. It is penetrating all levels of mental disorder prevention. Combating stigma should be present at all levels of mental disorder prevention, and public education in this respect should be one of the most important efforts of public health. Stigma creates a vicious cycle of alienation and discrimination which can lead to social isolation, inability to work, alcohol or drug abuse, homelessness, or excessive

institutionalization, all of which decrease the chance of recovery (14). Combating the stigma and discrimination attached to mental illness is one of the priorities of mental health promotion and prevention. The overall conclusion of research on stigma and discrimination gave some premises that the best course of action to support people with mental illness is empowerment, including a connection with supported employment and job coaching, national policy changes, development of quality services and anti-stigma education of mental health workers. The strongest evidence at present for active ingredients to reduce stigma pertains to direct social contact with people with mental illness and social marketing on the population level (15);

- health promotion in schools building links among schools and communities and improving self esteem of their pupils. Important parts of this programmes are anti-bullying programs, improving communication and problem solving. Healthy schools are building core competencies and capacities with social competence approach. They target problems in childhood and adolescence, complex needs of this population using community, communication and identification with healthy environment;
 - reducing work-related stress, including unemployment, and underemployment, but main focus is in reducing stressful working conditions. Educational programmes for employers and employees about mental distress and mental disorders and prevention are recommended. Stress prevention programmes with campaigning for leisure and recreational activities are further preventive measures. Access to relief and rest and recreation in leisure time are included. The Scottish programme Health on the Workplace, for example rewards employers for their interest in healthy and motivating environment and for preventing sick leaves. Similar initiatives are emerging also in Slovenia in last years;
 - campaigning for access to education and fighting against poverty and social exclusion are cornerstones of social policy directed towards better mental health of the population (16). Programmes for reducing poverty and social exclusion, programmes for reducing homelessness, racism, discrimination and stigmatization are one of the main weapons for reducing the rising mental health morbidity in Europe (17);
 - programmes targeting the reduction of domestic violence: for example supporting women and developing skills to leave situation of abuse; provision of refugees general parental support, education on gender issues, education of professionals and police, provision of helplines, etc. Community based programmes (in Great Britain Health Action zones) including identifying community needs and focusing on coping styles, social support and social help including social support with friendship, good social relations and strong supportive networks improve mental health are another example. All this reduce the physiological response to stress;
 - body-mind techniques for relaxation could prevent a great deal of distress, and consecutively outbreak of mental disorders in some individuals, as well as other diseases.
3. Advocacy:
Advocacy is a way to promote the needs of people with mental health problems and make informed decisions about their treatment and care, and to advocate for and empower this group. Advocacy might be seen as a part of antidiscrimination (18).
4. Self-care:
at the individual level taking measures of self-care by practicing healthy lifestyles and learning of skills for coping with stress (mental hygiene) is a very important part of good mental health (10,13).

Primary prevention

Primary level of mental disorder prevention is, like primordial level, also aiming at keeping mental diseases from ever occurring, but it is dealing with endangered and vulnerable population groups (e.g. adolescents, pregnant women, people in employment, disabled, old people etc.) and is acting by using more specific measures like health education. Examples of primary mental disease prevention interventions include:

1. prenatal care and education about parenting,
2. support after childbirth with counseling and practical help in breastfeeding and reducing tension and fatigue, preparation for parenting and support after childbirth are most successful with home visits and answering to parents' expressed needs, especially with children at risk (18),
3. financial and social support to families at social risk,
4. child-abuse awareness and preventive programmes,
5. drug and alcohol free prevention programmes in endangered groups,
6. counseling for crime victims (in Slovenia, for example, special care coordinators for violence prevention are employed in some centers for social work for preventive measures), and
7. somatic disease prevention, since chronic somatic illness increases likelihood for ill mental health.

Secondary prevention

Secondary level of mental diseases prevention involves the early detection of mental disorders and early intervention to reduce the risk of chronicity, disability and suicide. Early detection and treatment in all mental disorders improves their outcome and prognosis.

1. Screening:

Especially important is this kind of prevention in the field of depression, and alcohol disorders:

- early detection of depression as most common mental disorder proved to improve outcomes and reduce suicidal rates as confirmed by many studies. US Preventive Services Task Force (USPSTF) recommends screening adults for depression in clinical practices that have systems in place to assure accurate diagnosis, effective treatment, and follow-up, but the evidence is insufficient to recommend for or against routine screening of children or adolescents for depression (19). Screening for depression and educating general practitioners (GPs) for recognising signs and symptoms of depression have become one of the most widely used preventive tools all over the world. This kind of education of GPs proved reduction in suicide rates because of such educational campaigns are strongly embedded also in the Slovenian education of family physicians and proved similar results;
- screening and behavioral counseling interventions to reduce alcohol misuse by adults, including pregnant women is recommended as well (19). It is used in many primary practices, as well as in some NGOs, and social settings through self help and counselling. Early recognition is of course to be followed by proper and evidence based treatment being mostly parallelly psychopharmacological, psychotherapeutic and educational.

On the other side, USPSTF concludes that the evidence is insufficient to recommend for or against routine screening by primary care clinicians to detect suicide risk in the general population (19).

2. Other types of secondary prevention:

Other types of secondary prevention are case finding, and health risk assessment (20), being questioned in last years because of overuse and obvious goal to avoid law suits. In short, risk assessment cannot be a substitute for quality clinical practice and evaluation (21).

Coping and self-help are evidence based interventions that prove to improve functioning, self-reliance and empowerment of affected individuals. Self-help in mental health is the basis for development and flourishing of Recovery approach, taking into account individuals' strengths and potentials in everyday life (22).

Tertiary prevention

Tertiary level of prevention of mental diseases from the public health point of view is: dealing with treatment and care for people with clinically expressed mental disorders. We distinguish between acute, primary, or early phase, and chronic, late or rehabilitation phase:

1. Psychiatric or primary care treatment:

Psychiatric care treatment is aiming at reducing the signs and symptoms of mental disorder, improving coping abilities of patients and families and in improving adherence to treatment process.

2. Psychiatric rehabilitation:

Psychiatric rehabilitation aims to reduce disability because of mental disorder in the patients' natural surroundings, which is most often his/her home environment. Psychiatric rehabilitation targets patients' assessed and clearly defined personal needs, needs of his/her carers and relatives and uses methods of empowerment and participation to achieve as high level of personal satisfaction as possible.

Multidisciplinary team work is used to define clear rehabilitation goals and steps to achieve them with careful monitoring and follow up. Coping strategies are taught and discussed with patients and family members, distress is managed and medication is maintained almost inevitably. These methods are combined with counseling, motivation, self help, sheltered accommodation, sheltered employment and education if needed.

The majority of rehabilitation takes place in the community, even though this process may be started already in the phase of psychiatric treatment. The needed level of rehabilitation support varies enormously and depends on the patients' perceived needs and current functioning more importantly than on the signs and symptoms of his/her disorder.

Epidemiology of mental disorders in Europe

General considerations

Mental disorders contribute 12.3% to the total burden of disease; the expected burden will rise to 15% in 2020, which is 450 million people worldwide. Mental disorders contribute from 31% (Europe) to 43% (USA) to the total disability adjusted life years (23).

The prevalence of mental disorders in Europe is increasing, 12-months prevalence is estimated to 27% in 16 European countries. Every second European will develop mental disorder once in his/her life, women more often than men (33%: 22%) (24). Almost half of the people with mental disorders have more than one diagnosis. Co-morbidity with somatic illness and with psychoactive substances abuse and dependence are most common. Co-morbidity of depressive disorder with coronary heart disease is 45% (25). 48% of somatic symptoms are connected with depression (26), which present difficulties in early recognition and treatment and consequently highly burdens medical services, produces over prescription of different medication and increases the cost of treatments. Overall costs of depression involving direct cost of treatment and indirect cost of sick-leaves, absenteeism and underproduction are rising in developed countries (27). Most common mental disorders are anxiety, depression and substance abuse disorders (28). One fifth of women and one tenth of men will develop depressive disorder at least once in their lifetime (29).

The public health impact of mental disorders is enormous as shown by Mental Health Reports, showing that the prevalence of all mental disorders in previous year rose over the third of population (30). Every year 38% of the EU population (or 164.7 million people out of 514 million) suffer from one or more mental disorders. Yet treatment provision is highly deficient, with medication costs accounting for less than 10% of the total cost burden. The severity of these disorders is high, because they interfere with personal functioning. Disorders of the brain account for over 27% of Europe's disability-adjusted burden of disease – more than any other disease area. In terms of mortality, they contribute to 8.1% of avoidable years lost. The most common mental disorders are depression and anxiety and depression is going to be the leading cause of disability by 2020. Mental disorders have severe consequences for individuals and their families regarding quality of life, loss of independence, work capacity and poor social integration.

The availability of mental health services is poor all over the world. In the case of severe mental disorders from 35-85% of people are untreated, the treatment gap being the widest in underdeveloped countries. The numbers in milder mental disorders are also higher. Almost three quarters of mental disorders begin before the age of 24, and half of them before the age of 14 (31), which has enormous implications for mental disorder prevention. The Mental Health Declaration for Europe (32) called for providing effective care for people with mental disorders and to provide evidence based prevention. The antistigma programmes developing in the last decades all over the world are the most important tools for improving access to mental health care and to improve their acceptability. The public knowledge about mental disorders should be improved, as well as cooperation and communication among stakeholders. In last years the knowledge about social determinants of ill mental health and strong connection among ill mental health and poverty emerged. The following EU declarations called for improving social and economical position of people with mental disorders and to protect their human rights.

A WHO study, performed by Murray at al. (33), identified depression to be heading the list of disorders responsible for the global burden of disease in industrial countries, followed by alcohol abuse (34) (Figure 1). The research proves that the prevalence of common mental disorders connects itself with the lower socio-economic status or social inequality (28). Unequal distribution of wealth is more strongly connected with worse mental and physical health and with early mortality than the GDP (35). The cost of mental disorders in Europe amounts to 295 billion Euro.

Mental disorders remain under-recognised and under-treated. In the European Union (EU) only 26% of people with mental disorder get proper treatment. Among the reasons for under-treatment are poor accessibility of services for mental health, under-recognition and stigma associated with mental disorders (24).

The most severe consequence of mental disorders is suicidality.

Suicidality

More than 90% of suicides occur in the context of a psychiatric disorder, depression being by far the most important one. Annually, more than 58,000 persons in the countries of the European Union commit suicide. Suicide rates (number of people died of suicide per 100,000 population) per country range from 5.92 per 100,000 in Italy up to 25 per 100,000 in Slovenia (WHO-data, 2001-2003) (34) (Figure 2).

Europe-wide, dying from suicide accounts for the second highest risk of death for young men and the third highest risk for young women. About 14% of all suicides occur in the age range of 15–24 (Report on the state of young people's health in the EU, EC Working Paper). Compared to the number of suicide deaths, the number of suicide attempts is assumed to be much higher. Estimates for the younger aged, range from 20 to 30 suicide attempts on every suicide. Given this situation, interventions aiming at the prevention of suicidality and, thereby, especially focusing on children, adolescents and young people are urgently needed.

Mental disorders are also connected to harmful alcohol consumption. In addition to having a direct impact on drinkers it also poses a threat to others. Drink driving and working under the influence of alcohol; drinking during pregnancy; and violence related to alcohol consumption too often cause early death of mostly young people, invalidity, and social deprivation. Harmful and hazardous alcohol consumption causes more than 7 per cent of early morbidity and mortality in EU, which represents an enormous economic burden to society. The Estimated annual costs at the EU level resulting from harmful use of alcohol have been estimated to EUR 125 billion, or 1.3 percent of the gross national product.

Figure 1. Results of the WHO study “Global Burden of Disease”
 [Source: European Alliance Against Depression (EAAD) (34)]

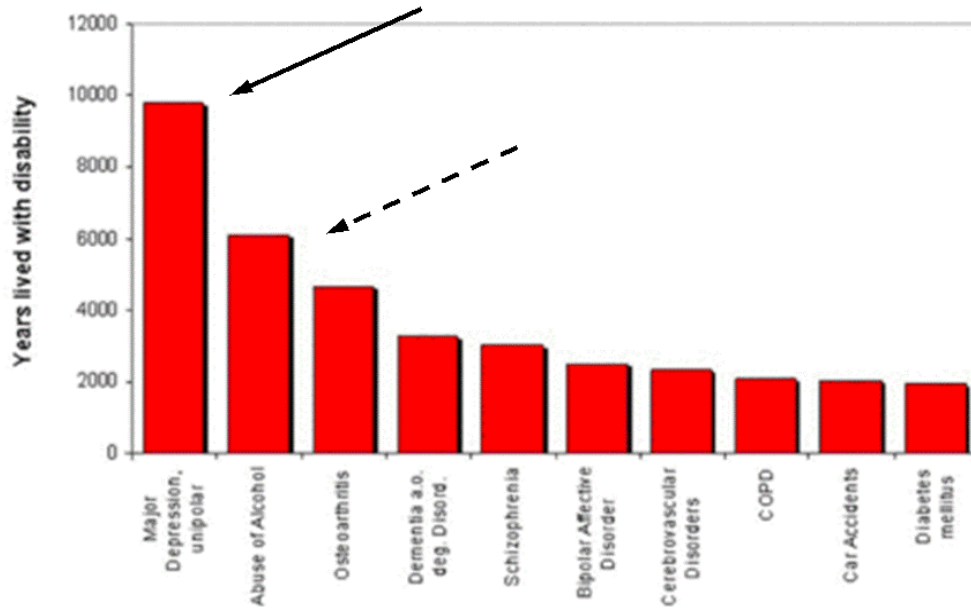
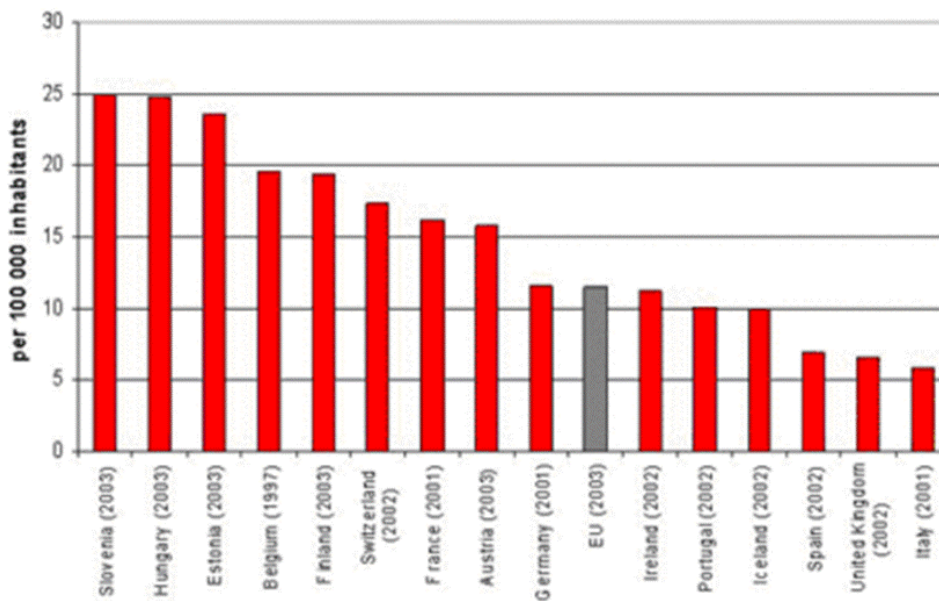


Figure 2. Suicide rates in EAAD partner countries
 [Source: European Alliance Against Depression (EAAD) (34)]



Child and adolescent mental health in EU

In Europe one adolescent out of five has cognitive, emotional and behavioral difficulties and one adolescent out of eight suffers from a diagnosable mental disorder. The prevalence of these disorders is increasing decade by decade. Suicide associated with depression, substance abuse, eating disorders, conduct disorders, attention deficit hyperactivity disorders (ADHD) and post traumatic stress disorder (PTSD) in children deserve concerted action. Developmental psychiatric disorders rarely have a spontaneous remission and may cause difficult social adaptation or mental disorder in adult life, if not early diagnosed and treated (36). The majority of mental disorders begin in childhood and adolescence, 75% by the age of 24 (30).

Mental health on the WHO and EU agenda

Mental health is the WHO's agenda of priority as well as the European Commission regarding EU population's health.

1. In "Health 21", adopted in 1999, the Target 6 is dealing with improvement of mental health (37). According to this target, by the year 2020, people's psychosocial wellbeing should be improved and better comprehensive services should be available to and accessible by people with mental health problems. Preventive, clinical and rehabilitative services were supposed to be of a good quality.
2. In 2001 WHO report (38), the following recommendations were accepted:
 - to provide treatment in primary care - the management and treatment of mental disorders in primary care is a fundamental step which enables the largest number of people to get easier and faster access to services it needs to be recognized that many are already seeking help at this level. This not only gives better care. It cuts wastage resulting from unnecessary investigations and inappropriate and non-specific treatments. For this to happen, however, general health personnel need to be trained in the essential skills of mental health care. Such training ensures the best use of available knowledge for the largest number of people and makes possible the immediate application of interventions. Mental health should therefore be included in training curricula, with refresher courses to improve the effectiveness of the management of mental disorders in general health services;
 - to make psychotropic drugs available - essential psychotropic drugs should be provided and made constantly available at all levels of health care. These medicines should be included in every country's essential drugs list, and the best drugs to treat conditions should be made available whenever possible. In some countries, this may require enabling legislation changes. These drugs can ameliorate symptoms, reduce disability, shorten the course of many disorders, and prevent relapse. They often provide the first-line treatment, especially in situations where psychosocial interventions and highly skilled professionals are unavailable;
 - to give care in the community - community care has a better effect than institutional treatment on the outcome and quality of life of individuals with chronic mental disorders. Shifting patients from mental hospitals to care in the community is also cost-effective and respects human rights. Mental health services should therefore be provided in the community, with the use of all available resources. Community-based services can lead to early intervention and limit the stigma of taking treatment. Large custodial mental hospitals should be replaced by community care facilities, backed by general hospital psychiatric beds and home care support, which meet all the needs of the ill that were the responsibility of those hospitals. This shift towards community care requires health workers and rehabilitation services to be available at community level, along with the provision of crisis support, protected housing, and sheltered employment;
 - to educate the public - public education and awareness campaigns on mental health should be launched in all countries. The main goal is to reduce barriers to treatment and care by increasing awareness of the frequency of mental disorders, their treatability, the recovery process and the human rights of people with mental disorders. The care choices available and their benefits should be widely disseminated so that responses from the general population, professionals, media, policy-makers and politicians reflect the best available knowledge. This is already a priority for a number of countries, and national and international organizations. Well-planned public awareness and education campaigns can reduce stigma and discrimination, increase the use of mental health services, and bring mental and physical health care closer to each other;
 - to involve communities, families and consumers - communities, families and consumers should be included in the development and decision-making of policies, programmes and services. This should lead to services being better tailored to people's needs and better used. In addition, interventions should take account of age, sex, culture and social conditions, so as to meet the needs of people with mental disorders and their families;
 - to establish national policies, programmes and legislation - mental health policy, programmes and legislation are necessary steps for significant and sustained action. These should be based on current knowledge and human rights considerations. Most countries need to increase their budgets for mental health programmes from existing low levels. Some countries that have recently developed or revised their policy and legislation have made progress in implementing their mental health care programmes. Mental health reforms should be part of the larger health system reforms. Health insurance schemes should not discriminate against persons with mental disorders, in order to give wider access to treatment and to reduce burdens of care;
 - to develop human resources - most developing countries need to increase and improve training of mental health professionals, who will provide specialized care as well as support the primary health care programmes. Most developing countries lack an adequate number of such specialists to staff mental health services. Once trained, these professionals should be encouraged to remain in their country in positions that make the best use of their skills. This human resource development is

especially necessary for countries with few resources at present. Though primary care provides the most useful setting for initial care, specialists are needed to provide a wider range of services. Specialist mental health care teams ideally should include medical and non-medical professionals, such as psychiatrists, clinical psychologists, psychiatric nurses, psychiatric social workers and occupational therapists, who can work together towards the total care and integration of patients in the community;

- to link with other sectors - Sectors other than health, such as education, labour, welfare, and law, and nongovernmental organizations should be involved in improving the mental health of communities. Nongovernmental organizations should be much more proactive, with better-defined roles, and should be encouraged to give greater support to local initiatives;
 - to monitor community mental health - The mental health of communities should be monitored by including mental health indicators in health information and reporting systems. The indices should include both the numbers of individuals with mental disorders and the quality of their care, as well as some more general measures of the mental health of communities. Such monitoring helps to determine trends and to detect mental health changes resulting from external events, such as disasters. Monitoring is necessary to assess the effectiveness of mental disorder prevention and treatment programmes, and it also strengthens arguments for the provision of more resources. New indicators for the mental health of communities are necessary;
 - to support more research - more research into biological and psychosocial aspects of mental health is needed in order to increase the understanding of mental disorders and to develop more effective interventions. Such research should be carried out on a wide international basis to understand variations across communities and to learn more about factors that influence the cause, course and outcome of mental disorders. Building research capacity in developing countries is an urgent need (38).
3. In 2005, a Mental Health Declaration for Europe was adopted in Helsinki (32). The Ministers of Health of Member States in the European Region of the WHO, in the presence of the European Commissioner for Health and Consumer Protection, together with the WHO Regional Director for Europe, recognized that the promotion of mental health and the prevention, treatment, care and rehabilitation of mental health problems are a priority for WHO and its Member States, the European Union (EU) and the Council of Europe (32). According to this declaration, it is a priority of every country to design and implement comprehensive, integrated and efficient mental health system that covers promotion, prevention, treatment and rehabilitation, care and recovery;
 4. This Declaration was followed by the Mental Health Action Plan for Europe (39). This action plan sets out 12 priority areas of action being:
 - promoting mental well-being for all,
 - demonstrating the centrality of mental health,
 - tackling stigma and discrimination,
 - promoting activities sensitive to vulnerable life stages,
 - preventing mental health problems and suicide,
 - ensuring access to good primary care for mental health problems,
 - offering effective care in community-based services for people with severe mental health problems,
 - establishing partnerships across sectors,
 - creating a sufficient and competent workforce,
 - establishing good mental health information,
 - providing fair and adequate funding, and
 - evaluating effectiveness and generate new evidence.

It stresses the need for mental health activities capable of improving the well-being of the whole population, preventing mental health problems and enhancing the inclusion and functioning of people experiencing mental health problems (40).

Case study: mental health care in Slovenia

Epidemiological data on mental disorders in Slovenia

In Slovenia, the burden of mental disorders is measured only indirectly, and only some proxy variables allow us to infer about the extensiveness of the problem. We have the data on health care resources and health care utilization, which tell one story about the problem (by observing the number of outpatient visits on the primary and secondary level, hospital admissions, retirements and absenteeism due to mental disorders). Thus, the problem of epidemiological data in mental disorders in Slovenia is, that we do not have morbidity data (incidence and prevalence of mental disorders) since we do not have corresponding registries. But this is not only the case in Slovenia. Measuring mental health is very difficult, since the data on mental disorders are tightly

connected to personal data protection. On the other hand, measuring the burden of mental disorders isn't a financial priority nor in Slovenia, nor elsewhere.

Mindful project led by Slovenian authors (41), tried to make the methodology of supervising of mental disorder prevention equal in several EU states, but did not find common indicators for measuring positive mental health in EU.

Adult mental health data

In Slovenia there exist some data on determinants of mental health disorders and suicidality.

1. Data on determinants of mental disorders:

Results of CINDI Health Monitor Survey for 2001 showed that (42):

- 8.4% participants reported depression (males 6.3%, females 10.1%),
- 19.1% participants reported insomnia (males 16.1%, females 21.6%) during the last month prior the survey:
- 7.7% participants (males 5.4%, females 9.5%) took sedatives or sleeping pills during the last week prior the survey,
- 24.3% participants (males 21.0%, females 27.0%) perceived tension, stress, or heavy pressure every day or frequently, and had at least minor difficulties in coping with these feelings (43),
- global prevalence of heavy alcohol drinking for Slovenia was 13.4% (males 22.6%, females 5.5%) (44,45).

2. Suicidality:

Every thirtieth death in Slovenia is due to suicide, which is approximately 600 persons committing suicide per year and represent one of the nine highest suicidal rates in the world, with standardized death rate of about 22-24 per 100.000 population in total population (males 37-42; females 9-12) (46). The most affected parts are Štajerska, Prekmurje Koroška and Dolenjska, which are placed on the east and east-north of the country. The gender difference is 3.6 (in males) versus 1 (in females), which is in line with other high risk countries. Suicide is connected with mental disorders (depression, alcohol dependence and schizophrenia), with old age, unemployment and poverty (47).

In conclusion, we could say that in adults two major mental health problems in Slovenia at the moment are prominent, being alcohol addiction and suicide, while depression and stress are still under study.

Child and adolescent mental health data

In children and especially in adolescents the major problem is alcohol use and abuse, and possible addiction later, and illicit drugs abuse. Several kind of evidence proves increase in alcohol and other addiction in young people and adolescent group.

1. Alcohol consumption and other addiction:

Data from the European School Survey Project on Alcohol and Other Drugs (ESPAD) for the year 2003 showed that the percentage of Slovenian students who had been drinking any alcohol during the last 12 months was 83%, while the proportion of students who have used marijuana or hashish was 28%. The use of other illicit drugs was about 5%, the use of inhalants was 15%, and the use of tranquillisers or sedatives without a doctor's prescription as well as alcohol in combination with pills was 5% and 6% respectively (48). Other results could be found in earlier reports (49,50).

Other data show that smoking behaviour in adolescence was connected with truancy, substance abuse, suicide attempts and infrequent engagement in sports, thus being a part of problematic behaviour in this life period and indicating that smoking is a life style of more vulnerable part of the population (51).

2. Depression and self-esteem:

The study on Risk factors in Slovene secondary school students, performed on a representative sample in 1998 showed a clinically important level of depression in 20.5% of boys, and in 41.5% of girls (evaluated by Zung self-rating depression scale). The average value of results on the depression scale was 45.6, indicating that depression is rather prominent characteristic of secondary school students. Along to these results, average value of self-esteem on the 0-10 self-rating scale was in boys 6.9, while in girls it was 6.3. On general, girls expressed higher level of depression and lower level of self-esteem than boys (52).

3. Suicide:

Suicide in adolescent population is among the first three causes of death in all countries that have reliable health monitoring data. In Slovenia 20 adolescent die because of suicide each year, the number of boys being four times greater than the number of girls. The research proved that suicidal adolescents (13,6% of girls and 6,8% of boys) were experiencing family dysfunction and confrontation with unresolved problems prior to suicidal attempts and that they used dysfunctional strategies for their resolution (53), which provided grounds for several preventive actions on the field. Sport and physical activity were defined as protective factors relating to adolescent suicide attempts, being a coping style in distress, even though they had not proven to have a direct effect on non-suicidal behaviour (54).

Needs assessment

The need for research in mental health in Slovenia is in spite of all described initiatives still enormous. We actually do not have randomized clinical trials on various programmes on prevention. It is also true that recommendations for evaluation of prevention are still not developed on EU level, but should be prepared by EU Taskforce on evidence in mental health shortly.

Primordial and primary level of prevention

Mental health policy

For the time being, a national programme of mental health has not yet been adopted in Slovenia. Mental health it is the responsibility of the Council for Health, a Government advisory body which includes experts from the fields of both health and social security.

In Slovenia the former National Programme for Public Health prevention which was operative until 2004 did not include mental health priorities and prevention. The new one is in preparation and it should be adopted this year. In its draft, mental health is mentioned several times as important field of public health action.

However, national programmes have been suggested for preventing suicide and dependence on alcohol and drugs. The guidelines for alcohol addiction prevention were developed by the Ministerial task group and finished lately. Actual implementation of preventive programmes still lacks continuity.

The Mental Health Act which regulates system of health and social care on the field of mental health, holders of activities, and rights of persons under treatment including voluntary and involuntary admission to treatment, advocacy and care planning was recently adopted (55), which can be regarded as a very big step forward.

Mental health promotion and mental health education efforts

In Slovenia there are several health promoting activities which also include the mental health component.

Among actions that increase the chances of more people experiencing better mental health, the “Wind in the hair” programme could be classified. This programme is a very successful national prevention programme implemented in local communities with support of National Sports Association (56). Sport activities with concerts, befriending and rewarding healthy lifestyle activities was successful enough to get a European certificate and to be implemented in several EU countries.

There are also many activities which could be classified on one hand among mental health promotion activities, and on the other among primary prevention:

1. Programmes for infants and toddlers:

Programmes for infants and toddlers influence above all parents’ behaviour and upbringing, but they should also target social injustice, prevention of physical abuse, violent behaviour and provide psychological counseling at crisis, for example in divorce. In the neighbouring Austria the literacy of parents regarding developmental phases, conflict solving, parenting styles and their access to relevant information about needed help are targeted.

In Slovenia these programmes are strongly connected to primary health care teams and community nurses. Nationally all kinds of prevention programmes are also developed through obstetric dispensaries, those providing counseling and help in prenatal and immediate postnatal periods. The social and psychological interventions are still often lacking.

2. School children and adolescents mental disorder prevention:

The concern about ill mental health of children and adolescents is one of the main areas of interest of Slovene psychiatry from 1950s (57). Until now Slovenia developed a network of mental health services for children and adolescents which were until a decade ago affiliated with the national health care service. The majority of prevention and treatment was developed within the framework of educational and social care provision. School counseling services with psychologists and pedagogues are today part of each school workforce. These experts are strongly connected with child and adolescent psychiatric services, which are in last years more often part of private psychiatric outpatient clinics than the public ones. The development nevertheless follows the principles of holistic and community care with involvement of educational, social and medical institutions in care planning in line with the child or adolescent mental health needs. The role of parents in this process is strongly supported, even stronger when the mental health problems are difficult to manage.

3. “*That is me*” project:

In Celje region “That is me” (in Slovene *To sem jaz*) project was launched for health promotion among youth in 2000 (58,59). It showed that the greatest adolescents’ problems are lack of self-confidence and optimism, lack of self-respect and fear of failure. The website was launched to provide information about health and well being and to influence adolescent views and values about their health and well-being and to prevent risky behaviours.

4. “*Taking brain to the party*” programme:

The programme called “Taking brain to the party” (in Slovene *Z glavo na zabavo*) had much success in last years in illicit drug prevention (60). It is strongly supported by media and targets places where young people gather, have parties and exercise risky behaviours.

5. Healthy schools:

Schoolchildren mental disorder prevention is targeted also to the teachers, who should develop sensitivity to emotional needs of children. Schools should develop programmes preventing violence, abuse and bullying. Adequate counselling is part of the psychological support to victims and perpetrators (if children). These programmes are being developed also in Slovenian network of Healthy Schools. This programme makes an important improvement at early recognition and treatment of eating disorders, anxiety and depression. Substance abuse prevention is included in many local school programmes and developed on the national level as a set of educational interventions in schools.

Mental disorder prevention for children and adolescents in Slovenia is providing counseling workshops and seminars for teachers, school counsellors and parents about psychopathology, suicidality, social skills training and healthy lifestyle. The programme includes also drug prevention mainly through education. It is performed in primary schools with the guidance of National Institute for Health Prevention and some Regional Public Health Institutes, and with prominent Slovenian child psychiatrists.

The central psychiatric hospital and Child Guidance Clinic are organizing professional crisis interventions in need, for example on occasions of suicidal attempts, suicide or unpredictable violent behaviours in schools.

6. *The “European Alliance Against Depression (EAAD)” network:*

EAAD is an international network of experts with the aim to promote the care of depressed patients by initiating community-based intervention programmes in 17 European countries including Slovenia. It aimed to prevent depression and suicide (61). Results of the Nuremberg pilot study have already shown that the community-based intervention following the 4-level-approach was clearly effective in reducing suicidal acts (about 20%). When evaluating the efficacy of the EAAD intervention programme, the primary outcome criterion is, in general, again changes of numbers of completed and attempted suicides in EAAD intervention regions.

In Slovene regions Celje and Koroška, which have the highest social exclusion rates and highest suicidal rates, the project included an educational programme about treatment of depression and suicide prevention with general practitioners and medical nurses. The prevention programme has also been implemented with police officers, social workers and priests. The project was evaluated and showed important suicide reduction. The regional programme for suicide prevention in region of Celje conducted by Zavod za zdravstveno varstvo Celje a serial of preventive, mainly educational activities for suicide reduction from 2001 (62,63).

The other actions in mental disorder prevention in Slovenia are thoroughly explained (47). A promising practice for effective interventions to reduce stigma and discrimination in relation to mental health problems and strong involvement of NGOs and the National Institute for Public Health were proved.

Problems in mental health promotion and primary prevention

The main implementation problem of evidence based prevention is lack of human resources and the educational gap among their acquired and needed knowledge and skills. Mental health promotion and prevention workforce is the people who already work in primary or secondary medical services, or the people who work as teachers, psychologist or pedagogues in their school working environments. In last years some initiatives are emerging in educational institutions, for example in the Faculty of Health Sciences of Ljubljana University (study programme Nursing) and in the Faculty for Education of Ljubljana University (study programme Social pedagogy) for developing mental disorder prevention and promotion educational programmes at undergraduate and at postgraduate level.

Programmes and projects already described, are not a part of regular curriculum and therefore not accessible to all children and adolescents.

Similarly to other EU countries and US, we witness in Slovenia a lack of resources for training and lack of working posts for prevention and promotion. Educational curricula do not follow quickly developing mental health promotion and prevention science and evidence. This level of prevention is underdeveloped, since Slovenia’s health care system is still mainly oriented in treatment of diseases and we could hardly say that it is on its way to reorient health care services towards a more comprehensive approach (64).

Secondary level of prevention

Secondary level of prevention is to be performed by special units of Community Health Centers. Majority of primary care physicians underwent additional educational programmes on recognizing depression and suicidality and improved their diagnosis. Lack of human resources impedes the development and implementation of early recognition and treatment of mental disorders that proves to be most important preventive mental health tool as described in many documents and papers (65).

There are around six so-called Counselling centres for children, adolescent and their parents in Slovenija, which offer different activities in the field of mental health, especially early diagnostic of mental health and learning problems, individual and group therapy. In these centres interdisciplinarity and multidisciplinary is a method of work with a child, adolescent and their parent. Some of these centres are active also in the field of research, education and prevention also.

There exist other activities which could be to the certain extent classified as secondary prevention - crisis telephone lines as for example "Call in mental crisis" (in Slovene: Klic v duševni stiski) could be seen as special form of secondary prevention. This service seems to becoming more and more used also in Slovenia and it is also increasingly reachable through information technology communication.

Tertiary level of prevention

Psychiatric services

Before presenting the current situation of psychiatric services in Slovenia, we would like to present some historical points of view.

History of psychiatric services in Slovenia

The historical context of Slovene psychiatry and psychiatric rehabilitation is important for understanding the development of mental disorder prevention in our country. The beginnings of psychiatry in Slovenian lands reach as far back as the year 1786, when the first ward for mentally ill monks was established in the general hospital of Ljubljana. In 1827, the first specialized ward for the treatment of the mentally ill was founded within the general hospital of Ljubljana. In 1881, a large psychiatric hospital was built in the manner that was at the time regarded to be the right one: outside the town, in unspoiled nature and tranquilizing greenery. Before the 1940 Slovenia had 1.1 bed per 1000 population. The German and post-war psychocide reduced the capacities by one half. After the war (and nowadays), there were 6 psychiatric hospitals - including the University Psychiatric Hospital - and 0.8 beds per 1000 population and the average hospital treatment period of 48 days. During the Second World War, Slovenia was occupied by Nazi-Germany who in 1942 enforced the so-called euthanasia programme with about 450 patients from one of the Slovene psychiatric hospitals.

During the war the University Psychiatric Hospital in Ljubljana helped the anti-nazi resistance in every possible way. It also contributed by diagnosing antifascists who were in danger, as mentally ill and hiding them among the "real" patients. It offered medical help to wounded fighters of the resistance and helped antifascists escape the Nazi controlled areas and join the resistance. Psychiatrists also tried to use "psychiatric diagnosis" to help a Jewish family that tried to escape from Croatian fascist Ustasha across Slovenia to Italy. Two leading psychiatrists were liquidated by the occupator for their cooperation with the resistance, the principal was sentenced to lifetime imprisonment, many of the staff members were interned, and some died in the liberation war.

It is a historical paradox that after the end of the war, in Slovenia, psychocide went on for another ten years. Patients were treated so badly that the mortality was almost as high as it had been towards the end of the war, i.e. about 40% - due to famine and tuberculosis. For Hitler, patients had been "lives unworthy of life", for communists they were an obstacle on the way to better socialist future. But in general, the communist regime of ex-Yugoslavia was much "softer" than those in other East European countries.

Political intervention

A case of intervention from the part of the communist authorities after the war was the following: an internationally renowned author and politician fell from grace and became a kind of dissident. He then fell ill with Alzheimer's disease and was hospitalized at the clinic for distinctively disturbed behaviour at the wish of his wife and children. The authorities often inquired whether detention was still necessary and whether he could not have been taken care of outside the psychiatric clinic. They were truly afraid of the reaction of the international public and the possible reproach that they used psychiatry to do away with political opponents (personal communication with Jože Darovec, former director of Ljubljana Psychiatric Hospital, 2008).

The practice of detention of "dangerous people" during foreign statesmen visits was abolished only in 1968 by prof. Miloš Kobal. He was educated in Great Britain and used his experience from there - as well as his own ideas - for an extremely early reform of the Slovenian psychiatry, as early as 1968/70 - much earlier, in fact, than many other more developed European countries: he diminished the number of beds by sending patients to other suitable institutions (not to the streets like President J. F. Kennedy and F. Basaglia in Italy), opened the majority of the up-to-then closed wards, founded the centre for mental health, the day and night ward, the family care within a family other than a patient's own, established specialized wards for the treatment of addictions in all psychiatric hospitals, designed the dispensary psychiatric care, introduced psychiatric counseling service in most old people's homes and asylums, introduced the long-term therapy by fluphenazine depot in 1969 and the lithium therapy already in 1970.

Current state of psychiatric services

In Slovenia, psychiatric service is given in all levels of the health care system:

1. Primary mental health care:

Acute treatment of all mental disorders is available at the primary health care level, but in a limited way as described previously. Primary health care is delivered by Community Health Care Centers and private practitioners. At the moment there is about 75 Community Health Centers in Slovenia.

Some of Community Health Care Centres, but not all unfortunately, has specialized units called dispensaries – psychiatric dispensary for adults and mental hygiene dispensaries for children and adolescents. The reorientation towards more comprehensive primary health service is questionable since it is under rapid transformation towards privatization;

2. Secondary and tertiary level of mental health care:

At the secondary and tertiary level of mental health care, there are altogether six regional psychiatric hospitals including the University psychiatric hospital. All have wards for general psychiatry, psycho-geriatrics and the treatment of alcohol dependency. The University Psychiatric Hospital also has wards for adolescent psychiatry, drug dependency and psychotherapy. There is also the Child Psychiatry Ward in the Paediatric Clinic.

In 2002, the number of all psychiatric hospital beds was 1569 (66). About 30 beds have been allocated for child and adolescent psychiatry. In the period 1998/99, beds actually in use per 100.000 population (all psychiatric in-patient institution) decreased from 84 in 1965/95 period to 71 (66).

There are 24 child and adolescent psychiatrists in the country. Hospital treatments are becoming shorter and more intensive, with complementary services providing day hospitals and participation in selected activities for time limited follow up.

In Table 1, psychiatric secondary and tertiary services resources are presented, in comparison to some other EU members (11).

Table 1. Psychiatric secondary and tertiary services resources in Slovenia in comparison to some other EU countries (11)

Indicator	per 10,000 population				
	Great Britain	Austria	Netherlands	Italy	Slovenia
No. of psychiatric beds	5.80	6.50	18.70	4.63	8.46
No. of beds in psychiatric hospitals		4.50	15.40	0	7.20
No. of beds in general hospitals		2.00	1.00	0.92	1.26
No. of psychiatric beds in other institutions			2.30	3.70	0
No. of psychiatrists	1.10	1.18	0.90	0.98	0.53
No. of neurosurgeons	0.10	0.17	0.10		0
No. of psychiatric nurses	10.40	3.78	9.90	3.29	0.58
No. of neurologists	0.10	0.82	0.37		0.08
No. of psychologists	0.90	4.90	2.80	0.32	0.16
No. of social workers	5.80	10.34	17.60	0.64	0.04

The community care regional units are being in the process of establishment in Slovenia to improve access, quality and outreach (67).

Rehabilitation

Psychiatric rehabilitation methods are developed in institutions and in the community and these systems are connecting themselves with the method of care planning. This is achieved by communication among inpatient and community services as far as possible. Since there is no community psychiatric treatment available in Slovenia yet, except from an attempt of the psychiatric team in the central hospital to perform community psychiatric treatment, these endeavours are sporadic and not available to everybody in need, but rather exceptional and due to personal engagement of mental health workers. The legislation and financing are however anyway being prepared and close to adoption right now in 2008.

In Ljubljana (the capital), a rehabilitation unit of the psychiatric hospital was therefore established to follow up the patients with severe mental illness with high risk for relapse and dual diagnosis. This service was well connected with non-governmental (NGOs) and social services as well as primary health care services. These connections are widely used also by other hospital departments, but nevertheless can not reply to the needs of patients and their families. Crisis interventions are organized by the central primary health care service providing urgent interventions. This service needs better collaboration with psychiatrists in the cases of involuntary referrals, but this is not achieved because of lack of psychiatrists and other psychiatric personnel. Professional and user organizations and associations of interested experts have been founded for the group of patients with severe mental illness. The largest are ŠENT, ALTRA, OZARA and PARADOKS which are, together with the psychiatric profession, involved in preventive, mainly anti-stigma programmes. Among the psychosocial services offered are housing facilities with support, day centres, vocational rehabilitation

development, sheltered employment and education for professionals, patients and carers. NGOs providing support for people with anxiety, depression, substance abuse and dependence, and for carers, and families of people with dementia are emerging as well in last ten years with increasing influence to health and social policy. The carers (families) organization has developed a network of interest for mental disorder prevention and promotion in Slovenia at the level of republic and connected itself with international organizations of carers (68).

Here we will shortly introduce only two of NGOs, being ŠENT, and Trading centres since detailed description of all of them is beyond the scope of this module.

1. *Slovenian association for mental health ŠENT:*

ŠENT is the largest non-profit NGO in Slovenia providing from 1992 coordinated social care for patients with severe mental illness. The difference to other NGOs was at first acknowledging the need for coordination among psychiatric and social care services to improve quality and comprehensiveness of care for people in need. The context of mutual respect provided grounds for quick and stable development of vocational rehabilitation, education of patients, families and professionals, day centres and group homes. All these services are intended for the group of patients (users) with disability due to mental illness and stigma, and supported by carers and patients. ŠENT is today taking lead in anti stigmatization of mental illness, education of professionals for newly emerging community psychiatry and community social work. It provides also advocacy and self help groups mostly in day centres and among families of patients with severe mental illness. The variety of needs, opportunities and demands regarding mental health service development, consumers' movement, legal and organizational issues provide a turbulent environment for continuous development of this organization. The programmes are comparable to other NGOs listed above.

2. Trading centers for people with disabilities:

One of the rehabilitation initiatives is "Trading centers for people with disabilities".

One of the biggest trading companies in Slovenia recently planned to implement a programme that would allow people with disabilities better access their various facilities. This programme, labelled "Kindly to disabled" focuses on all groups of people with disabilities, including the physically disabled, those with learning disabilities and people with disabilities caused by mental disorders. The programme was developed in cooperation with Slovenian Association for mental health ŠENT, which provided counseling on the matter and education for employees about the needs of the disabled. Since the needs of different disabled groups are very different, a series of adaptations including employees' attitudes and communication skills was proposed beside technical adaptation of the shops' environments. This action seems to be becoming important preventive step for including the disabled in the society on equal terms. The project should succeed because the disabled strongly participated in the assessment of the needed adaptations and in the education of the employees and employers.

Results of some studies on mental health in Slovenia

There exist some different kinds of research on different aspects of mental disorders and their consequences. The majority of programmes are evaluated regarding their efficiency in experimental circumstances. Among studies are following:

1. Delphi study on alcohol prevention in Slovenia (69):

Alcohol abuse is an avoidable behaviour that can threaten health. In Slovenia, only a few public campaigns against drinking alcohol are under way. It is important to establish which community measures are acceptable to society in Slovenia in order to reduce alcohol-related risks.

This study was a Delphi study with 45 professionals from different disciplines. Participants offered many suggestions to improve the current situation. After three rounds of questionnaires, 86 participant statements were accepted as a consensus.

Results showed that actions such as: state monopolies, alcohol taxation, legislative restrictions on availability and purchase of alcohol, age-related restriction on sales, drink-driving laws, school-based alcohol education and media information campaigns are most likely to be achieved by consensus. The main target populations for implementation of alcohol-related educational programmes are children, young people and employees.

The conclusions of this study were that as a result of the study, a number of community actions against drinking alcohol that could be acceptable for society can now be suggested. They vary across different target populations, change agents (individuals, organizations and institutions) and methods of implementation.

2. Outcome assessment (70):

The majority of long-term hospitalized patients with severe mental disorders considered resistant to standard hospital psychiatric treatment have been discharged during last decade from Slovene psychiatric hospitals mainly due to economic pressure without any assessment of outcomes or patients' needs. Rehabilitation unit has been established within University Psychiatric Hospital in Ljubljana for inpatients

with severe mental disorders. The research aimed to find out characteristics and needs of patients with schizophrenia in order to develop hospital service in accordance with patients' needs.

In the study, forty-one long-term hospitalized and frequently admitted patients with diagnosis of schizophrenia were followed through a 12-month period by a public psychiatric hospital team due to discharge planning. The patients were assessed regarding their needs, clinical status, global functioning, and quality of life and thoroughly informed about their illness, treatment and rehabilitation plan.

Follow up assessments showed improvement in negative syndrome of schizophrenia, better satisfaction in some areas of patients' lives and a decrease in their needs in spite of considered resistance to standard hospital psychiatric treatment.

The study results prove rehabilitation programme to be successful for patients with severe mental disorders and present some information for further development of services for patients with severe mental disorders in Slovenia.

3. Evaluation of stigma:

In Slovenia there were several evaluations of attitudes of different groups toward people with mental disorders. One of them is a study entitled "Does psychiatric education reduce stigma?" (71).

Evaluation of discriminative attitudes of medical students towards people with mental disorders was evaluated by a questionnaire before and after the mental health curricula in several faculties that have mental health curricula. The attitudes towards psychiatric patients did not change much after education, except from lowering the level of fear perceived by students (Table 2).

Table 2. Differences between students in discriminative attitudes towards people with mental disorders before the study of psychiatry and after the completion of the cycle of lectures and exercises in 2004

Variable	N	Mean	SD	Difference	P
They are dangerous	83	3.169 3.602	1.177 1.287	0.434	0.024*
They are incompetent	83	3.686 3.181	1.164 1.211	0.458	0.021*
I feel fear to meet them	72	3.375 4.153	1.204 1.206	0.778	0.000*
I feel reluctant to them	72	4.069 4.153	0.983 0.977	0.375	0.013*
I feel alienated to them	73	3.219 3.644	1.133 1.159	0.425	0.034*

The attitudes of patients towards patients were also researched and showed higher discrimination scores among patients', than in students' group. This was interpreted as self stigma, but it might be better defined as an expressed reluctance to participate in the patients' group which is characterised by extreme exclusion, poverty and low life opportunities.

Another study was undertaken by a medical student that organized a serial of films presentations of stories of people with different mental disorders. The attitudes of the students after these shows were somewhat better in certain areas of discrimination.

Future steps for strengthening mental care in Slovenia

There are several challenges posed in front of public health and clinical sphere in the field of mental care in Slovenia, two of most important being:

- one challenge is, of course, adoption of mental health policy and national plan for mental health. According to WHO (4), national mental health policies should not be solely concerned with mental health disorders, but also promote mental health. These would include the socio-economic and environmental factors, described above, as well as behaviours. Policies for reduction of suicide, anxiety and depression should develop evidence based approach towards improvement of early recognition of mental disorders with increasing sensibility of employers, professional mental health workers and public about early recognition of warning signs of mental disorders, suicidal behaviour, recognizing triggers and circumstances connected with suicide, dangerous behaviours and mental illness. Denmark for example achieved 60% reduction of suicide rate with combination of policies and preventive programmes in last 20 years: among these are reduces access to suicidal means (weapons), with better treatment of somatic and mental disorders after suicide attempts, with improved access to telephone counseling and emergency psychiatry and with increase in social and cultural stability (72);
- another challenge is to reorient mental care towards more comprehensive one, with more emphasis on mental health promotion and mental disorders prevention. Mental health promotion should be mainstreamed into policies and programmes in government and business sectors including education, labour, justice, transport, environment, housing, and welfare, as well as the health sector. Particularly important are the decision-makers in governments at local and national levels, whose actions affect mental health in ways that they may not realize (4). One of the biggest challenges facing Slovenia at the

moment in the area of health promotion is increasing concern among both, the general public and among experts and professionals about mental health (72). Slovenia should build a strong network of experts, institutions and consumers organizations that are responsible in the field of mental health promotion and prevention. To intensify effects, there is a need to harmonize programmes with a long term vision, making them concrete through actions across different settings, at different levels, pointed to different target groups (72).

Exercise

Task 1: Make a Medline search on medical students' stigma about mental illnesses, choose several most cited articles and try to propose a model for reducing discrimination in this group for your country.

Task 2: Search for available needs assessment (mental health) questionnaire and list it. Use the most cited one and exercise its implementation with a close person (without diagnosis).

Task 3: Make a list of needed mental health services in your local area and try to explain your decisions.

Task 4: Design a substance abuse prevention programme for your local community.

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Recommended readings

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title	Education and training as part of health practice
Module: 1.8	ECTS (suggested): 0.5
Authors	Zelimir Jaksic, MD, PhD, Professor Emeritus Andrija Stampar School of Public Health, Medical School, University of Zagreb Herman R. Folmer, MD Royal Tropical Institute, Amsterdam, The Netherlands Luka Kovacic, MD, PhD, Professor Andrija Stampar School of Public Health, Medical School, University of Zagreb
Address for Correspondence	Luka Kovacic Andrija Stampar, School of Public Health, Medical School, University of Zagreb Rockefellerova 4, 10000 Zagreb, Croatia lkovacic@snz.hr
Keywords	Culture, development, education, ethics, human resources development, knowledge society, learning, training.
Learning objectives	After completing this module students and public health professionals should: <ul style="list-style-type: none"> • be aware of complexity of the relation of health care practice and education; • increase knowledge on possible different interpretations of knowledge managements, education, culture, and ethics in health care practice; • understand importance of careful definition of vision and mission before objectives of education and training are chosen; and • improve human resources education and management.
Abstract	Education, training and permanent learning are essential for health manpower development.
Teaching methods	Teaching methods include individual preparation, case study, interactive small group discussions, and exercises. After individual reading and group discussion about elements of theoretical background and case study, fulfilling tasks given in exercises and summing up what the group has learned.
Specific recommendations for teachers	Work under teacher supervision/individual students' work: 70/30%. Seminar room, computer and internet connection or dictionaries and basic textbooks on health system development, education and ethics.
Assessment of Students	Assessment of written reports on given tasks (seminar paper) and oral examination through defending results of given tasks.

EDUCATION AND TRAINING AS PART OF HEALTH PRACTICE

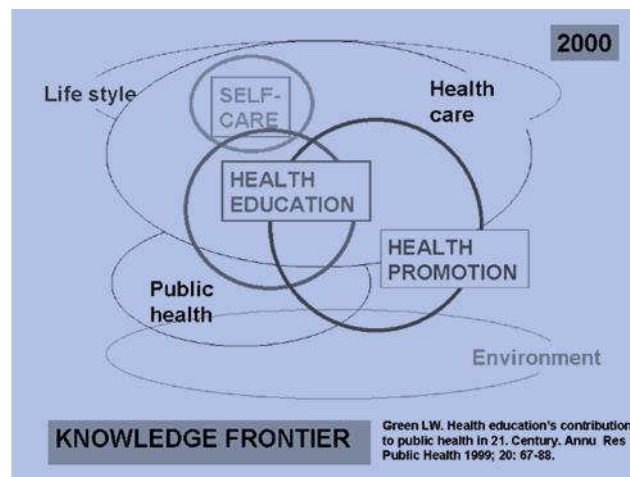
Zelimir Jaksic, Herman R. Folmer, Luka Kovacic

Theoretical background

The health system is complex and dynamic

Education and training is a common starting point in most of interventions aiming towards improving health care practice. However, choice of contents, methods and educational technology is part of local health culture, general cultural, social and political conditions. Fragmentary introduction of new elements into the existing system might be not only inefficient, but also introduce confusion and even damage. Therefore one has to understand essential policies and realities of the whole system. Here are described possible wrong managerial decisions in two directions: acceptance of circumstances as a fixed structure not open to any change (conventional error) and opposite to this, assuming that everything is open to change (utopian error).

Figure 1. Complexity of the health care system



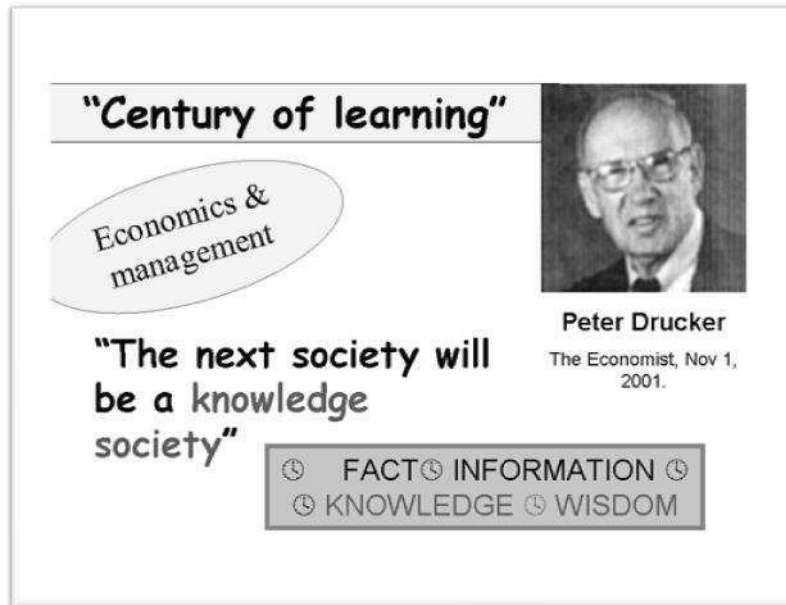
The right approach is obviously somewhere between these two errors, but it is often hidden by tradition, all kinds of ideologies and direct political utilities. One has also to consider that the system is dynamic and changes may occur unexpectedly because usually not all facts are known, and local circumstances change under influence of broader environment, a changing world.

"Knowledge society"

The 21st Century is meant to have several essential problems to solve: unequal progress in different countries and in depreciated groups and individuals in countries; growing environmental problems, including shortages of water and energy; ageing of population, double burden of health risks as result of epidemiology in transition, social and cultural changes in an global post-industrial and information world with yet unknown health and social consequences.

For all of these problems, starting with economy, the solution is found out in creative production and use of knowledge. The problem is how the knowledge is understood and how it could be measured. Is it factual knowledge, an objective truth or proper knowledge presenting individual or group ideology? Do we need scientific knowledge or wisdom? Is the heart of the problem recognising true or false results or application of what we know, or both, factual and from experiences? Today dominate measures of rigorous but formal criteria, academic or administrative competitive comparisons, more about production then about use and utilization of knowledge. As P. Liessman critically observed the concept of knowledge society was transformed into a postulate of informed society ("Information age"), and consequently a necessity of life-long learning.

Figure 2. The knowledge society



Learning

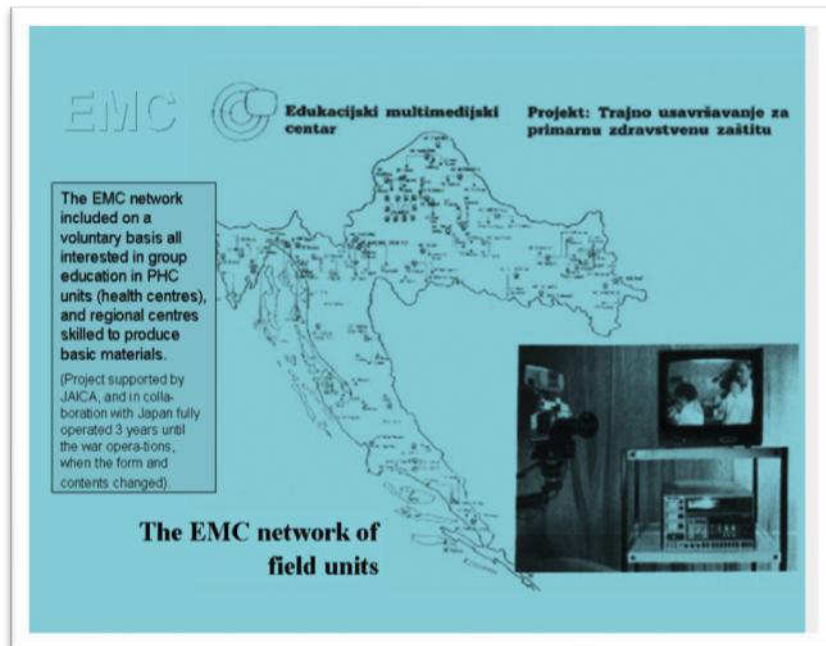
Learning is by itself not a simple process of acquiring new information and remembering facts, but a complex transformation of personality and development of new ways of behaviour. Because of that it has to be acquired, it is not possible to transfer it. It is an interaction of experience and reflection, abstract conceptualisation and practice (D Kolb's model of learning, 1986). One has to differentiate training (acquiring a skill) and learning (acquiring of knowledge) and education (imparting and accepting of knowledge, but also becoming cultured). First is memorizing facts and know-how, but it needs further reflection and inter-relation with own experience, which leads to the interpretation and understanding of meaning, followed by obtaining proper attitude of mind and finally gain the whole integrity. Over-simplifying that process or interrupting it too early creates disappointments. One well known problem related to health care was in the seventies of last century, when functionalists tried to simplify education of front-line health workers, training them what needs to be done in certain conditions without understanding why ("medicina simplificada"). Many textbooks have been printed in form of cook-books. It was shown, however, that such training could be successful only when supplemented with education about the rationality of processes and significance on the given task for the role of health worker. The other unfortunate example is at present under severe pressure of copious information, when facts are received without context and inter-relation, which is producing a feeling of learning and knowledge, and is quite opposite, producing "half-educated" intellectuals, insecure or not critical to suggestions, so that marketing messages could be accepted as important new knowledge.

Educational goals have often to combine quite opposite capabilities and attitudes: How to become critical and trustful? How to be pro-active and thoughtful? How to collaborate with others, keep own beliefs and tolerate opposite ones? How to decide in emergencies or under threat of uncertainties without relevant data? How to combine scientific rigor, professional dignity and political skills? How to participate in and lead teams, developing them from hierarchical, to functional, and to interdisciplinary ones?

The content of learning is a special item to be considered. New technologies facilitate approach to new information (distance learning, internet, etc.), but in the same time open an important question: how to escape of an avalanche of information, potentially interesting, but not necessarily useful. How to choose what is (1) valid and credible, (2) important and relevant for practice, (3) applicable and acceptable.

The scientific facts are not sufficient for their interpretation, the cultural and ethical values are necessary.

Figure 3. The Educational Media Centre Network in Croatia as a support for education in primary health care



Culture

Culture is one of the most complex expressions with many connotations. The term may be understood as just production of arts (cultural industries), or as traditional folklore, or ultimately all manifestations of social life such as customs, religious rituals, habits of association and institutions. The controversies might appear, for instance, between national and international understandings (in search for identity), among intellectualism, spiritualism and aestheticism (as different approaches or ideologies of expected social progress), between cognitive and emotional reactions (in creation of personal style and manner).

Figure 4. Film as an attractive media used in health education

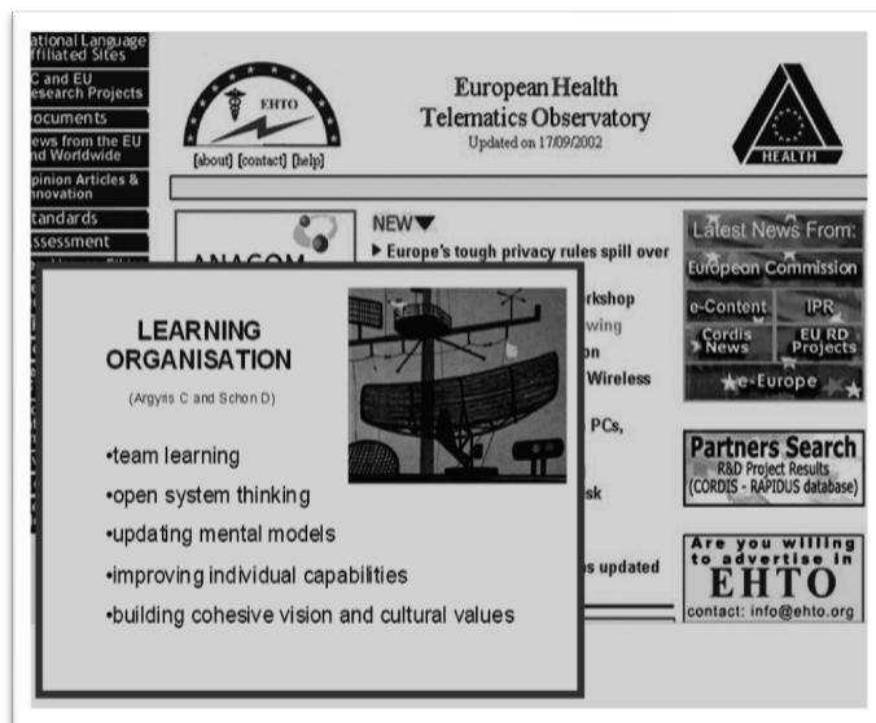


A separate feature is identity of health culture. It is built from many layers of people's experience and beliefs, years of interaction with health and medical professionals, complementary, alternative and anti-medicine, obsolete slogans and commercial messages, lasting, persistent and resistant to change. For countries in transition a widely spread attitude that health may be sacrificed for economic development is difficult to change, on the contrary, health is of vital importance for economic development. It is a world-wide problem in many developing countries, collectively, as well as in families, and even individuals.

Education and development

The different connotations exist in many essential factors connected with the role of education in development. There is not one rule and one truth to be implemented. Therefore it is wrong to transfer and import solutions, but necessity to harmonize approaches in a tolerant way and most important to analyse not only short living policies and economic suggestion, but also cultural and ethical aspects. Learned people should not only become knowledgeable and aware of new possibilities, but also have a better understanding of their own position, capabilities and interests. Educated personal attitude is decisive: indifference of those who know little is most hazardous, but equally dangerous are utopianism and despair of sophisticated academicians out of touch with medical practice.

Figure 5. Health education is an important factor contributing to the development



Case study: international postgraduate course "planning and management of primary health care in developing countries"

Introduction

From 1978 until 1996 the Andrija Štampar School of Public Health, School of Medicine, University of Zagreb, organized 17 international courses of 9 week duration. Each course was attended by between 18 to 25 participants, 358 of them in total, from 62 mostly developing countries. The participants that attended the courses were medical doctors, nurses, environmentalists, economists and other professionals, usually younger than 35, from middle level management. The courses were organized as a joint cooperative program between the governments of Yugoslavia (former) until 1989, and Croatia 1990-1996, and The Netherlands.

The course was designed to link planning and management with specific technical procedures and social functions of health workers more than theoretical considerations of techniques in planning and management.

Course aim and objectives

The principal **aim of the course** was to train professionals in the field of planning and management of primary health care in developing countries. The course was designed to link planning and management with specific

professional contents of primary health care and the understanding of social processes which play an important role in decision-making and cooperation in the field of primary health care. According to the stated aims, participants experienced in management of primary health care were recruited.

The **specific objectives** of the course were:

- To develop and support positive **attitudes** towards primary health care as a part of social development and towards the people as the main active element in the health system; to reinforce positive attitudes to rational methods in the planning and administration of services.
- To develop **skills**:
 - in analyzing and solving technical and organizational problems of health services and techniques in the judgment of alternative solutions;
 - in resource allocation and health planning, particularly development of adequate health manpower;
 - in communication, team work and leadership.
- To increase **knowledge** to be used in:
 - listing and assessment of technological and managerial problems encountered in primary health care;
 - problem-solving methodology;
 - analysis of status of health, trends in community development and health priorities, relation of health to other sectors of development;
 - orientation as to the position and involvement of the community in health care planning and practice;
 - planning and management of integrated comprehensive primary health care services tackling typical problems such as maternal and child health and family planning, prevention and control of epidemic and endemic diseases, nutrition, health education, organization of medical care;
 - health manpower planning, development and leadership;
 - monitoring and evaluation of health services and control of implementation of health plans;
 - training and research in primary health care.

Course content

The course was organized in blocks which last on the average about one week. Every block combines theoretical parts of teaching, individual reports by participants and working group results, practical exercises and field visits. Planning and management were linked with the contents of primary health care and actual examples, so that individual programs developed into more complex ones and finally into the whole system. The final choice of contents and order of presentation were adapted according to the needs of participants.

Block 1 (Introductory block) dealt with the refreshment of fundamentals of planning and management.

Block 2 dealt with general social and economic components and conditions for the development of primary health service as well as with general social and economic aspects of planning and management.

Block 3 covered questions of selecting topics of appropriate technology and development strategy. This part includes certain PHC components such as environmental problems, sanitation and communicable disease control. Field visit were included.

Block 4 covered the health program formulation and detailed programming. The comparisons were made between programs under different circumstances (rural, urban settings, migratory population, etc.). Field visits and exercises were organized to demonstrate different working conditions.

Block 5 dealt with maternal and child health, regarding measures and strategies and particularly manpower planning, training and management of PHC practice. Special attention was given to dilemmas of health manpower at the grass-root level, and to the profiles of the middle-level managers at the district and provincial level.

Block 6 dealt with major resources, such as: (a) community participation; (b) coordination, supervision, communication and leadership; (c) health economics and management of material and financial resources; (d) mental health, health education and operation of health services.

Block 7 covered planning and management methods as applied on different models. A model province from a developing country was used for studying indicators, problem analysis, assessment of development trends and priorities, resource allocation, organization, supplies and monitoring of services. Based on the knowledge from previous blocks, participants were taking part in a system of managerial games and exercises and evaluate the results and outcomes by real experiences from their own countries.

Block 8 dealt with a synthetic approach to PHC from the point of view of contents of work and components as well as from the point of view of organization and management.

At the end of the Course a **final conference** was organized during which participants presented their plans in solving actual problems of PHC in their field for the coming year.

Teaching/training methods

The participant's responsibility during the course was to participate actively in the teaching program in several ways: to conduct joint sessions, working groups and discussions and to describe problems and experiences of

their country as well as to give short lectures on topics they have experience in. Work in small groups of 4-5 participants was a frequent and regular form of teaching. Very interesting and motivating for the participants were role playing and games (1). The participants also had a task to write the final paper, being a plan of action in PHC management in their position at home for the coming short term period. The Final Conference was held under several topics.

For the course participants, the Course Manual consisting of ten chapters following in general the structure of the course by blocks, was edited and distributed to the participants as the handbook for the course. The manual has 470 pages and was distributed in the related teaching blocks. The course manual was reedited each year.

The participants were also provided with various materials of the World Health Organization (“WHO: Leadership development for mental health”, “Management Development for Primary Health Care”, “Primary Health Care Towards the Year 2000”, “The Health Centre in District Health System”, “Acute Respiratory Infections in Children”, “Technical Bases for the WHO Recommendation on the Management of Pneumonia in Children”) as well as from almost every institution they visited.

Evaluation

The evaluation process includes a formal evaluation organized at the end of each training block and a more detailed one at the end of the course. Block evaluation consists of anonymous answering to standard questionnaires (based on FAO questionnaire, recommended by a Holland group of experts in 1981 and followed since) followed by oral evaluation in which all participants in turn comment the last block and suggest changes to be made in the blocks to follow. Final evaluation of the course follows the same procedure, only using a more detailed questionnaire.

An example of the block evaluation (1994 course - weighted averages of answers to questions by training blocks)

After each block the course participants were asked to evaluate the teaching/training process: what experiences they gained, how new knowledge could be relevant to their practice and how much the training material was useful for them. First, they answered anonymously to 8 questions after which they presented their comments in plenary (it was usually used the round technique). Their written answers could be from 1 (the worse) to 5 (the best). In Table 1 the results of the 1994 course as group averages are presented. The 1994 course was attended by 19 participants.

International consequences of the Course

The International postgraduate course “Planning and management of primary health care in developing countries” was organized for 17 consecutive years (from 1978 to 1996) and attended by 358 participants (Table 2). Some countries were very well represented. Ethiopia systematically sends almost each year one participants from health province and one middle level manager from the Ministry of Health (22 participants in total) (3). Very good influence of the Zagreb course to the development of health services could be seen in the case of Iran. 20 participants trained in Zagreb after return home organized several training courses of the same curricula for middle level managers in Iranian provinces and districts. 2008 Mojgan Tavassoli reported the success story of the Iranian primary health care in the Bulletin of the WHO (4).

Appropriate representation we had in the cases of Tanzania (20 participants), Thailand (20 participants), Turkey (18 participants) and Uganda 15 participants). For some countries (China – 13 participants; Nigeria – 11; Indonesia - 15), in spite of large number of participants we cannot expect bigger influence because of their relative under representation. From some countries only 1-3 participants attended the Zagreb course (Argentina, Burma, Burundi, Guatemala, Chile, Panama, Mauritius, Nicaragua, Malaysia and others).

**Table 1. The 1994 course block evaluation
(weighted averages of answers to questions by training blocks)**

QUESTIONS /TEACHING BLOCK	1	2	3	4	5	6	7	8	9
1. How do you rate the amount of time made available for this block?	2.9	2.5	3.4	2.9	2.7	2.9	3.1	3.0	3.2
2. How do you rate the instructional level of the sessions for this block?	3.2	3.3	3.0	3.1	3.5	3.1	3.3	3.0	3.2
3. How do you rate the balance between lectures and discussions/practical?	3.3	3.6	3.4	3.7	3.8	4.0	3.8	3.8	3.3
4. How do you rate the quality of the presentation of the sessions for this block?	3.5	3.6	3.4	3.7	3.8	4.0	3.8	3.8	3.3
5. How do you rate the value of the discussions for deepening your understanding of this subject matter?	4.3	3.9	3.9	3.8	3.7	3.9	3.9	3.7	3.7
6. How do you rate the importance of this subject matter for your own work?	3.9	4.0	3.9	4.3	4.2	3.9	3.8	4.0	3.9
7. How do you rate the relevance of the background material to the subject matter treated?	3.7	3.6	3.5	3.4	4.0	3.6	3.4	3.6	3.4
8. How much, in your opinion, did the sessions on this block improve your knowledge and skills?	3.4	4.0	3.9	4.0	4.1	3.7	3.8	3.9	3.8

Table 2. Participants in the international postgraduate course “Planning and Management of Primary Health Care in Developing Countries”, 1978-1996

Country	Number of participants per country	Total number of participants
Ethiopia	22	22
Tanzania, Thailand	20	40
Iran	19	19
Turkey	18	18
Philippines	17	17
Indonesia, Uganda	15	30
China	13	13
Nigeria	11	11
Ghana, Kenya, Zambia	10	30
Bolivia, Ecuador, Iraq	8	24
Egypt	7	7
Bangladesh, Sri Lanka	6	18
India, Yemen, Zimbabwe	5	15
Cyprus, Gambia, Liberia, Mongolia, Sierra Leone, Somalia	4	24
Afghanistan, Albania, Cameroon, Colombia, Jordan, Lybia, Mali, Mauricius, Pakistan, Panama, Vietnam	3	33
Chile, Croatia, Cuba, Djibouti, Eritrea, Lesotho, Nepal, Nicaragua, Sudan, Syria	2	20
Argentina, Burma, Burundi, Bosnia and Herzegovina, Guatemala, Guinea, Jamaica, Malaysia, Mexico, Mozambique, Nive Island (New Zealand), Papua New Guinea, Peru, Seychelles, St. Vincent, Tunisia, Zaire	1	17
Total number of countries: 66		Total number of participants: 358

Exercises

Task 1: The “learning society”: what and how? Problem solving and learning on experience

The next society will be a knowledge society
(P. Drucker, The Economist, Nov 1, 2001) (2)

Your task: start or improve work in your “learning organization”

“Learning organization” is a more or less stable group of small number of colleagues, who regularly meet to reflect on the experience in practice or data from other, steady and carefully chosen sources (better not directly from well-known experts, but from documents, journals and also through new technologies such as kinematics, distance learning, tele-education, Internet (Web-based training). Besides, important is horizontal communication and partnership with users (patients, students) and public media. They should know what you are working and you should reflect on their experiences.

Organizational learning is based on the team learning, open system thinking, stimulating individual capabilities, building cohesive vision and cultural values (see D. Schön, C. Argyris) (5,6,7).

Consider attitudes the group should accept:

People need to understand the purpose and meaning of what they learn. Enrich functionalist Task analysis of the group: deliberate role, functions, and tasks without further elaboration. If it is difficult to start, recommend that reviewing daily professional activities of group members;

Recognize intellectual (expert, cognitive) capital and discuss the road from facts to wisdom. Accept that knowledge could be an object of management (Knowledge Management, KM);

Admit the importance of capability in performing health care, because knowledge alone is not sufficient.

The capabilities of group members might be different and this is beneficial for group learning. All capabilities like also all factors of intelligence might be of equal value.

Agree to survive the flood of information, escape playing around with vague and ambiguous terms and “interesting” but not relevant information. For critical choice of readings one may use EBM (Evidence Based Medicine) criteria: the content should be (1) valid and credible, (2) important and relevant for practice, (3) applicable and acceptable.

It might be useful to refresh **understanding of learning processes:**

- Differentiate Factual knowledge (what: consciously reproducible), Procedural knowledge (how: largely unconscious, “instinctive”, forgotten experience), Personal knowledge (assimilated into own cognitive processes);
- Case analysis and problem solving (**PS**): definition and analysis of the chosen problem, generation and comparison of several alternative solutions, application and evaluation of consequence, and finally most important: recapitulating what we have learned;
- Experiential learning (**EL**): especially important in postgraduate and continuous learning. Major dysfunction is separating “theory” and “experience”.

Effective learning is not just memorizing facts. Other important conditions are:

- involvement in practice and group reflection about cases and experiences;
- choosing multum instead multa, especially when learning skills;
- stimulating creativity (e.g. by trying out suggested new techniques, actively participating in research, playing problem-solving games, by writing articles etc.);
- besides technical, reading and other books (not only newspapers, and not only journals);
- practicing physical activity and regular relaxation;

The criteria for assessment of your plans to improve the “Learning organisation”

You have to include:

Regular work, at least one hour each month;

Involvement a small group of 4-6 (8) members with similar interests and possible different experiences;

Securing steady input of technical information;

Stress on essential process of group reflection on specified actual cases;

Implementation of new knowledge into practice is decisive criterion in evaluation.

What you have learned during this exercise?

Reflect on your experience and discuss it with colleagues.

Task 2: Development of a teaching/learning module

A teaching/learning module is an element of teaching and learning treating a defined problem in health practice and aiming to solve it by increasing knowledge and experience of involved (health) professionals, stimulate modification of their attitudes and changing their behaviour. It is usually a part of a larger educational program or of continuing learning.

Your task: Design a one-week seminar to improve management of primary health care teams.

Consider format for constructing the teaching/learning module:

Identify what you should change: choose a concrete problem out of actual practice in a setting members of the working group know. Use individual reports or “brain storming” of participants;

Estimate possible improvements feasible under given conditions (one week of organized teaching/learning);

Define educational objectives: overall and specific regarding knowledge, skills and attitudes;

Choose title of the module (it is best to be in form of a question and easy remembered) –it will be probably later revised several times;

Write short introduction describing rationale;

Choose the target group of participants (students), particularly those from whom one may expect to implement what was taught;

List tentative subject contents;

Discuss appropriate teaching/learning methodology: it should be regarded as a whole dynamic way, not just a list of teaching/learning forms. Learning should be active and task-oriented, a kind of learning by doing. The seminar itself should demonstrate what is recommended as methodological approach. Sometimes a short lecture or description of a case is a good starter. The most important is to be realistic and available time has to be considered. It is not recommendable to cover by information a vast territory without planning time to for “digestion” and reflection about relevant issues;

Think over how will be assessed what students have learned and how they could demonstrate their capacity to implement it in practice;

Allow time for evaluation and answer of the group to the question: What we have learned.

Solve logistics and organizational problems:

Estimate costs and find the way they are covered;

Find premises and places for field work;

Provide and check necessary equipment;

Make certain that teaching materials are ready and available;

Think about accommodation and provisions, entertainment and free time of participants;

Solve formalities: invitations and information of those concerned, invitation of celebrities, publicity, catering, etc.

Format of presentation

- Written rationale and title
- List of specific objective and how they will be assessed
- Schedule of teaching activities by contents, form and time
- Oral explanations, comments and justifications

Criteria for assessment of your result

- Are the objectives relevant to the identified problem and do the solution follow contemporary tendencies in human resources development?
- Is the way of assessment related to objectives?
- Do contents and methods of teaching/learning correspond to objectives?
- Is the teaching/learning schedule realistic and feasible?

What you have learned during this exercise?

Reflect on your experience and discuss it with colleagues.

Task 3: Supervision and control are important parts of teaching and learning

Your task: Read the description of an event from practice, answer and discuss the following questions and others you guess as important.

The young health technician has come back from his first supervisory tour. He complained to the medical officer that community is very unhappy with the way in which field workers are collecting data and advising people how to improve hygienic conditions in their households and preserve food. Their behaviour will have repercussion on the whole programme of rural sanitation in this region, he states. Several people complained that damage was done to smoked meat and other food conserved for winter. Sometimes quite large "samples" have been taken and some rotten parts have been destroyed instead used to feed animals. He asked the medical officer to intervene.

One of the experienced field workers meets the doctor in charge the next day. He is a mature person and works in that locality a long time. He is well-known to everybody, people like him and give him sometimes small gifts consisting of their home products. He states that some people do not yet understand the meaning of new sanitary measures, but are following all requests because they are nervous and afraid due to recent outbreaks of food poisoning and trichinellosis. He complains that the young supervisor, although coming from the higher schooling, does not know how to communicate with people. He has seen several families and

apologised for bad work of field workers who do not only explain what has to be done, but also inspect, take samples and destroy immediately rotten food. He asked medical officer against the new supervisor who is not only inexperienced, but also arrogant.

The doctor promised to organise a meeting to discuss the situation.

Discuss in the group the following and other relevant questions:

- Is such a case an exception or a typical case?
- What is the essential cause of described tension?
- Whose side you think the doctor should take?
- Is a general meeting the best way to solve the problem?
- Who is actually responsible for the described conflict?
- How you would solve a similar case?

The criteria for assessment of your result:

1. Answers to questions, explanation and justification of conclusions;
2. Special attention and weight will be given to the last two questions.

What you have learned during this exercise?

Reflect on your experience and discuss it with colleagues.

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title	e-Health
Module: 1.9	ECTS (suggested): 0.2
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Keywords	Communication technologies, e-health, health informatics, information technologies, strategy.
Learning objectives	After completing this module students should: <ul style="list-style-type: none"> • be familiar with the complexity of challenges in health sector due to demographic situation, development of technologies, present and future health situation; • understand the key role that modern information and communications technologies will play in future health care system in order to bring out efficient service; • know the national situation; good examples of e-health approach that were introduced and are successful used by one ore more partners in health care system.
Abstract	E-Health describes the application of information and communications technologies across the whole range of functions that affect the health sector. e-Health tools or solutions include products, systems and services that go beyond simply internet-based applications. They include tools for health authorities and professionals as well as personalised health systems for patients and citizens. It can improve access to healthcare and boost the quality and effectiveness of the services offered. Examples include health information networks, electronic health records, telemedicine services, personal wearable and portable communicable systems, health portals, and many other information and communication technology-based tools assisting prevention, diagnosis, treatment, health monitoring, and lifestyle management. When combined with organisational changes and the development of new skills, e-Health can help to deliver better care for less money within citizen-centered health delivery systems
Teaching methods	An introductory lecture gives a first insight about the characteristics of cross-sectional studies. The theoretical knowledge is illustrated by a case study. After introductory lectures students first carefully read the recommended readings. Afterwards they discuss the characteristics of local public health organisations and infrastructure. The students will discuss about the appropriateness of the actual organisation and try to find out the weaknesses and strengths of that kind of approach.
Specific recommendations for teachers	<ul style="list-style-type: none"> • ECTS: 0,2 • work under teacher supervision/individual students' work proportion: 30%/70%; • facilities: a computer room; • equipment: computers (1 computer on 2-3 students), LCD projection equipment, internet connection, access to the bibliographic data-bases; • training materials: recommended readings or other related readings; • target audience: master degree students according to Bologna scheme.
Assessment of students	Presentation of good examples of e-Health approach that were introduced and are successful used by one ore more partners in health care system.

e-HEALTH

Ivan Erzen

Theoretical background

Challenges and expectations facing contemporary health sectors

Healthcare systems around the globe face major challenges, even if their nature and scale varies significantly between industrialised and developing countries. These challenges include the following (1-3):

- rising demand for health and social services, due to an ageing population and higher income and educational levels. In particular, by 2051, close to 40% of the Union's population will be older than 65 years old;
- the increasing expectations of citizens who want the best care available, and at the same time to experience a reduction in inequalities in access to good health care;
- increasing mobility of patients and health professionals within a better functioning internal market;
- the need to reduce the so-called "disease burden", and to respond to emerging disease risks (for example, new communicable diseases like SARS);
- the difficulties experienced by public authorities in matching investment in technology with investment in the complex organisational changes needed to exploit its potential;
- the need to limit occupational accidents and diseases, to reinforce well-being at work and to address new forms of work-related diseases;
- management of huge amounts of health information that need to be available securely, accessibly, and in a timely manner at the point of need, processed efficiently for administrative purposes, and
- the need to provide the best possible health care under limited budgetary conditions.

Facing these challenges and looking at the possibilities it was found that one of the key tools that would be effective is the proper usage of information and communication technology in health sector. Like in other sectors this approach got a special name: **e-Health**.

The role of e-Health

e-Health describes the application of information and communications technologies across the whole range of functions that affect the health sector (1,2). e-Health tools or solutions include products, systems and services that go beyond simply internet-based applications. They include tools for both health authorities and health professionals, as well as tools for personalised health systems for patients and citizens. It can improve access to healthcare and boost the quality and effectiveness of the services offered. Examples include health information networks, electronic health records, telemedicine services, personal wearable and portable communicable systems, health portals, and many other information and communication technology-based tools assisting prevention, diagnosis, treatment, health monitoring, and lifestyle management. When combined with organisational changes and the development of new skills, e-Health can help to deliver better care for less money within citizen-centred health delivery systems.

e-Health: systems and services that benefit the health sector

e-Health can deliver significant improvements in access to care, quality of care, and the efficiency and productivity of the health sector. e-Health can become key driver for change, and productivity gains, in such areas as infrastructure and skills development, internal business processes, procurement procedures and supply chain management, marketing and sales, and functions of the extended business (4).

The amount and complexity of health-related information and knowledge has increased to such a degree that a major component of any health organisation is information processing. The health sector is clearly an information intensive sector which increasingly depends on information and communication technologies. These technologies are supporting progress in medical research, better management and diffusion of medical knowledge, and a shift towards evidence-based medicine. e-Health tools support the aggregation, analysis and storage of clinical data in all its forms; information tools provide access to the latest findings; while communication tools enable collaboration among many different organisations and health professionals (1).

Empowering health consumers: patients and healthy citizens

Both as patients and as healthy citizens, people can benefit from better personal health education and disease prevention. They need support in managing their own diseases, risks – including work-related diseases -

and lifestyles. A growing number of people are looking proactively for information on their medical conditions. They want to be involved actively in decisions related to their own health, rather than simply accepting the considerable discrepancy (“asymmetry”) in knowledge between themselves and health professionals. e-Health services provide timely information tailored to individuals in need. Specialised online resources are available for health education, safety and security at work and lifestyle management.

Examples of personalised systems for monitoring and supporting patients include wearable or implantable communication systems for continuous monitoring of patients’ heart conditions. These systems can help shorten or completely avoid the stay of patients in hospitals, while ensuring monitoring of their health status. Having access to comprehensive and secure electronic health records has been shown to improve quality of care and patient safety. This will facilitate appropriate treatment of patients in providing health professionals with a better knowledge of the patient’s history and of previous interventions by other colleagues.

Assisting health professionals

The priority of medical professionals is to offer best quality care within available resources and, above all, according to the Hippocratic oath, doing no harm to the patient (*primum non nocere*). However, unfortunately, medical errors still occur. Some of these might be avoided by making good use of e-Health systems that can provide vital information, alerts, and make best practices, expert advice and results of clinical treatment more widely available.

e-Health tools and applications can provide fast and easy access to electronic health records when needed. They can support diagnosis by non-invasive imaging-based systems. They support surgeons in planning clinical interventions using digital patient specific data, provide access to specialised resources for education and training, and allow radiologists the possibility to access images anywhere. Thus, the workplace is being redefined and extended. Digital data transfer enables more effective networking among clinical institutions, and the creation of virtual network of centres of reference. Electronic health records also enable the extraction of information for research, management, public health or other related statistics of benefit to health professionals.

e-Health can benefit not only health professionals but all the staff employed in the health sector including nursing, care, and administrative staff (for example: in 2002, this was 17.5 million persons in the European Union of 25 Member States or 9.3% of total workforce). Furthermore, e-Health can contribute to achieving a safer working environment for health practitioners. Safer working environment is a very important issue. In the European Union, health and social services have an accident rate which is 30% above the average by sector of accidents recorded. Most accidents relate to infectious diseases and dangers, back injuries, and shocks and hazards associated with electrical equipment or compressed gases (5).

Supporting health authorities and health managers

Health authorities and managers are responsible for the proper organisation and running of health systems (6). They do this against the background of increasing budgetary pressures and rising patient expectations. e-Health systems can play a major part in meeting those pressures by making the health sector more productive, and delivering better results with fewer resources. Unfortunately, the currently available paper-based information aggregation and processing has major limitations.

A proper management of public health and clinical health can be undertaken only on the basis of comprehensive and high-quality administrative and clinical data. Health authorities would benefit from better access to more comparable data on health issues. There is a need for data, and an underlying infrastructure, that help health authorities to collaborate - for example, on how to tackle communicable diseases.

Integrated and comprehensive data can be provided in good time using e-Health tools, such as electronic health records and support for care flow management. Automatic data extraction from electronic health systems that meet legal requirements on data protection and privacy could provide missing data that facilitates proper evaluation of much needed resources and eradicates the huge administrative burden of filling in separate forms for reimbursement - a clear example of a productivity gain to be achieved through e-Health systems and services. These initiatives form a definite trend in the aim to modernise healthcare systems (7).

Increased networking, exchange of experiences and data, and benchmarking, is also necessary at the national but also at the international level. Drivers for this include the need for improvements in efficiency, and the increased mobility of patients and health professionals under an emerging internal market in services. The situation requires the integration of clinical, organisational, and economic information across health care facilities, so as to facilitate virtual enterprises at the level of jurisdictions and beyond.

e-Health systems can empower managers by spreading best practices and helping to limit inefficient and inappropriate treatment. This is the single most important step in releasing resources and ensuring broad access for everyone to quality care. In addition, e-Health opens new opportunities for people who live in remote areas with only limited healthcare services, as well as marginalised groups (such as persons with different degrees of disability, whether minor or more severe). e-Health is already proving in Europe and in the developing world that it can provide a platform for telemedicine services such as tele-consultations (second medical opinion), telemonitoring, and telecare, either in the home or the hospital.

Major challenges for wider implementation

Despite the availability and proven benefits, e-Health systems and services are still not yet widely used in real-life medical or health situations. In many places, development is still at a pilot phase, often financed through research grants. The speed of organisational change is often slow, and it can take many years to achieve full implementation. A broad range of challenges remain to wider implementation (1).

1. Commitment and leadership of health authorities:
Commitment and leadership of health authorities, in particular related to financial and organisation issues, are essential elements for the successful deployment of e-Health. For e-Health to improve the way healthcare is provided, it must be combined with organisational changes and the development of new skills in users. e-Health was often traditionally perceived by health authorities as a low spending priority. However, it is now seen as a matter of substantial importance within public health policies;
2. Organisational and cultural approaches:
Moreover, organisational and cultural approaches relating to the way health care is delivered varies between countries and between organisations. Typically, in the health area, the introduction of new applications, techniques, and medicines has been slow, yet – in organisational terms – the introduction of information and communication technologies has developed relatively fast. Hospitals too will be important players in the evolution towards e-Health, and their involvement in adoption will be central to new forms of healthcare delivery (8);
3. Interoperability of e-Health systems:
Interoperability should enable the seamless integration of heterogeneous systems. This will allow secure and fast access to comparable public health data and to patient information located in different places over a wide variety of wired and wireless devices. However, this depends on standardisation of system components and services such as health information systems, health messages, electronic health record architecture, and patient identifying services;
4. User friendliness of e-Health systems and services:
A top priority for health providers in using an e-Health system is speed in getting the desired, high-quality results. There is an absolute need for fast connection, connectivity, and high speed. This highlights the importance of ensuring broadband connection for online health services and infrastructure for regional health information networks;
5. Confidentiality and security issues:
Firstly, the confidentiality and protection of patient data is governed by the general European Union rules of data protection, as well as by the requirements of e-Privacy legislation regarding communications infrastructure. The requirement for confidentiality makes health information systems security critical. Another important legal issue is liability in the event of problems - such as technical malfunctions of the system, network, or provision of the service itself - that result in serious harm to a patient (9).
6. Issues relating to the mobility of patients:
Another challenge is the issue relating to the mobility of patients, including the cross border circulation of goods and services, among which e-Health services are of growing importance. Stronger cooperation among health providers across Europe is needed to enable wider implementation;
7. Needs and interests of users:
The take-up of e-Health systems and services would take place more rapidly if the needs and interests of the user communities (health professionals, patients, and citizens) are taken on board. In general, these should be better integrated into the development and promotion of e-Health;
8. Access for all to e-Health:
The equal access of all groups of society to health services is an important goal in the public health policy field (10). There is a risk that certain parts of society - such as lone parents of families, isolated communities, inner city communities, individuals with literacy and numeracy challenges, groups of immigrants, homeless persons, elderly persons and disabled persons – could remain excluded from the possibilities offered by e-Health (including Internet-based health services) if special efforts are not made to counterbalance such trends. On the other hand, e-Health can offer considerable possibilities for the provision of health services to such individuals, groups, and communities;
9. Common understanding and concerted efforts by all stakeholders:
No single stakeholder can carry through implementation successfully on its own without the active co-operation of all the others. Each of the stakeholders, health authorities, professionals, consumers, industry, has the power to veto an implementation, if it is not perceived as beneficial. Only through concerted efforts by all stakeholders, can we ensure a successful implementation where all partners benefit, thereby creating a win-win situation.

Concluding remarks

e-Health offers important opportunities for improved access to better health systems to the citizens. It can empower both patients and healthcare professionals. It offers governments and tax payers a means - through substantial productivity gains – to cope with increasing demand on healthcare services. It can also help to reshape the future of health care delivery, making it more citizen-centred.

This e-Health Area will provide a framework for exchanging best practices and experience in the country and between them. It will allow common approaches to shared problems to be developed over time. Through e-Health a better access and better, more efficient, services as well as on the overall productivity of the healthcare sector is expected. Besides e-Health will become common place for health professionals, patients and citizens. An important prerequisite is that e-Health will be adequately resourced within healthcare budgets.

Exercises

Task 1: Carefully read the part on theoretical background of this module. Critically discuss the challenges and possibilities of further development and introduction of e-Health solutions.

Task 2: Find the official EU web address dealing with health care and health promotion issues. Analyse the organisation of the web place and discuss it with your colleagues.

Task 3: Find web sites in your own language- assess them according to the impression you have. Compare the assessment with those of your colleagues and discuss what might be the reason for difference in the assessments

Task 4: Discuss the characteristics, strengths and limitations of selected survey with your colleagues.

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title	Health care: levels and limits
Module: 1.10	ECTS (suggested): 0.2
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Keywords	Health care, public health.
Learning objectives	After completing this module students and public health professionals should: <ul style="list-style-type: none"> • be aware of advantages in applying system analysis; • recognize relation of boundaries and objectives of the system; • know to list the elements of the health care system; • improve the knowledge and understanding of the functions of the health care system.
Abstract	Introduction to system analysis and health care system. A systematic examination of a system (situation, problem) is described. Elements and boundaries of health care system. Description and taxonomy of health care system. Levels of health care with characteristics of each level. Two exercises are given.
Teaching methods	Introductory lecture, exercises, individual work and small group discussions.
Specific recommendations for teachers	<ul style="list-style-type: none"> • work under teacher supervision/individual students' work proportion: 30%/70%; • facilities: teaching room; • equipment: computer, projection equipment; • training materials: readings, hand – outs;
Assessment of students	The final mark should be derived from the quality of individual work and assessment of the contribution to the group discussions.

HEALTH CARE: LEVELS AND LIMITS

Luka Kovacic, Zelimir Jaksic

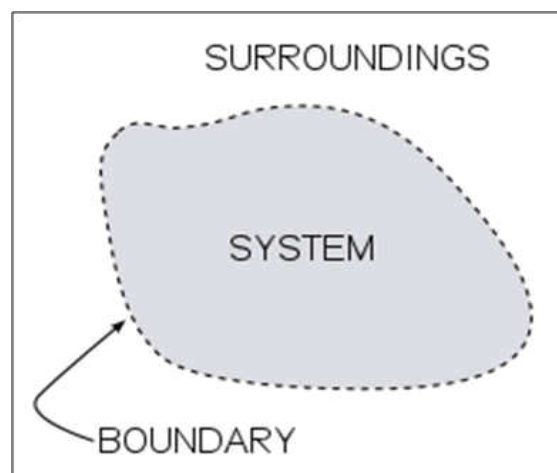
Theoretical background

The system

System can be defined as a set of inter-related elements organized to achieve a common purpose in the environment in which the system exists. The elements should function as a functional whole.

Inter-related elements and common purpose are the key words of the quoted definition. Every element can be regarded as a subsystem, and on the other side, the system makes a subsystem of a larger system. This structure is known as hierarchical structure.

Figure 1. The system



The term system is very much used in everyday language and because of that, it may have many connotations and different meanings. The most frequent understanding is that it means an organized hierarchical administrative structure. The term health system is often used instead of the term health administration or health services. Health administration will sometimes be described as a “non-system” or “there is no system” to stress that it is not well organized. Theoretically, this is not quite correct, because it actually means that a system operates which does not meet our expectations, or we do not understand it. Another example of misunderstanding is to combine elements without any inter-relation or inter-dependency of components of the system. It is not correct because in the system a change in one element is bound to affect other parts and the functioning of the whole. The health care system is one of the subsystems of the broader social system.

Systems analysis

In order to know how the system or subsystems work the process of analysis known as **systems analysis** could be applied. The pioneer of the system analysis is Ludwig von Bertalanffy (1). The term systems analysis has many different meanings. In general, it could be defined as a formal inquiry carried out to help someone (referred to as the decision maker) to identify a better course of action and make a better decision than he might otherwise have made.

The characteristic attributes of a problem situation where systems analysis is called upon are complexity of the issue and uncertainty of the outcome of any course of action that might reasonably be taken. Systems analysis usually has some combination of the following: a) identification and re-identification of objectives, constraints, and alternative courses of action; b) examination of the probable consequences of the alternatives in terms of costs, benefits, and risks; c) presentation of the results in a comparative framework so that the decision maker can make an informed choice from among the alternatives (2).

The typical use of systems analysis is to guide decisions on issues such as national or corporate plans and programs, resource use and protection policies, research and development in technology, regional and urban development, educational systems, health and other social services. The nature of these problems requires an interdisciplinary approach. There are several specific kinds or focuses of systems analysis for which different terms are used: A systems analysis related to public decisions is often referred to as a **policy analysis** (in the

United States the terms are used interchangeably). A systems analysis that concentrates on comparison and ranking of alternatives on basis of their known characteristics is referred to as **decision analysis** (3).

System analysis is based on the notion of the systems. All situations in real life can lead us to the description of a system. It can be a social system, an administrative system, a biological system, or any other kind. One can describe the health services as a system, there are different systems in our body, and there are railway systems and systems of thoughts.

A systematic examination of a system (situation, problem) should be done in steps in which each step is made as explicit as possible. The steps are:

- **listing** all elements which can be related to the system or its environment;
- defining **goals and objectives** of the system, identifying also their hierarchy and the most important objective in an observed situation according to the purpose of the analysis;
- choosing elements which will be considered as the proper system (**bounding or bordering the system**) and others which will be regarded as environment according to defined goals and objectives;
- describing and examining **elements and their relations**;
- **generating optional solutions, alternatives** by manipulating elements and relations to fit better the objectives of the system or to find solutions for identified problems;
- **comparing and evaluating different alternatives and modelling** a complex new system.

The question is how to choose elements which are relevant for the system. The solution is to start from the common purpose. The element contributing directly to the purpose will be regarded as the element of the proper system and all others as elements of the environment in which the system exists. In that way different elements might make our proper health system when we consider the financial situation of health services, and different elements when we consider health status. The important point is that in both situations **all elements will be initially considered** and some of them deliberately chosen as elements of the proper system of our concern.

There are several advantages in using system analysis. First, it stimulates us to list all relevant factors which might be involved. This is very important, because it helps us to overcome a common mistake and to consider only few closest elements along with our usual thinking. For instance, very often when we examine the health services, the users are forgotten, the most important element of the system. Organizational structure, resources, manpower, equipment and facilities are examined, but not people who will use it.

Second, system analysis is forcing us to proceed systematically starting from specified objectives. Every step is performed deliberately and when shortcuts are used we are aware of them.

Third, system analysis stimulates us to think about different new approaches and alternatives, even out of usual ways of thinking. It is made easier because some elements which are considered “untouchable” in real life are also taken into account during “theoretical” consideration. For instance, new ways in mobilizing resources, new patterns of supervision and reporting, etc. might come into the picture.

Organization

Organization (**as a process**) is the arrangement of parts which form an effective whole. The term is also used to describe **a structure**: a group of people with a special purpose, e.g. a unit of health services, an institution.

The organization may be regarded as an open dynamic **socio-technical system**. It is a dialectical relation of a given technology and social aspects of its application, i.e. work connected with that technology (division of labour, relations toward means of production, inter-personal and group relations). Because of that, the organization of health units with different types of technology has different work relations and different organizational problems, for instance, a big hospital in comparison with a health centre.

The organization may also be regarded as having different characteristics as the consequence of **size**, level of **complexity** and **phase** of development.

Macro-organization deals with big overall systems, and **micro**-organization with small units (e.g. a rural hospital or a district health centre). In every-day life expressions such as “young organization”, “traditional organization”, “handicapped organization”, etc. are used and they indicate the lively social dynamics of organizations.

Because organization is a complex socio-technical system it may be understood from different points of view:

- as a **functional** system, in which the main importance is given to technology and the purpose of organization is to perform in the best way, i.e. in accordance with technological requirements and giving the maximum output of an acceptable quality;
- as a **rational** system, in which a rational order is of the main importance, i.e. neat division of tasks, clear responsibilities, hierarchical decision-making, disciplined subordination;
- as a group of people in which the **psychological relations**, individual behaviour and group dynamics play the essential role;
- as a **social system** in which the main influence have interests of individuals and groups, the power structure and permanent dynamic tension regarding domination and authority to decide about utilization of resources, personal and group benefits.

The described concepts reflect the relative importance given to different aspects of the same process. Consequently they will also influence the style of how organizational problems are solved.

Organizing implies the ability to coordinate activities necessary for implementation in such a way that: **the right things are done, in the right place, at the right time, in the right way, and by the right people.** To reach that, a manager has to observe:

- Objectives;
- Definition of tasks for each group and every individual;
- Clear line of authority, command, responsibility.

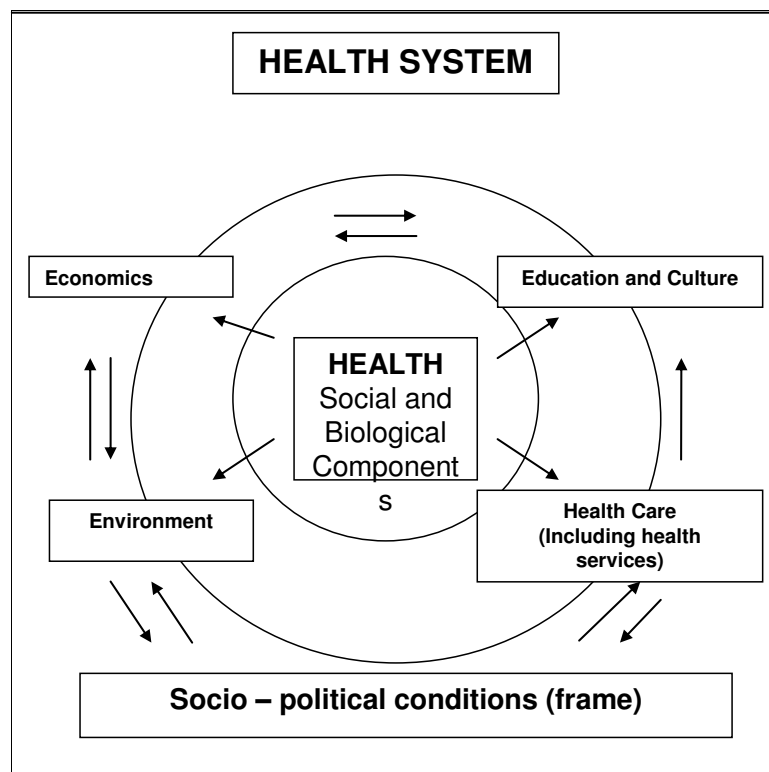
Health care system

The health care system is a whole of political, economic and cultural, technical and organizational factors, relations, processes and elements, in which individuals, groups and communities interrelate, having the goal to satisfy their health needs (Figure 2).

Health and health care can be well understood only in the broadest context of human life. That includes social, economic and political issues besides understanding of biological facts. It also requires the understanding of environmental, historical and cultural circumstances.

These various aspects can be observed differently according to given situation and purpose of study. The depth of understanding will be influenced by our own experience, knowledge and ideology. Because of that, an active effort will be needed to observe, listen and compare, sometimes with patience and prudent tolerance. Without active involvement, honesty and openness the reward will be minor, or meaningless.

Figure 2. Relations of the health care system and other systems



The health care system is the subsystem of social organization system and it has various subsystems:

- **Socio-political subsystem** - the main health legislation is as a rule at the national level, but communities could be more or less self-reliant and responsible for planning and organization of health care. Solidarity and support is usually at higher levels;
- **Subsystem of users** (communities and individuals) - responsibility and participation of the community in planning, organization, operation and control;
- **Socioeconomic subsystem** - health insurance (obligatory, voluntary, private), and private relation of health providers and users;
- **Managerial subsystem** (decision making process): level of autonomy of health institutions, type of management (autocratic, bureaucratic, corporative laissez-faire);

- **Technological subsystem** - Comprehensive approach in provision of primary health care, segmented at secondary level;
- **Organizational subsystem** – levels of the health infrastructure (primary, secondary, tertiary), type of health institutions (individual practices, group practices, health centres, day hospitals, clinical hospitals);
- **Health care infrastructure** (health care facilities) - infrastructure could be a subsystem which supports the operations of an organization (health centre, health sub-centre, hospital, medical centre, institute of public health, rehabilitation centre and spas, pharmacy, specialized institutes - vaccine production, emergency services in large cities, blood supply, etc, private practice - dentists, physicians, nurses, herbalists and other alternative practitioners);
- **Supporting systems** - training and research institutes, health related industries (production of drugs, equipment, etc.).

Levels of the health care system

All models of health care systems are imperfect and there is no a model which is the best and broadly accepted and recommended. There are big differences among countries influenced by history, tradition, socio-cultural, economic, and political and other factors. But, regardless of all present differences, there are some common characteristics, typical for the organized health care system (4). One of the common characteristics of organization of health care is the level of organization. Health care systems are usually organized on three levels: primary, secondary and tertiary. The main characteristics of each level are presented in table 1.

On **primary level** we can recognize several sublevels with their characteristics:

- **Primary community (home) level** with 2-100 or more members. Primary community (or group) is one in which people are in permanent relations, have regular contacts and know each other well. Discussions and decisions are within the group itself and through direct personal communication. This type of communities is for example families, some neighbourhoods, small villages, workers in smaller workers' units, members of some societies, etc. These groups are often practicing self-help and mutual aid, traditional forms of health care. Volunteer promoters have sometimes an important role.
- **Local community level** (2000-3000+ members). Local communities are groups usually living in the same setting or otherwise sharing facilities or other resources or interests. This community is often formally recognized and some temporary social structures may exist with guiding and facilitating communication. The members know each other, but they do not live so close to have regular personal contacts. The decisions are often made at public meetings or in other organized ways. Besides, there are informal structures sharing information and exercising some power. The local communities are of a medium size which is limited by efficiency in running different common social services, like churches, shops, schools, etc. At this level the first recognized and established health worker may be found. He/she works at least partly on a professional basis. The first health facility is also established (dispensary, health posts, health stations and similar). A midwife, nurse, health technician or a general practitioner may be the typical health worker. In more developed areas health teams operate. Usually integrated preventive and curative service is provided, including simple common treatment.
- **Intermediate (municipal) level** (population of 10.000-50.000+ people). The municipality (commune) or other similar social structure usually needs to function also as the basic administrative unit. Often the first official administrative needs are fulfilled, and an office exists which operates permanently. Very often the decision making is formally prescribed and implemented according to certain rules and laws. At this level the offices may exist, in which different governmental and local regulations are issued, data collected and other administration fulfilled. The established health unit is staffed with a team, having often some epidemiological duties (e.g. surveillance), and also guiding and coordinating work of health workers in the local communities. The unit is often called the health centre. A medical assistant, a nurse or a general medical practitioner might be in charge.
- On the **secondary level**, the district (or region in some countries) with population of about 50.000-150.000 or more people) is a larger administrative centre, being also often a centre of trades, manufacture and more developed cultural and social institutions. A representative of the government in his office performs different governmental duties. Services start to be specialized, and local representatives of different central programs might be permanently present. It is often a small or larger hospital (depending on the population size) and/or a larger health centre, comprising also beds for maternity and short-term observation and treatment. Besides GPs, there might be several main medical specialists. The first referral services are provided. The guidance, management and supervision of health services is expected, and in training of health workers etc.
- The **tertiary level** is regional or national level (population of more than half of million) is usually regional or national administrative centre with regional or national authorities and legislation. Clinical hospitals or clinical centres located on that level have referral function for the health services located on lower levels, educational and research functions. These health institutions are usually responsible for development of national guidelines and standards. National institutes of public health are responsible for monitoring of

national health, international communications and high specialized public health services (laboratories, blood supply, etc.).

Table 1. Characteristics of levels of health care

	Population	Type of community	Desired level of integration	Type of health providers
Primary	1-5+	Family	Very high or high	Individual practice
	100-1000+	Neighbourhood		Group practice
	50-1000+	Municipality		Health centre
		School		Pharmacy
		Firm		
Secondary	1000-10000	District	Selective (specialized)	Municipal hospital
	100000-200000	Larger city		County hospital
				Special hospital
				Policlinic
				Public health institute
Tertiary	500000-2000000	Region	Highly selective (sub-specialized)	Regional
	or more	Country		Clinical hospital
				National public health institute

Exercises

Task 1: set-up the boundaries of an emergency health care system in a district of 70,000 inhabitants

There are many ways to present a health care system. Many different elements may be chosen as essential for the system depending on problems we are dealing with and objectives of the exercise. A permanent thinking “forward-backward” is going on during designing a system: what are the objectives, which elements can help in satisfying them. All the time analytical and syntactical skills are involved. The exercise cannot be solved mechanically. Creativity is playing an important role, supported by imagination. It is difficult to decide how many details are needed and what can be regarded as a subsystem. During designing the system you are already stating your hypotheses and greatly determining the final conclusions.

Your task is:

1. Make individually a list of all relevant elements you think that they are in the system of emergency health care in a district of 70,000 inhabitants. You could make also a list of elements outside the emergency health care what can contribute to that system.
2. Draw a diagram presenting elements in and out the emergency health care system and connect the elements with the lines.
3. Comment and explain your findings in a small group.

Task 2: levels inside primary health care

As it was described earlier in this module, it is possible to identify three sublevels of social structures to which correspond levels of health care. There are however variations in size and relative importance of individual levels, as well as in health manpower and between rural and urban settings. It is important to identify these differences, explain them and discover if they influence outcomes of primary health services.

The students’ task is to:

1. Describe a situation in your district or country: name, size, services and health manpower in different sublevels inside primary health care in urban and rural settings;
2. Compare your findings with those of other participants in your group and identify differences. Discuss the reasons and consequences;
3. Report to the plenary and consider advantages and disadvantages of different solutions.

In consideration of different solutions for the organization of services on the grass-root level of primary health care, the following factors have to be taken into account:

- The interface between population and services;
- The inter-relation between levels, communication and span of control;
- Differences between the rural and urban settings, and explanations of that;
- Practical problems in functioning of different levels.

Expected outcomes: List of comments and experiences gained during discussions. Each student should explain what changes are necessary in his/her circumstances. What type of changes students expect in his/her situation during further development?

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4. Donev D. The role and organization of health care system. In. Bjegovic V, Donev D (editors). Health system and their evidence based development. Lage: Hans Jacobs Publishing Company, 2004. p. 19-46.

Recommended readings

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2. WHO. Improving Performance. The World Health Report 2000, Health Systems: WHO, Geneva, 2000.

HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title	Reorientation of health services
Module: 1.11	ECTS (suggested): 0.1
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Keywords	Health promotion, health service, health service reform, primary health care.
Learning objectives	After completing this module students should: <ul style="list-style-type: none"> • recognize the importance of re-orientation of health service in order to foster health promotion and to achieve better health situation in the population; • differentiate between comprehensive and selective health care models; • understand that the process of re-orientation of health services, implementation itself as well as development and evaluation is an extremely complex task where all partners need to be fully involved and where new working methods need to be introduced.
Abstract	Health promotion is defined from one point of view in terms of the several action areas among others comprising re-orientation of health services toward health promotion. According to this concept, health services were encouraged to move increasingly from a predominantly curative approach to a more preventive approach. The idea of comprehensive primary health care was launched. The paper is presenting problems related to the application of comprehensive primary health care in practice in the period after adoption of Alma Ata Declaration. The case of Slovenia health care system and characteristics of its transition is presented as an example. The current situation is presented, as well as broader context and possible solutions in the future.
Teaching methods	Teaching methods include introductory lectures, exercises, and interactive methods such as small group discussions.
Specific recommendations for teachers	<ul style="list-style-type: none"> • work under teacher supervision/individual work proportion: 30%/70%; • facilities: a lecture room, a computer room; • equipment: computers (1 computer on 2-3 students), LCD projection, access to the Internet; • training materials: recommended readings or other related readings; • target audience: master degree students according to Bologna scheme.
Assessment of students	Assessment is based on seminar paper and oral exam.

REORIENTATION OF HEALTH SERVICES

Ivan Erzen, Lijana Zaletel-Kragelj, Jerneja Farkas

Theoretical background

Basic definitions and explanation of terms

Reorientation of health services

According to World Health Organization (WHO) (1,2), reorientation of health services is defined as a process which is characterized by a more explicit concern for the achievement of population health outcomes in the ways in which the health system is organized and funded. In this context the health needs of the individual as a whole person are in the central position, balanced against the needs of population groups.

This definition is strongly related to several relevant concepts among which the following are important for understanding this module:

- the concept of health explanatory models;
- the concept of health needs, since the reorientation of health services should lead to a change of attitude and organization of health services, which focuses on the needs of the individual as a whole person (1); and
- the concept of investment for health.

Health explanatory models

There exist several perspectives or approaches on what health is. Contemporary approaches in health promotion are (3):

- medical or biomedical approach – this approach views health as an absence of diseases or disease-producing physiological conditions. In this approach the centre of orientation is disease and selective disease treatment the key strategy;
- behavioural approach – this approach views health in terms of the behaviour and lifestyle of individuals. In this approach the centre of orientation is the individual's behaviour;
- socio-environmental or bio-psycho-social approach – according to this approach health is being influenced by internal and external environment and therefore this is the most comprehensive approach. In this approach health is the centre of orientation and comprehensive influence on health determinants is the key strategy.

Health needs

Among the definitions of health need the most simple is “a desire of people to remain healthy”. However, health need is an extremely complex entity and when it is related to the individual as a whole person it is composed of several components which include the medically defined need or medical need, the socially determined need and the perceived need (4).

There exist several perspectives on health needs: a citizen (a “consumer”) perspective, health professional (a “provider”) perspective, and a payer perspective. In this context along with the expression “a need” the expression “a demand” is used.

The definition of these two terms is not unified since it depends on our stand-point perspective. For example, medical need is mostly defined as medically modifiable morbidity burden, while medical demand is defined as the request of the citizen, this time in the role of patient (“consumer”) for medical care services (5). This definition is primarily related to the payer's perspective.

Investment for health

Investment for health refers to resources which are explicitly dedicated to the production of health and health gain (1).

Investment for health strategies are based on knowledge about the determinants of health and seek to gain political commitment to healthy public policies.

Investors could be public or private agencies, as well as people as individuals or groups (communities).

Health services, health needs and a need for re-orientation of health services

Traditionally, health services are intrinsically oriented in disease (biomedical approach) and consequently in satisfying medically defined needs. In most but not all cases (e.g. vaccinations or screenings) satisfying these needs coincides with satisfying self-perceived needs of patients. On the other hand, health services are mostly not interested in considering social needs. If we sum up these characteristics, traditional health services hardly meet the demands of comprehensive approach to serve the health of the citizens.

As health care costs have skyrocketed in last half of a century, health services started to face enormous financial and ethical problems. On one hand this happened owing to improvements in medical technology, which made it possible to treat distinct diseases and disabilities with increasingly sophisticated equipment, for both diagnostic and therapeutic purposes. Since recent advances in clinical medicine improved prognosis of people with acute and chronic diseases, there is an increased need for specific training of health care providers. Rehabilitation and long-term care are particularly important, which eventually leads to higher costs for health care.

How to solve the problem

The health care system with its health services has an important influence on health of the population. Nevertheless, we should keep in mind that it represents only one, although very important determinant of health. It is the interaction between the environment in which people live, work and play (natural and social environment, including economic, and cultural environment) and individual factors or inner environment (inherited factors e.g. genetics or acquired factors) that has a marked influence on health status of an individual and of a population.

Beside the health care system, one of the extremely important determinants of health is the economic system. Health care and economic systems are not independent (6). In fact they are closely related: healthier populations are more productive populations. Thus, from the economy perspective, the process of continuous, progressive improvement of the health status of individuals and groups in a population should be of enormous importance. Finally, both systems have enormous influence on health of the population.

The interrelationship of health, health care and economy is one of the major themes of WHO's Health for All Strategy (2). The concept of investment for health that requires health to be put at the core of social, economic and human development was introduced (2,7).

Although important, these two determinants are still not enough to achieve good health of a population. For achieving it (either, good health of individuals or a population as a whole) several determinants of health should be addressed and responsibility for health issues needs to be shared between many partners including individuals and communities. Regarding health services, this will require an expansion in health promotion and disease prevention action to achieve an optimal balance between investments in different types of health services: health promotion, disease prevention, diagnosis, treatment, care, and rehabilitation (1).

Whatever the process, it is necessary to keep in mind that health inequalities should be avoided and great attention on social responsibility for health should be emphasized.

Health promotion and re-orientation of health services

The basic WHO health promotion document, The Ottawa Charter (8), in 1986 defined health promotion in terms of the several action areas included beside building of healthy public policy, creation of supportive environments, strengthening of community action and democratic planning processes, developing of personal skills, re-orientation of health services toward health promotion as well. This last action area in fact means that health services were encouraged to move increasingly from a predominantly curative approach to a more preventive approach. The process of re-orientation of health services to health promotion was understood as a core element of a comprehensive approach to maximize the health capacity of a community (8,9).

Historical perspective

The Ottawa Charter actually was not the first WHO document to introduce the idea of comprehensive primary health care. This in fact was the core idea of The Alma Ata declaration (10). According to this declaration:

- everyone should have access to primary health care, and everyone should be involved in it. In another words, people have the right and duty to actively participate, individually and collectively, in the planning and implementation of their health care (1);
- people were treated as subjects and not merely as object in the health care process.

Primary health care was in this context seen as a set of activities addressing the main health problems in the community, providing comprehensive approach and pointing out promotive, preventive, curative and rehabilitative role of health services. The key components of primary health care should be equity, community involvement and participation, intersectorality, appropriateness of technology and affordable costs (1).

But in opposition to the comprehensive primary health care approach, the selective health care approach was posed (11). Both approaches are distinctly different. The selective health care approach, for example, is based on medical interventions and is oriented in curing the disease (based on the biomedical model of health) while the comprehensive approach rests on engagement with local communities, involvement of many sectors and dealing with the underlying health determinants (based on the bio-psychosocial model of health). In fact, the selective health care approach could be understood more as primary medical care than primary health care. Since

the adoption of Alma Ata Declaration the struggle between these two approaches is present and over time the selective approach started to prevail.

The First International Conference on Health Promotion with its sound document Ottawa Charter (8) could be understood as the first visible response to this departure from the Alma Ata vision. The comprehensive approach has got new impulsion. But unfortunately, in few years after launching the concept of health promotion, the selective approach became again more powerful than comprehensive.

The next response in WHO European Region was The Ljubljana Charter on Reforming Health Care (12), which was adopted in 1996. This Charter addresses health care reforms in the specific context of Europe and is centred on the principle that health care should first and foremost lead to better health and quality of life for people. It was stressed that health services are important, but they are not the only sector influencing peoples' wellbeing. Other sectors also have a contribution to make and responsibility to bear in health and inter-sectorality must therefore be an essential feature of health care reform. This Charter was characterized by 5 principles of re-organization of health care services: health care reforms should be driven by values, targeted on health, centred on people, focused on quality, based on sound financing, and oriented towards primary health care. The later should ensure that health services at all levels protect and promote health, improve the quality of life, prevent and treat diseases, rehabilitate patients and care for the suffering and terminally ill, and they should promote the comprehensiveness and continuity of care within specific environments. For a while, this was fresh impetus to comprehensive approach. The same was again repeated in the Jakarta declaration adopted in 1997 (13).

In following years, the idea of "investing in health" strengthened. This idea, unfortunately, meant new departure from comprehensiveness of health care, being driven by profits gained by investing in health (not for health) (11). This resulted in disadvantageous health phenomena in many countries. By the end of the twentieth century, for example, it was evident that Health for All by the Year 2000 would not be achieved and that for some countries life expectancy and some other health indicators were going backwards. As a response to this unfavourable trend the People's Health Movement was raised (14). This Movement draws its inspiration from Alma Ata declaration. The First People's Health Assembly was held in Bangladesh in December 2000, and the People's Health Charter was adopted there (15). It calls for a people centred health sector that is based on comprehensive primary health care.

What could be done?

Certainly, there is a strong need for health care services reforms. Greater investment for health implies re-orientation of existing resource distribution within the health sector towards health promotion and disease prevention. A significant proportion of investments for health should be undertaken by people in the context of their everyday life as part of personal and family health maintenance strategies. This was realized in many different countries (5,16-20).

There are several reasons for going this direction. They include the rise of new public health challenges anticipated for new millennium, like aging of the population in developed countries associated with higher prevalence of chronic non-communicable diseases (e.g. cardiovascular diseases and cancer), or emerging infectious diseases (e.g. BSE, SARS, avian influenza), as well as strengthening the ability of societies to reduce inequities in health.

Despite the need for re-orientation of health services, most of the previous reforms had been oriented in higher efficiency of services (the supply side of the health care) and only few considered the demand side (improving health of the population by investments for health) (5). Nowadays, the situation remains similar. The process of re-orientation of health services to be more supportive of health promotion evidently should be strengthened (16).

SWOT analysis of re-orientation of health services

Strengths and opportunities

One of the main opportunities of health care services in their role to serve to the health of the population in the future, it will be to take over the key role in supporting inter-sectoral action for health. Achieving equity in health could not be possible without coordinated inter-sectoral activities.

Weaknesses and threats

The process of re-orientation of health services into the direction of health promotion has its weaknesses. It is definitely not easy since it requires an increase in the capacity of the health service staff themselves and of the organization (16). This fact presents certainly one of the major weaknesses and limitations to health care systems to go this direction. It is a well known fact that health care systems all over the world are getting more and more expensive. The growing cost of care is associated with higher levels of chronic diseases and disability, the increased availability of new medical treatments and technologies, and rising public expectations. Going the direction of re-orientation to health promotion definitely would increase the costs. Although this would only be of temporary nature, we should be aware of it.

Also, an expanded role of primary health care services could not be achieved only through an increase in direct health system activity. Action by sectors other than the health sector may be more effective in achieving improved health outcomes. This could be seen as another weakness. Health services have only a limited impact on the health status of a population without other activities directed in health of the population since key determinants of health lie outside the health sector (21). Policies in areas such as education, employment, and agriculture often have even greater impact on population health than medicine. Therefore, cooperation of primary health care with other sectors is strongly needed.

An important threat to this process is the fact that in 1990s WHO lost its leading position in the field of international public health and World Bank became the major player. "Investing in health" became the well known slogan of this organization at that time. The basic problem in this context is that achieving good population health does not seem to be the main goal of World Bank (11). Organizational arrangements that had originally been meant to improve equity in access to health have increasingly been constrained by the concern for effective cost containment. A lot of countries responded with a series of measures to control cost pressures. The economic aspect prevailed over the moral imperative of maintaining solidarity and the social good character of health care.

Recent findings

Historically, the struggle between comprehensive and selective health care approach seemed to be more in favour of the later, yet recent findings probably show the opposite. Comprehensive health care approach was considered to be too idealistic and expensive and in many respect defeated by the selective approach. Consequently, the later prevailed whilst recent studies indicate that it has not been effective (22). On the contrary, comprehensive health care including health promotion and disease prevention can save money. How much, it depends on the programme, demographic and other characteristics of the population, the diseases structure, and whether short-term or long-term community outcomes are considered. In these times, when costs of medical care are escalating, especially high technology medical care, this fact should not be overlooked. The only time when prevention could be more expensive than treatment is when disease or injury is infrequent and moves quickly to death before major expenses are incurred. But we need to be aware that the argument for prevention in the frame of comprehensive health care cannot - and should not - be made primarily on economic grounds.

It is encouraging that the re-orientation of health services to a more comprehensive approach, including health promotion, is coming again on the agenda of global health policy rethinking (17,18,22).

Case study - primary health care in Slovenia and its orientation

Slovenia and health care reforms

In Slovenia the need for reforming health care system was realized immediately after it became independent. The process started in 1992 by adopting new legislation (23-25). The reasons were political (to open the health care system to private initiative and a more diverse organizational approach) and economic (cost-containment, multiple contributions - national insurance and voluntary insurance fees - and a mixed public and private health care system) (24). It is still going on.

Since the emphasis in comprehensive health care systems is on primary health care services the SWOT analysis on this segment of health care system is presented.

Primary health care services in Slovenia

Strengths

Traditionally, in Slovenia primary health care has a long and firm tradition. Community health centres were providers of primary health care before independency of Slovenia. Today, more than 20 years later, they are still the main providers of this kind of health care, though they were subjected to the radical changes soon after Slovenia attained its independence (26). The process is still ongoing.

Community health centres are the institutions which bear traditions from the ideas of Andrija Štampar, a distinguished scholar in the field of social medicine, born in Croatia. The first community health centre in Slovenia was established in 1926 (23,25,27,28). The original idea was to deliver primary health care to the population at the level of the local communities and to provide various types of care in an integrated approach, especially to endangered population groups e.g. children, women, etc. For this purpose community health centres had special units, called dispensaries (27,28).

Today, by law and in practice, community health centres are institutions that provide both, preventive and curative primary health care for different target population groups (many of them are from a public health standpoint at higher risk). The types of care include (23): emergency medical aid, general practice/family medicine, health care for women, children and youth, home nursing, laboratory and other diagnostic facilities, preventive and curative dental care for children and adults, health aids and appliances, pharmacy services, physical therapy, and ambulance services.

In 1999, Slovenia had 64 community health centres and 69 health stations. A primary health care facility (health care centre or health care station) is available within 20 kilometres from almost all locations. In rural areas, a physician's practice is more that of a family physician and a physician may have as many as 3000 patients, whereas in Ljubljana, the capital, a physician may have as few as 750 patients. The average number of patients per general practitioner is about 1800 (which normally includes only up to 10% of all children since their care is usually organized through primary care paediatricians) (23).

In the past, different types of care were facilitated, as previously mentioned, by the organization of dispensaries. The important characteristic of dispensaries was orientation not only in curing individuals with the disease but, at least at the very beginning, mainly in preserving good health of endangered groups of individuals as well as that of communities. The natural and social environment was considered as important determinant of health.

After the independency of Slovenia, in community health centres the era of transition started, which is still in a process. Today, some of dispensaries are still existing, e.g. for children and youth, but their role is slowly changing from more preventive orientation to more curative one.

We could conclude that in Slovenia the comprehensive primary health care approach was launched even before it was encouraged by the WHO. Unfortunately, the transition went in opposite track than it was proposed by WHO.

Weaknesses

As mentioned above, as the years passed by, the dispensaries were starting to disappear as an important part of health care at the primary level, and the selective approach prevailed over the comprehensive approach. Some of dispensary services are still organized, mostly as purely supplementary outpatient specialist services.

Another weakness is that actually many community health centres collapsed in the recent years and functionally ceased to exist in several parts of Slovenia while still developing and being well integrated into the new concepts in other parts of the country. This resulted in disparities in physical access for people in different parts of Slovenia. Part of this problem was also the long unsolved issue of publicly owned premises and their availability for (potential) private providers of health care. As no national guidelines were prepared for this problem until late in the process, many providers left the publicly owned premises and started developing their own as private providers.

Threats

Community health centres are still the main (public) providers of primary health care in Slovenia. Apart from public health care providers, the number of private providers is increasing. Private care is provided by either individual health professionals acting as providers or by group practices with various combinations of services and specialties. The self-governing community grants concessions for private primary health care providers (based on the consent of the Ministry of Health). Such a concession is a public contract, which ensures inclusion into the network of publicly financed health care providers. In the private sector material gain is one of the most important driving forces and this fact should be considered as an important threat to the further development of the comprehensive health care at the primary level (29).

Opportunities

It is undeniable that the private sector could have many positive impacts on quality of health care (29). They are market orientated and therefore they need to take into consideration all key business operation with special emphasis on quality and economy of the working process.

Private provision also introduced competition, until then mainly unknown phenomenon in Slovene health care. Although private practitioners with contracts with the Health Insurance Institute of Slovenia work alongside the publicly employed physicians, competition arises by virtue of the competitive process associated with winning a contract.

Exercises

The main aim of the exercise is to get the students acquainted with the importance of re-orientation of health service in order to foster health promotion and to achieve better health situation.

Task 1: carefully read the papers:

Magnussen L, Ehiri J, Jolly P. Comprehensive versus selective primary health care: lessons for global health policy. *Health Affairs* 2004;23:167-176. Available at URL:

<http://content.healthaffairs.org/cgi/reprint/23/3/167.pdf>. (Accessed: August 26, 2013)

and:

Baum F. Health for All Now! Reviving the spirit of Alma Ata in the twenty-first century: An Introduction to the Alma Ata Declaration. *Social Medicine* 2007;2:34-41. Available at URL: <http://journals.sfu.ca/socialmedicine/index.php/socialmedicine/article/view/76/187>. (Accessed: August 26, 2013).

Task 2: identify the pressures that contemporary health systems are facing and the challenge of re-orientating health services towards comprehensive health care and health promotion in specific environment.

Task 3: discuss the process of re-orientation of health services in your environment and try to evaluate the achievements in this field as well as factors that stimulate or hinder this process.

At the end of the module students should understand that the process of re-orientation of health services, implementation itself as well as development and evaluation is an extremely complex task where all partners need to be fully involved and where new working methods need to be introduced.

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Recommended readings

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title:	The framework of public health
Module: 1.12	ECTS (suggested): 1.0
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Keywords	Public health, public health functions, operations, services, system.
Learning objectives	After completing this module students will be able to explain, classify and accept the main philosophy and knowledge domains of public health, the principles of public health and the main areas of public health competences. To meet this objective students will: <ul style="list-style-type: none"> • explain different phases in public health development and distinguish the new public health from old public health, and • describe essential public health functions / operations and their relation to public health practice / performance.
Abstract	Introduction to Public Health is designed to promote the application of public health sciences to a wide range of common problems and issues. The module will portray the philosophy and underlying principles of public health. History, concepts and concerns of public health and essential public health functions will be the focus of this module. The sessions are based on the presentations of global health problems using a wide range of different types and sources of information. Students will learn to integrate the diverse knowledge and skills requirements of competent public health professionals in their approach to problem solving. Each session will include one or more problems which can be used to illustrate the wide range of disciplines applicable (from an evidence based perspective) to the practice of public health.
Teaching methods	The teaching methods will be a combination of lectures, group work, case studies, presentations and discussions in plenary. The main emphasis will be on participatory approaches. Small group discussions will be organized as interactive process in which students will share their ideas, thoughts, questions, and answers in a group setting with a facilitator. Case studies will be based on realistic scenarios from public health that focus on a specific issue, topic, or problem. Topics for Introductory Lectures: Definitions of Public Health; Foundations of the “Old” and the “New” Public Health; Public Health Ethics; Core functions / Operations of Public Health. Topics for Group Discussions: Global developments in Public Health; Organization of Public Health Services in SEE countries: the past and current developments; Regional collaboration in Public Health training, research, and practice.
Specific recommendations for teachers	This module should be assigned 1 ECTS. Teachers should be familiar to give examples of specific challenges and problems in public health.
Assessment of Students	Assessment will be formative based on students’ participation (attendance, small group discussion and assignments) and summative based on essay examination with presentation and final exam by multiple choice questionnaire. Individual assignment is an essay (up to 3000 words, references excluded). Students are expected to provide a comprehensive and coherent literature review on theoretical aspects, core principles, main features, and basic functions of public health.

THE FRAMEWORK OF PUBLIC HEALTH

Vesna Bjegovic-Mikanovic, Genc Burazeri and Ulrich Laaser

Nowadays, the entire spectrum of public health is enormously complex and public health activities are oriented to many challenges related to health. Evidences from countries in which public health is well developed suggest that it can make an important contribution to the health status of the population. In fact, the health gain of public health activities is far greater than the impact of curative services, although the latter usually consume over 90% of the funds available for health care. However, in the eye of the public and also of many physicians, public health does not have the position it deserves, because it is less “visible”: keeping healthy people healthy is less spectacular than treating the sick (1).

Public health addresses the health of the population as a whole rather than medical health care, which focuses on treatment of the individual disease. It deals with collective problems in society and seeks collective solutions. Today the practical importance of public health is well recognized and presented by fulfilment of the interest of the society in providing conditions in which the people can be and stay healthy (2). For the realization of the public health mission in disease prevention and health promotion, the efforts must be based on the scientific and technical knowledge and the public health activities must reflect the values of the community and rely on the consensus of the same community. In addition, the responsibility for the performance of public health activities is on the government, as on the federal, so is on the republic, regional and the municipal level (3,4).

The modern concept of public health, the New Public Health, means the efforts on mobilizing thousands of communities, their public health planners and political leaders throughout the world around the programmes of health promotion (5,6). Health promotion, as the practical implementation of the New Public Health is “the process of enabling individuals and communities to increase control over the determinants of health and thereby improve their health.” (7). It is believed that the modification of lifestyles (such as unhealthy nutrition, physical inactivity, unprotected sexual intercourse, lack of prenatal care, not using the safe belt while driving, tobacco, alcohol and drug use) can result in reduction of all causes of acute disability by one third, all causes of chronic disability by two-thirds, and 40-70% of all causes of premature deaths. Many scientists agree that the major gains in health have been attributable largely to the impact of public health interventions during the 20th century (8,9). The worldwide extension of the average life expectancy at birth is one of the most prominent examples of public health achievements. However, this and other health gains are not shared equally either within or between countries and within or between different population groups (people living in poverty, refugees, ethnical minorities). Hence, the major global public health challenge in the 21st century will be the application of its knowledge and evidence to effective, safe and affordable interventions which will have impact at all population levels.

Definitions of Public Health

Definitions of public health vary widely, ranging from the utopian conception of an ideal state of population health to a more concrete listing of public health practices. There were many efforts throughout the history, which tried to capture the entire spectrum and complexity of public health in one definition. As an example of one of the most comprehensive definitions is that one made by Winslow, even in 1920 (10):

“The science and art of preventing disease, prolonging life and promoting physical health and efficiency through organized community efforts for the sanitation of the environment, the control of communicable infections, the education of the individual in personal hygiene, the organization of medical and nursing services for the early diagnosis and preventive treatment of disease, and the development of the social machinery which will ensure every individual in the community a standard of living adequate for the maintenance of health; so, organizing these benefits in such a fashion as to enable every citizen to realize his birthright of health and longevity”.

One of the most precise and shortest definitions given by Donald Acheson (11) is what one could call an abridged version of Winslow’s wording:

“Public Health is the science and art of preventing disease, prolonging life and promoting health through the organised efforts of society”.

The recent overview summarizes 15 definitions of public health used by major stakeholders (12). All contemporary definitions share the principle that the core issue of public health is the health of populations and that this goal is reached by a generally high level of health throughout society, rather than the best possible health for a few. The field of public health is concerned with health promotion and disease prevention throughout society where an essential tool is considered to be a modern approach to health systems development by contemporary methods of public management and health planning. The inherent linkage to an enlightened health policy is apparent.

The Framework – Old Public Health vs. New Public Health

Contemporary public health and its complexity can be understood only against the background of history. Looking to the history, it is difficult to select a date for the origins of the field of public health. Some authors are beginning with old Egyptians and their efforts to develop a precursor of waterworks system around 2000 BC. Some others cite Hippocrates who describes a number of communicable diseases including mumps and diphtheria with introducing the term “epidemic” and making relations between environmental factors and diseases around 400 BC. The principles and skills of public health were known and applied for centuries, though it is believed that this discipline was created simultaneously with the industrial revolution during the 19th century and that it is particularly developed and improved during the 20th century. The main development of Public Health knowledge and practice could be followed in four main phases (13):

1. hygiene phase,
2. individualistic phase,
3. therapeutic phase, and
4. New Public Health.

The first phase (hygiene phase): The beginning of the development of the discipline of public health is well known as the hygiene phase. At the end of 19th century this first phase can be understood by the movement for the improvement of the hygienic and sanitary conditions in several European countries, that was motivated by the deterioration of the population health due to the industrial revolution. In that time, a large amount of people lived in the cities where the basic housing and sanitation problems were not solved. As the results of the epidemics, the mortality increased rapidly. In addition, the need for efficient measures became mandatory. As an example, in Germany, like in most European countries at the beginning of 19th century, the rapid urbanisation caused the most severe hygiene problems since the middle ages (14). Communal authorities soon appointed physicians to a public office addressed as *medicus civitatis*. These town physicians served as first public health authorities on the community level. Their duty was the surveillance of infectious diseases and the medical care for the poor within the community. A Committee for the Poor was established in 1834 in England, with the mandate to deal with community problems and to propose measures for its solution (15). The committee conducted a research that confirmed the connection between communicable diseases and the non-hygienic environment. Based on this, it was suggested that every administrative community must establish a public health service. The first service of this type was founded by the Association of English Cities for health in 1839. The next step was the issuing of public health laws, such as the Liverpool Sanitary Act (1846), by which General Health Committee was founded with the task to establish the local public health authorities, later on to provide them with methodological expertise, and to examine sanitary conditions in the community together with them. Henceforward, a whole line of legislative acts was issued, by which waste disposal, water supply, prevention and disease control, inspection of hospitals and chronic patient treatment institutions, birth registration, provision of services for mother and child health care, and other measures were regulated. The activities in Public Health in England had a strong influence on the developments not only in European countries, but also in the USA, where the absence of efficient administrative mechanisms for supervision over community health was noticeable. The first local institution was founded in 1866 in New York, and in 1878 the Public Health department of the state for the USA. Similar activities took place both in France and Germany. The first organized forms of Public Health services in the Balkan region were developed also in the 19th century. They correspond to the first development phase of Public Health (Hygiene phase).

The second phase (immunization, individualistic phase): The development of microbiology and immunology, especially the work of Louis Pasteur, and the discovery of the principle of protection through vaccine, had a significant influence on the work of Public Health institutions. While during the 19th century their activity was limited on the improvement of environmental conditions, during the 20th century, the activities switch to the control of microorganisms as the cause of diseases, and to the immunity mechanism. This second phase of the development of Public health is known as the individualistic phase (13). The measures for the sanitation of the environment and the disease specific protection lead, already in the first years of the 20th Century, to improvement of the results in prevention and eradication of communicable diseases.

The third phase (therapeutic phase): The third phase in the development of public health started with the discovery of new therapies such as insulin therapy, and the therapy with the sulphonamide group of drugs in the early 1940s. A significant increase in the individual therapeutic interventions and a search for new technological and scientific approaches began. In that time, as the consequence of taking control over communicable diseases, the “Old Public Health” lost political attention, and the resources of the state were directed preferably towards hospitals and the curative services. In this phase good health was primarily considered as a consequence of medical intervention and hospital services. Consequently, a medical/pharmaceutical industry and powerful medical associations emerged with strong influence on the governments. However, this shift of focus to the curative patient-centred side, also lead to a renewed interest in poverty, poor working conditions and unhealthy life styles, such as inappropriate nutrition, alcoholism or sexually transmitted infections. Increasingly a gap between individual medical interventions with enormous costs

and only few effects on the health of the population in general became apparent. The need for a re-orientation of the work of Public Health institutions and their activities was obvious. In consequence, a period of the engagement of public health institutions in social actions in the community, in health programmes and health education emerged. Simultaneously, there were efforts directed toward a transnational organization of Public Health that will promote and ensure the health of the population in several countries according to common principles and agreed procedures.

The fourth phase (New Public Health): Thus, in the second half of the 20th Century, the fourth phase – the New Public Health emerged, the phase that still lasts. The community is reaffirmed as a focus and relevant setting, because the limited effects of curative medicine, hospital based treatment, one-way doctor-patient relations, and expensive technologies, were recognized. Worldwide large numbers of people are affected by poverty, live in remote rural areas or urban slums without provision of the most basic needs, while their communities are characterized by numerous risks that make their health vulnerable (16). These problems are approached by health promotion activities. The enthusiasm and the dedication to such development of the New Public Health were reflected in the First International Health Promotion Conference held in Ottawa (Canada) in 1986. The most significant achievement of this Conference was the Ottawa Charta for Health Promotion. Since that time, the concept of health promotion has been developed further as the model for the New Public Health movement and provides a strong support for the actions in 21st Century.

From the historical overview it is obvious that the “Old” Public Health culminated at the end of the 19th Century, with Britain (during the “Victorian Era”), France and Germany being examples of excellence in what had been called the “Public Health Movement” (17). Nevertheless, the accomplishments of the “Old” Public Health, on the whole, have contributed greatly to the decrease in mortality rates and change in the patterns of diseases in Europe and the United States in the early 1900s. The leading causes of death had shifted in the 20th Century from infectious diseases to chronic diseases (what was conventionally referred to as the “epidemiological transition”). The population-focus gained even more strength during the first half of the 20th Century through the activities of epidemiologists, sociologists, demographers and economists. Particularly impressive were the public health developments in Germany when Grotjahn inaugurated the concept of Social Hygiene. Gottstein, Schlossmann and Teleky described already in the early 1920s the concept of “Health Sciences”, combining medical and social disciplines under this term. These brilliant developments stopped up, however, with the looming of the Nazi regime (18). After 2nd World War the “holistic approach” to health services was the cornerstone of what is now referred to as the “New” Public Health (19):

“The New Public Health synthesizes traditional public health with management of personal services and community action for a **holistic approach**”.

Thus, comprehensive management of health services with a particular focus on disease prevention and health promotion marked a “new age” for public health. It must be said that, notwithstanding the enlargement of scope and focus over time, the core value guiding the work of public health professionals has for long remained unchanged to protect the health of the public, especially its most vulnerable groups.

The Essential Functions of Public Health

Public health systems provide and support a wide range of programmes and policy interventions. Public health functions are understood as the set of actions that should be carried out specifically to achieve the central objective of public health: improving the health of populations (20). A distinction should be made between **public health functions** and **public health activities**. Public health functions define the major objectives or expected results from the public health sector (what is to be achieved), while the activities describe the means or mechanisms of achieving these expected results. Public health functions define goals and expected results of a sustainable health development relating to the general population and to certain population groups that actively participate in health promotion and improvement of a healthy environment. Beside health status and risk factors assessment, functions of public health also relate to enabling people to take care of health, mobilization of partnership and reinforcement of public health legislation. Special functions of public health are also continuous quality improvement, effectiveness and efficiency as well as availability of health care and finding new approaches to solve community health problems. The operability of a function depends primarily on a sufficient definition of its contents, objectives, and activities and on assigning responsibility for implementing it.

Identifying the functions of public health is a recurring theme around the world, suggesting a need for countries and international health organizations to improve their ability to explicitly identify what they do and how they do it (21). During this process decision making is informed by the best available evidence, while evidence-based public health has become increasingly important (22). It refers to using a systematic approach to appraise the quality of the knowledge and the studies that are available on public health interventions. Though the concept and logic of evidence-based public health are similar in many ways to the well-known evidence-based medicine, specific principles of public health should be always considered taking in mind the complexity of public health and its social and political nature (23).

Over the past decade, many countries have defined core (or essential) functions of their public health systems. Within the set of public health actions and responsibilities, they define more homogeneous specific subsets based on the objectives or tasks needed to achieve the end goal of public health at the local, state and federal levels. In 1988, the Institute of Medicine defined three core functions of public health that help to describe responsibilities of public health agencies (24):

- *Assessment*: assessment and monitoring of the health of communities and populations at risk to identify health problems and priorities;
- Policy development: formulating public policies, in collaboration with community and government leaders, designed to solve identified local and national health problems and priorities; and
- Assurance: assuring that all populations have access to appropriate and cost-effective care, including health promotion and disease prevention services, and evaluation of the quality and effectiveness of that care.”

Following the three core functions of public health as defined by the Institute of Medicine, one of the first examples in the field is the work done by the Core Public Health Functions Steering Committee, which developed the framework for ten Essential Public Health Services for the USA in 1994 (21). These Essential Services provided a working definition of public health and a guiding frame for the future efforts in many countries.

1. *“Monitor health status to identify community health problems,*
2. Diagnose and investigate health problems and health hazards in the community,
3. Inform, educate and empower people about health issues,
4. Mobilize community partnerships to identify and solve health problems,
5. Develop policies and plans that support individual and community health efforts,
6. Enforce laws and regulations that protect health and ensure safety,
7. Link people to needed personal health services and assure the provision of health care when otherwise unavailable,
8. Assure a competent public and personal health care workforce,
9. Evaluate effectiveness, accessibility, and quality of personal and population-based health services, and
10. *Research for new insights and innovative solutions to health problems.”*

Very often Public Health is considered to be a part of the medical sciences. If one reflects the array of the essential functions above it becomes clear that the concept of the Public Health extends far beyond the curative medical horizon and rather involves medicine as one of the contributing disciplines in addition to sociology, psychology, economy etc., which enables the implementation of public health interventions.

Later, in order to develop the institutional capacities of health authorities to carry out sound public health practices, the World Health Organization conducted an International Delphi Study, which pointed out the importance of public health management (25). In addition, the Public Health in the Americas Initiative has prepared a list of 11 essential functions by adding a function related to emergencies and disasters in health including prevention, mitigation, preparedness, response and rehabilitation (26).

Reviewing the public health literature there are many examples of core public health functions (27). In addition, the newly-adopted document of EURO WHO about essential public health operations (EPHOs) – “European Action Plan for Strengthening Public Health Capacities and Services” – is also a stimulus for further strengthening of public health education, research and practice (28). Now also in Europe, the health systems include public health services and workforce as one of their main components. The same is underlined within the new European Health Policy “Health 2020” and the whole-of-government and whole-of-society approach in it. Ten essential public health operations in Europe are the following:

1. Surveillance of population health and well-being,
2. Monitoring and response to health hazards and emergencies,
3. Health protection including environmental, occupational, food safety and others,
4. Health promotion including action to address social determinants and health inequity,
5. Disease prevention, including early detection of illness,
6. Assuring governance for health and well-being,
7. Assuring a sufficient and competent public health workforce,
8. Assuring sustainable organizational structures and financing,
9. Advocacy, communication and social mobilization for health, and
10. Advancing public health research to inform policy and practice.

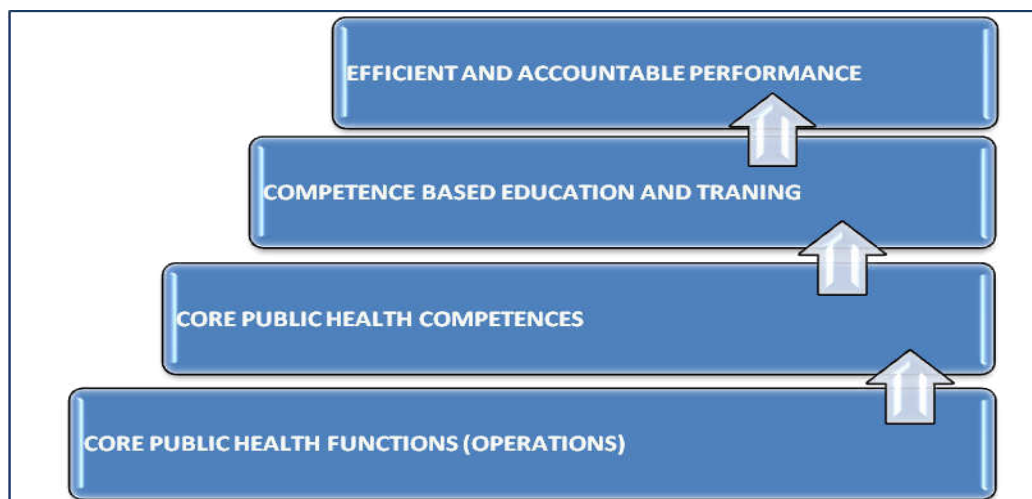
Inherent in these functions is the recognition that each public health organization would not perform the same amount of each element or the same elements as others; rather performance is determined by the level of responsibility and by a number of forces in the specific community. Therefore, understanding of the different settings involved is of great importance for accountable performance in public health. Public health professionals

are expected to be effective in different environments. They have to work with many different partners and paradigms. The main questions in strengthening public health services are:

- Who employs public health professionals and what are employers' agendas? and
- What is the performance level of public health professionals?

The steps in figure summarise the underlying concept, which is starting from essential public health operations (or functions) to approach efficient and accountable performance.

Figure 1. From Core PH Functions to Core Competences, Teaching Curricula and PH Performance



While there are different published models of health system performance, which deal with its various dimensions, very few of them are developed in the field of public health and very often relate to the concept of management as a basis for measuring performance. Performance management then is used as a practice for strengthening public health services. The model of assessment employs performance standards, measures, progress reports, and ongoing quality improvement efforts to ensure that public health organizations achieve desired results.

Ethical Dimensions of Public Health – Public Health vs. Medicine

The ethics of public health are concerned with the ethical dimensions of professionalism and the moral trust that society gives to public health professionals to act for the common welfare (3). The ethical principles of public health are born out of the values and beliefs inherent to a public health perspective, in addition to common ethical theories. Since the mission of public health is to achieve the greatest health benefits for the greatest number of people, it draws mainly from the traditions of utilitarianism which in its essence considers those decisions to be ethically right which enhance the benefit of the majority without harming the minority. The public health approach, therefore, differs from modern liberalism primarily in its preferences for community benefits. At the same time, ethics in public health raise the important issue of social justice and have transferred many of the principles of medical ethics to itself. Medical ethics emanate from interactions between a patient and a physician while public health ethics emanate from interactions between an agency, such as the state health department, and the population it serves. In the case of vaccination for an infectious disease such as measles, a physician will consider the autonomy of her patient (people can refuse "required" vaccinations based on religious beliefs or moral convictions). While the director of a public health department will not want to violate an individual's rights, his perspective will extend to a whole population. An ethic of human rights is popular among many in public health. Sometimes one of the most difficult decisions public health professionals have to make, is the one between the protection and welfare of the population and the rights and the perceived benefit of individuals. Often one has to make up one's mind in a rather intuitive and personal way. Some core differences between Public Health and Medicine are listed in Table 1.

Table 1. Key Differences Between the Attributes of Medicine and Public Health
 [Source: O'Carroll PW, Yasnoff WM, Ward E, Ripps LH, Martin EL. *Public Health Informatics and Information Systems*. New York: Springer-Verlag 2003. (Ref: 29)]

Attribute	Medicine	Public Health
Primary focus of concern	Health of specific individuals	Health of populations/communities
Primary health improvement strategy	Treatment of disease or injury with secondary emphasis on prevention	Prevention of disease or injury
Intervention context and scope	Clinical and surgical encounters and medical/surgical treatment; preventive interventions within the context of each professional discipline (e.g., paediatrics), with focus on one or a few points in the causal chain	Any and all vulnerable points in the causal chains; prevention approach not predetermined by professional discipline, but rather by the effectiveness, expediency, cost and social acceptability of intervention
Operational context	Operation through private practices, clinics, hospitals, with governmental direction primarily in terms of quality assurance	Operation within a governmental context requiring, responsiveness to legislative, regulatory, and policy directives

Public health concerns are not equal to those of medicine, as it focuses more on population than individuals, and more on prevention than cure. Hence, public health has, intrinsically, some unique ethical features, the most prominent being the following (30):

- **Equity and solidarity:** in the European ethical tradition solidarity with the disadvantaged groups has long been a unique ethical value, which is reflected in the configuration of the modern European welfare states.
- **Sustainability:** refers to developments which ensure that the current use of resources does not compromise the health of future generations. This is especially relevant for countries in economic difficulties, such as the case of SEE region.
- **Participation:** community empowerment and participation in the decision-making process is a coherent approach promoted and vigorously supported by the World Health Organization.
- **Efficiency:** even in the richest countries health care resources are scarce, as modern technologies create new diagnostic tests and new therapeutic procedures with remarkable costs. Consequently, in all countries, there is clear evidence of a (widening) gap between technological advancements and financial means available. Therefore, any waste i.e. sub-optimal use of resources is deemed unethical.
- **Justice and peace:** public health disciplines are all vastly based on a social justice philosophy; social fairness is the cornerstone for avoiding social tensions and, consequently, promoting peace, which in turn is the best prerequisite for a sustainable development.

One of the key problems which differentiate a new public health ethics from the classical biomedical ethics is the necessary decision making based on statistical probabilities. That does not only imply that such decisions can be wrong but that they will not be appropriate for some individuals although they are the best for the majority of a population. Whereas in clinical medicine such uncertainty can be mastered by respecting patient consent, in public health often the rights of a minority have to be suspended as is shown by the classical example of obligatory smallpox vaccination in spite of some serious side effects. To advance traditional public health goals while maximizing individual liberties and furthering social justice, public health interventions should reduce morbidity or mortality; data must validate that a programme (or the series of programmes of which a programme is a part) will reduce morbidity or mortality; burdens of the programme must be identified and minimized; the programme must be implemented fairly and must, at times, minimize pre-existing social injustices; and fair procedures must be used to determine which burdens are acceptable to a community (31).

Developments of Public Health in Europe: East vs. West

Today, what has emerged as the “New” Public Health is an approach which brings together preventive measures and health promotion at the community level, environmental changes in a broad sense (physical, socio-economic, and psychological dimensions), appropriate therapeutic interventions, as well as a comprehensive management of health services at large. Public health in the West had moved from a paternalistic, medicalised model to one that emphasizes empowerment, community development, and the ability to make healthy choices. On the other hand, in the East few choices were available for most people. Even if the governments in the East had been aware of developments in the West, the community empowerment was merely irreconcilable with the highly centralized systems consisting of undisputed authority and harsh command, which resulted in a vertical management of health services.

In contrast with the communist past of Eastern and Southern Eastern Europe with its mainly vertical structures, in Western Europe societies developed a more horizontal character, a significant example of which is the growing role of citizen initiatives, self help groups and non-governmental organizations and a prevailing tendency to decentralize powers which is in line with one of the basic principles of the European Union, namely subsidiarity. Subsidiarity means that whatever can be done by a lower hierarchical level should not be performed at a higher i.e. more central organizational structure, i.e. activities should preferably be developed bottom-up and be supported only where necessary top-down. The strong environmentalist green movement and the nowadays well-accepted role of self-help groups in the health field have created partners for public health institutions and professionals, which in many instances became more relevant than the classical state institutions as there are ministries of health or city governments. Whereas in the early historical development of the later European Union (EU) coal and steel were the main areas of commonality, public health entered the agenda forcefully with the treaties on European Union of Maastricht (1992), Amsterdam (1997) and Lisbon (2009) where in the article 168 (former 152 in Amsterdam and 129 in Maastricht Treaty) it reads:

Article 168

1. A high level of human health protection shall be ensured in the definition and implementation of all Union policies and activities.

Union action, which shall complement national policies, shall be directed towards improving public health, preventing physical and mental illness and diseases, and obviating sources of danger to physical and mental health. Such action shall cover the fight against the major health scourges, by promoting research into their causes, their transmission and their prevention, as well as health information and education, and monitoring, early warning of and combating serious cross-border threats to health.

The Union shall complement the Member States' action in reducing drugs-related health damage, including information and prevention.

2. The Union shall encourage cooperation between the Member States in the areas referred to in this Article and, if necessary, lend support to their action. It shall in particular encourage cooperation between the Member States to improve the complementarity of their health services in cross-border areas.

Member States shall, in liaison with the Commission, coordinate among themselves their policies and programmes in the areas referred to in paragraph 1. The Commission may, in close contact with the Member States, take any useful initiative to promote such coordination, in particular initiatives aiming at the establishment of guidelines and indicators, the organisation of exchange of best practice, and the preparation of the necessary elements for periodic monitoring and evaluation. The European Parliament shall be kept fully informed.

3. The Union and the Member States shall foster cooperation with third countries and the competent international organizations in the sphere of public health.

4. By way of derogation from Article 2(5) and Article 6(a) and in accordance with Article 4(2)(k) the European Parliament and the Council, acting in accordance with the ordinary legislative procedure and after consulting the Economic and Social Committee and the Committee of the Regions, shall contribute to the achievement of the objectives referred to in this Article through adopting in order to meet common safety concerns:

(a) measures setting high standards of quality and safety of organs and substances of human origin, blood and blood derivatives; these measures shall not prevent any Member State from maintaining or introducing more stringent protective measures;

(b) measures in the veterinary and phytosanitary fields which have as their direct objective the protection of public health;

(c) measures setting high standards of quality and safety for medicinal products and devices for medical use.

5. The European Parliament and the Council, acting in accordance with the ordinary legislative procedure and after consulting the Economic and Social Committee and the Committee of the Regions, may also adopt incentive measures designed to protect and improve human health and in particular to combat the major cross-border health scourges, measures concerning monitoring, early warning of and combating serious cross-border threats to health, and measures which have as their direct objective the protection of public health regarding tobacco and the abuse of alcohol, excluding any harmonization of the laws and regulations of the Member States.

6. The Council, on a proposal from the Commission, may also adopt recommendations for the purposes set out in this Article.

7. Union action shall respect the responsibilities of the Member States for the definition of their health policy and for the organization and delivery of health services and medical care. The responsibilities of the Member States shall include the management of health services and medical care

and the allocation of the resources assigned to them. The measures referred to in paragraph 4(a) shall not affect national provisions on the donation or medical use of organs and blood.

The Lisbon Treaty 2009 (32).

Over the years, one can observe a continuously rising importance of the EU in public health matters, an example having been set by the handling of the Mad Cow Disease around the year 2000. More and more the so-called Four Freedoms of unrestricted movement between the member states of persons, goods, services and finances become valid also for the health sector.

It has been noticed that public health services throughout of EU follow different models specific for each country. However, two basic approaches can be distinguished (33):

- a. public health services organized with governmental support in collaboration with different public institutions (inside and outside the health sector) and non-governmental organizations at the national and community levels, and
- b. through a network of institutes of public health in collaboration with other partners at the national and local level. Nevertheless for all countries is typical that an institute of public health at the national level exists though with different scopes of tasks and responsibilities.

In the past century, most of the SEE countries have experienced conflicts and economic collapse, which has impacted on the quality and development of public health. In addition, changing disease patterns in SEE region require a public health service to be constantly redefined. At the beginning of 1990s, the former socialist countries in the SEE region begun to make radical political and socio-economical changes away from centrally planned economies, towards the development of market economies. The dissolution of the Former Yugoslavia was followed by the appearance of new states. The increasing cost pressure as the result of scarce financial resources moreover forces the public health actors to strive for more co-ordination and co-operation to employ resources as effectively as possible (34). There is a need to strengthen the collaboration between the countries and improve the co-ordination of international co-operation and support for the reconstruction and development of public health in the region. Key areas of collaboration in public health reforms among the SEE countries are: The health information system, training and research, non-communicable disease and public health interventions, migrant health and control of illegal drugs (35). There are several initiatives which support this. The most important is signed as Dubrovnik Pledge in 2001, by the Ministers of Health from the South Eastern European Region (SEE), who gave political support for improving the health of their populations and particularly of vulnerable groups (36, 37), and today they are still active in public health collaboration, increasing cooperation in all fields of public health. Priority health issues, policies and future actions for the Region have been explored. In this framework, Stability Pact supports many public health projects. The Council of Europe, together with the World Health Organisation coordinates the activities within the Stability Pact, among others the Initiative for Social Cohesion. Underlying the decision was the recognition of health as important determinant of social cohesion and a major factor in peace building, investment and development.

Another important project within the Stability Pact as funded by Germany was the Programmes for Training and Research in Public Health PH-SEE, which have been developed through collaborative networks between public health institutions in the SEE Region and lasted for a decade (<http://www.snz.hr/ph-see>). Regional coordinating centre of this project was the School of Public Health "Andrija Štampar" in Zagreb, whereas the international coordinating centre was the Section of International Public Health at University of Bielefeld, Germany. Participation in this regional network was a good commencement of the development for public health in the Region. Since the year 2000, this project pursued the development of a PH-SEE Consortium which has been supporting the following developments:

- network of public health institutions and professionals,
- internet-based postgraduate training,
- support to schools of public health development,
- agreement on common minimum indicator set,
- common training programmes and conferences,
- regional mobility of students and teachers,
- institution building,
- joint public health research,
- enhancement of peace and human rights in SEE, and
- development of a common internet-platform.

Until now, more than 1.000 public health professionals from SEE region and EU have participated in different activities. The Stability Pact process was an opportunity to boost public health and health development in the countries of SEE. In addition, important support is coming from other international agencies (European Agency for Reconstruction, Fund for an Open Society (OSI), Canadian International Development Agency (CIDA), Centers for Disease Control and Prevention (CDC), World Bank (WB), UK Department for International Development (DFID), etc).

Today strengthening public health through collaborative training, research and practice remains the greatest challenge throughout the region.

New Threats and Challenges of Public Health in South Eastern Europe

Traditionally, some public health activities (by the Sanitary Epidemiological Services) and some personal preventive services (e.g. immunisation programmes) were well developed in countries in South Eastern Europe and other former socialist countries. Public health was more concerned with infectious diseases than with physical and chemical risk at the workplace and in the environment. The public health services had large networks of laboratories at their disposal and impressive numbers of data were collected. During the nineties, however, the public health services suffered heavily from lack of resources, lack of continuous education and generally from disorientation. It became obvious that a change of emphasis was needed away from the control of infectious diseases (without abandoning this field) towards health problems caused by life style, such as smoking, alcohol abuse, lack of safety consciousness, lack of physical exercise, etc. Many projects in many countries have worked on the development of modern health promotion services, with mixed results.

In some countries, either because of scarcity of appropriate skills or organisational weaknesses or lack of funds, public health services are still unable to realise their potential. Experience suggests that public health services can be made more effective by developing and/or restructuring their activities in certain areas based on well-evaluated results from other places. For example, in the field of health promotion, restructuring should focus on those interventions that help individuals to make healthy choices, whether by empowering them through advocacy or community development or by encouraging fiscal, regulatory or other means to increase the choices available. While such reorientation should not ignore health services, it should concentrate on the broader determinants of health.

As a first step towards reform in any country, the present situation in public health must be described: health indicators, physical infrastructure, staff, financial and material resources and strategy. Priorities must be set which can provide most health benefit at the lowest cost and which together fit the presently constrained financial resources. With all choices to be made, the principle of cost-effectiveness is an overriding one. This means that priorities should be based on scientific information as to expected health benefit and costs, although this may be difficult to explain to politicians. Costs are not only financial, but also non-material, such as willingness of professional staff to adapt to a new system and efforts by the population to change harmful practices (4,38).

Modern health promotion is a key element in a public health reform package, both because it is potentially most cost-effective and because it is relatively new to professionals and the public alike. Smoking, alcohol abuse, STD including HIV/AIDS, and drug addiction are important subjects here (39,40,41,42). Classical health protection measures cannot be neglected, and should indeed be strengthened and adapted, especially to more environmental determinants of ill-health. The control of communicable diseases should go on unabated, including immunisation programmes, whoever is going to implement them. Rationalisation and upgrading of the public health laboratories usually is part of public health reform projects.

It is clear that public health reform cannot limit itself to a top-down approach. Indeed, without the participation of citizens and educational establishments, health promotion efforts are doomed to fail, whereas modern health protection activities do not depend so much on community participation, but may come as a cultural shock to the professionals working in this sector. The responsibility for different types of personal preventive care must be clearly established. This is especially true for the immunisation and screening programmes.

The growing relevance of Public Health in the European Union is only one example of a worldwide renaissance in many ways related to the newly emerging global threats to public health in the 21st Century which include the following:

- Proliferation of weapons of mass destruction, and catastrophic terrorism, particularly bio-terrorism;
- Emerging infectious diseases, with new pathogenic threats (like SARS), re-emergence of "old" diseases (like tuberculosis), and antimicrobial resistance;
- Non-communicable diseases, with the pandemic of tobacco-related diseases and obesity; and
- Globalization, with its potential for propagation of pathogenic threats, unhealthy lifestyles, and dissemination of terrorism.

The new threats constitute a strong force for closer cooperation globally (global health diplomacy) and regionally, in Europe including South Eastern Europe.

Public health strategies as permanent challenge in 21st Century

Reviewing the framework of public health as described above it becomes obvious that a public health strategy has to draw from the medical paradigm but as well from a social paradigm and therefore is to be multi- and interdisciplinary in nature in terms of the New Public Health. Also a public health strategy cannot be formulated anymore with a national reference alone, given the interrelatedness of local, regional, national and inter- and supranational structures especially in a uniting Europe. For the transition countries in South-eastern Europe a public health strategy has, last but not least, to deal also with the common heritage. As the similarities between the countries in SEE and their mutual dependency are dominating their public health, a regional strategy is accruing which may find its political structure in the collaboration. As the formulation of public health strategies especially at the national level is always subject to political negotiation it constitutes a continuing and never ending debate where the process is more important than the result of the day, as it helps to define the common interest in public health and to assume accountability towards the people. To structure this process the essential public health functions as described above are more and more accepted as a comprehensive guidance, together with implementation, rigorous monitoring and evaluation.

Exercise: The Framework of Public Health

Learning objective: The purpose of the exercise is to provide students with basic skills necessary to explain, classify and accept the main philosophy and knowledge domains of public health by using different source of information (publications, online resources and free online journals in the field of public health), which are listed below.

Task 1: International developments in Public Health practice: the past and current trends

Groups will be formed at the beginning of the module and each group will choose a health problem among those identified as public health problems in the list provided by teacher. The first, students work individually, by writing down their own discoveries in international public health developments regarding selected health problem. They should use different sources of information listed below to gain their personal vision. In addition, their essays should include literature review on theoretical aspects, core principles, main features and basic functions of public health. After this is done, each group will describe the health problem in terms of evidence and importance for public health interventions. The past and current international trends should be listed. Finally, each group will present their work using appropriate media. A teacher summarizes reports, which are presented by highlighting the main trends in international public health, while each student's essay is assessed separately.

Duration (ECTS): **3 hours under supervision and 10 hours of individual student's work.**

Task 2. Organization of Public Health Services in SEE countries: the past and current developments

Students should be informed in advance about the task in order to gain relevant knowledge, which will support their small group discussions. Each group will report the results of discussion by using flip-charts paper to list the past and current public health developments in their countries.

Duration (ECTS): 4 hours under supervision and 10 hours of individual student's work.

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title	Public health services – organisation and challenges
Module: 1.13	ECTS (suggested): 0.2
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Keywords	Health policy, health promotion, project management, public health services.
Learning objectives	After completing this module students should: <ul style="list-style-type: none"> • Know the present health situation in Europe and the strategies that were taken or are actual in the present to help people preserve their health, • be familiar with project management approach in conduction of health promotion projects.
Abstract	In European society very important changes have occurred in recent decades. They brought different health problems. Different interventions were developed in order to preserve health in the society. Health promotion has proved to be one of the most important tools in this field. Implementation of health promotion is not possible without radical changes in approach and method of work. As this is the case of intervention in several social subsystems, the project method is considered the most adequate tool for implementation of health promotion in organisations. Institutes of Public Health have, due to their role in the society of today, developed various kind of knowledge and skills to facilitate the implementation of project work. They are closely connected with several social subsystems so they stand a real chance of undertaking the role of project co-ordinators in health promotion. The benefits, gained by the institutes of public health through taking part in health promotion projects, will not only be those reflected in broader social community and other organisations. The new working methods will, above all, find their most rapid and positive expression in the very same institutes i.e. in the process of performing their regular professional tasks.
Teaching methods	An introductory lecture gives the students first insight in characteristics of cross-sectional studies. The theoretical knowledge is illustrated by a case study. After introductory lectures, students first carefully read the recommended readings. Afterwards they discuss the characteristics of local public health organisations and infrastructure. The students will discuss about the appropriateness of the actual organisation and try to find out the weaknesses and strengths of that kind of approach.
Specific recommendations for teachers	<ul style="list-style-type: none"> • ECTS: 0,2 • work under teacher supervision/individual students' work proportion: 30%/70%; • facilities: a computer room; • equipment: computers (1 computer on 2-3 students), LCD projection equipment, internet connection, access to the bibliographic data-bases; • training materials: recommended readings or other related readings; • target audience: master degree students according to Bologna scheme.
Assessment of students	Multiple choice questionnaire.

PUBLIC HEALTH SERVICES – ORGANISATION AND CHALLENGES

Ivan Erzen, Lijana Zaletel Kragelj

Theoretical background

Some useful definitions and considerations for understanding the module

Public Health

When speaking of “public health”, to many people, even medical professionals, this term conjures up images of hospitals and ill people and has the same meaning as publicly funded health systems. However, public health is actually quite different from that - it has at its heart the aim of improving wellbeing, promoting positive health and preventing diseases. Thus, the main focus of public health is health and disease prevention. This is reached through its activities: it prevents epidemics and the spread of disease, protects against environmental hazards, prevents injuries, promotes and encourages healthy behaviours, responds to natural and societal disasters and assists communities in recovery, and assures the quality and accessibility of health services. According to this, public health has many subfields. Most typically it is divided into the following subfields or categories:

- epidemiology of communicable diseases,
- environmental health (hygiene),
- social and behavioural health (social medicine), and
- health statistics.

The role of public health is of major importance for the health of the population, since many diseases are preventable through simple, non-medical methods. Public health plays its role in prevention efforts through local health systems or through international non-governmental organizations.

Public health services

Once we know what “public health” is, we can start discussing about public health services. There exist several definitions of “public health services”, among them being also the definition of OECD (OECD) (1). According to OECD, prevention and public health services comprise services designed to enhance the health status of the population as distinct from the curative services which repair health dysfunction. Typical services are vaccination campaigns and programmes. But prevention and public health functions included in this definition do not cover all fields of public health in the broadest sense of a cross-functional common concern for health matters in all political and public actions. Some of these broadly defined public health functions (such as emergency plans and environmental protection) are not part of expenditure on health (1).

Since the main focus of public health is health and disease prevention, this is the main focus of public health services as well.

Activities, performed by public health services are so-called public health interventions. The focus of a public health intervention is among others to prevent a disease through surveillance systems of cases of various diseases (e.g. communicable diseases surveillance system), and the promotion of healthy life style. But in addition to these activities, in many cases treating of a disease can be vital to preventing it in others, such as during an outbreak of an infectious disease. Vaccination programs and distribution of condoms are examples of activities of public health services.

Essential tasks of public health services

Essential tasks of public health services are to:

- monitor health status to identify community health problems;
- diagnose and investigate health problems and health hazards in the community;
- inform, educate, and empower people about health issues;
- mobilize community partnerships to identify and solve health problems;
- develop policies and plans that support individual and community health efforts;
- enforce laws and regulations that protect health and ensure safety;
- link people to needed personal health services and assure the provision of health care when otherwise unavailable;
- assure a competent public health and personal health care workforce;
- evaluate effectiveness, accessibility, and quality of personal and population-based health services; and
- research for new insights and innovative solutions to health problems.

Level of functioning of public health services

The population, covered by a single public health service, can be as small as a group of people (a family or local community for instance) or as large as all the inhabitants of several continents (for instance, in the case of a pandemic). Thus the level of functioning of a public health service can be:

- local,
- regional,
- national,
- international, or
- global.

On the national level, countries have their own government public health agencies to respond to domestic health issues, on the top being ministries of health and national institutes of public health. We can present some very well known national agencies, which are not involved only with national duties, but also with several international health activities:

- maybe the most known public health system is the system of the United States of America (US). In the US, the agency responsible for the public health of the US population is US Public Health Service (US-PHS), led by the Surgeon General of the United States. The US-PHS administers a number of critically important health agencies including the Food and Drug Administration (FDA), the Centers for Disease Control (CDC) (with its headquarters in Atlanta), and the National Institutes of Health (NIH).

The CDC is the primary federal agency for conducting and supporting public health activities in the United States. CDC's focus is to protect the health of all US people. CDC keeps humanity at the forefront of its mission to ensure health protection through promotion, prevention, and preparedness (2). It is composed of several units being National Institute for Occupational Safety and Health, and six Coordinating Centres/Offices, including environmental health and injury prevention, health information services, health promotion, infectious diseases, global health and terrorism preparedness and emergency response.

- an example of a national public health agency/institution is Finnish National Public Health Institute KTL (3). KTL is responsible as an expert body under the Finnish Ministry of Social Affairs and Health, for providing various professionals and citizens the best available public health information for their choices. This institution could be classified among the most important public health services in Europe. Its ideas have been spread even worldwide. An example is an intervention programme for combating non-communicable diseases known under its acronym CINDI (Countrywide Integrated Non-communicable Diseases Intervention) (4).

On the international and global level, there exist several very well known public health organizations/agencies:

- in the first place it is an organization which acts on the international and global level, and which is in fact a guiding body for public health services at national, regional and local levels – the World Health Organization (5). WHO is responsible for providing leadership on global health matters, shaping the health research agenda, setting norms and standards, articulating evidence-based policy options, providing technical support to countries and monitoring and assessing health trends (5);
- here, again, we have to mention CDC with its international activities,
- but not only US, also European Union (EU) established an agency, similar to CDC - the European Centre for Disease Prevention and Control (1), which was established in 2005. It is an EU agency with aim to strengthen Europe's defences against infectious diseases. It is seated in Stockholm, Sweden. ECDC's mission is to identify, assess and communicate current and emerging threats to human health posed by infectious diseases. The ECDC disease specific activities are organised within seven horizontal programmes with team members from all technical units: Programme on influenza, Programme on tuberculosis, Programme on food- and water-borne diseases, Programme on other diseases of environmental and zoonotic origin, Programme on vaccine preventable diseases and invasive bacterial infections, Programme on HIV, sexually transmitted diseases and blood-borne viruses, and Programme on Antimicrobial resistance and healthcare-associated infections (1).

But not only national, international or global level is important. Regional and local levels are of principal importance, since they are gate-keepers for diseases which could spread over the borders of a country. This importance and an example of organizational scheme will be presented via case study from Slovenia. There is no average scheme how to organize public health services, since every country has its own scheme of public health services organization, which depends on its health care system organization.

Before introducing the case study, it is necessary to discuss some contemporary public health issues and the present and the future role of public health services in solving contemporary public health problems.

Some contemporary public health issues in Europe to challenge public health services

Very important changes in society have occurred in Europe in recent decades: a falling birth-rate has resulted in small families where both parents work, and many children are cared for outside their home for most of the day. The divorce-rate is high, urbanization is increasing, and more and more people live in satellite towns with long travel times to their work. Further problems stem from the increasing proportion of older people in the population.

The changing disease and health care demand patterns, with increasing emphasis on the care of chronic diseases, are reflected both in morbidity and mortality statistics. The balance between primary care and hospital care is everywhere under review, with increasing stress on the importance on the long-term care and a well-developed primary care system. Reliable researches and statistical information is important for monitoring these changes as the need for planning and priority-making in public health grows.

The financial implications of the operations of health organizations are enormous; painstaking planning, prior evaluation, and a detailed subsequent research are increasingly necessary. All recent experiences show how difficult it is to achieve a satisfactory balance between completing priorities in health care, between the demands of effectiveness and equity, and between completing attitudes of different health professions.

Responses to contemporary pressure

Demographic trends

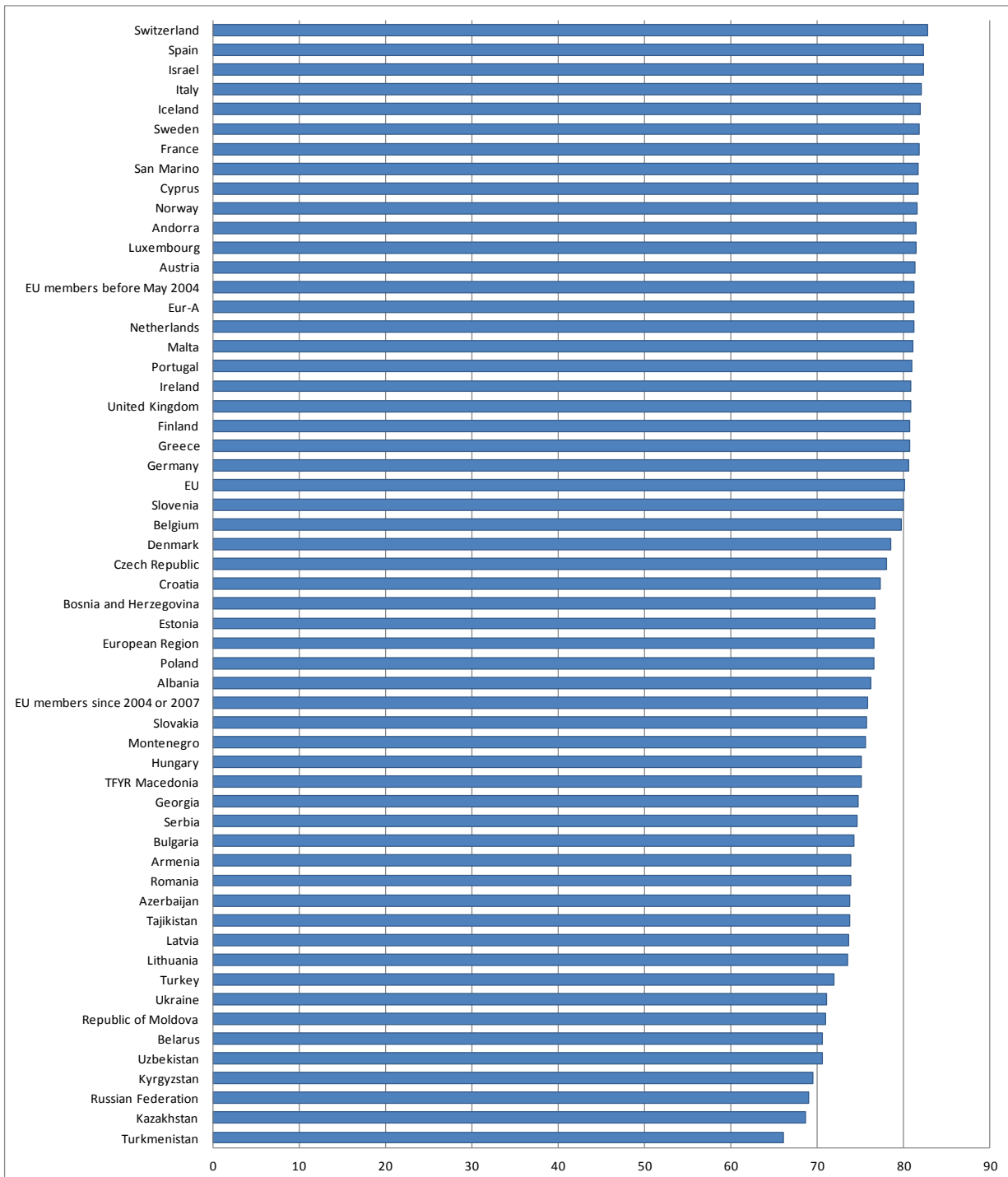
Crude live births in most of Europe are about 13 per 1000 population per year, almost equal to mortality rates. As a consequence, the total population-size is essentially stable. Only a few countries have recorded a slight natural increase, while many other report an overall decline of the population. The population of Europe is, however, aging. The proportion of children in the age-group 0-14 decreasing, and the high-age groups are growing. These demographic changes have important consequences for public health policy and planning. Low fertility will undoubtedly continue, and the number of families with few children will further increase. The number of large families will continue to be low, but they will tend to present health services with social, economic, and health problems.

The modernization of family planning and the spread of more efficacious and less hazardous methods have contributed to a decrease in the number of unplanned pregnancies. The use of more dangerous methods such as abortions is being discouraged but it is still quite high in a number of European countries. The youth group is declining in size but the problems facing young people are important for social and health policy. Accidents, drug abuse, smoking, unwanted pregnancy, and sexually transmitted disease are very important in youth groups as are the psychological and social effects of unemployment, family breakdown, loneliness, homelessness, and migration. The AIDS epidemic took its place among these major hazards.

The increase in the size of the older age groups also presents important specific health problems. These are due to higher chronic morbidity, the requirement for more visits by the physician and days in hospital, an increased use of drugs, and a heavier utilization of nurses, home-help, and nursing homes. These are all matters which will demand a high priority for resource allocations in the coming years (7).

Mean life expectancy at birth, in Europe, varies from 66.1 years (Turkmenistan) to 82,3 years (Switzerland) (Figure 1). In all European countries women have a higher life-expectancy than men: on average 6.5 years more. The gap seems indeed to be widening; women are tending to live even longer, whereas the life-expectancy for men seems to be levelling off. The national differences in length of life are probably to some extent due to differences in the standard of public health services, but the contributions of economic variation and unhealthy life-styles are undoubtedly of much greater consequence. This is reflected, within different countries, in social class differences in mortality.

Figure 1. Life expectancy at birth in years, 2005
 (Source: Health for All Data-Base, World Health Organization) (8)



Major public health problems in Europe

The main causes of death in the region in most age groups are diseases of the cardio vascular system, cancers, and accidents. Suicides are important and so is mortality from traffic accidents. The main causes of chronic disability are accidents, stroke and other vascular diseases, chronic lung diseases, mental diseases and disorders, senile dementia, arthritis, and the physical disabilities of extreme old age.

The main determinants of health lie outside the traditional health sector. Health policy cannot remain a matter for health centres, hospitals, or other health-care services, alone. Yet there are still serious problems in

mobilizing the expertise of health professionals and applying their findings and recommendations in health policy areas outside their traditional framework of employment.

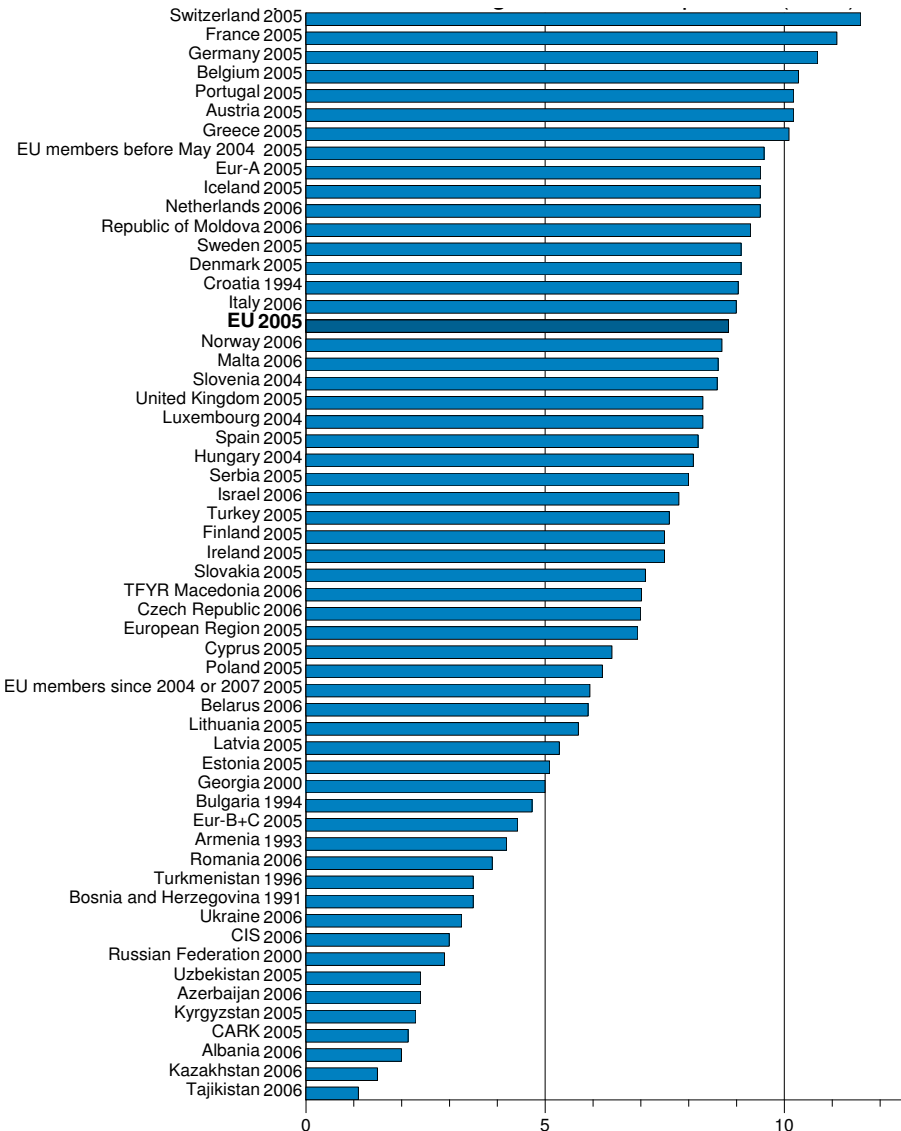
Meanwhile, the roles of national governments are chiefly restricted to controlling costs, guaranteeing equity in the distribution of resources, and developing local services. There is little evidence of engagement with true health objectives.

These deficiencies are serious, and acceptable solutions to these problems have not in general been found (9).

The cost of health care

The cost of health care is being given great attention in most European countries (Figure 2). Increasing costs are creating severe problems for many governments. The capacity of governments to finance total health care costs is limited and, given a harsher economic climate, the financial consequences on other fields of social endeavour are becoming quite serious.

Figure 2. Total health expenditure as % GDP of gross domestic product (in specific year)
 (Source: Health for All Data-Base, World Health Organization) (8)



The size of the hospital sector is a crucial determinant of total costs. The distribution of resources between hospital care and ambulatory care is a major policy question. When considering these problems it should be noted that most of the costs in the health care sector are manpower costs (between 55 and 80% of total costs), which tend to rise faster than other production factors in the public sector.

Intersectoral efforts to improve public health

In discussions of “public health”, it is generally assumed that the policies, actions, and outcomes of importance are those originating from the public sector. It is the activities of health department bureaucracies and associated bodies, of publicly funded public health research and teaching institutions, and the laws and regulatory provisions generated by health ministers that are taken to be the obvious subjects matter to consider when assessing the practice of public health in a country.

However, an emerging dialogue within public health circles is focusing on evidence that the health of the community and the fruits of the labours of those self-consciously engaged in explicit public health occupations are hardly co-extensive. An “intersectoral” perspective on both analysis and action to improve the health status of populations is increasingly being recognized as fundamental to any consideration both of how the health status of populations does change, and of questions concerning efficiency in the roles and work of those public sector agencies that have traditionally addressed public health (7). The impacts, direct and indirect, on health resulting from the policies and actions or other (non-health) Government portfolios, such as employment, consumer affairs, education, housing, the environment, and agriculture; from non-governmental agencies such as pensioners associations, leisure and sporting groups; and from the private sector (e.g. the food, pharmaceutical, sunscreen, and product safety design industries), are demonstrably of immense importance in variously promoting or retarding public health.

Future prospects of public health services

These programmes will be closely associated with the development and provision of primary health care in the twenty-first century. The fundamental policy for health services should be established on the basis of the real health needs of the residents and of an action plan which takes into account these various levels of health needs (10). It is thus important to create effective organizations and functional structures for primary, secondary, and tertiary health care systems in the community by the integration of social resources with existing infrastructures such as social insurance, welfare services, educational systems, labour standards and employment policies, communications and transportation, and local industrial development. Comprehensive health-care systems should promote a wide range of activities, such as promotion of health, prevention of diseases, medical care, and in industry, and also the development of international health services.

Needless to say, the most important problems in public health services in more developed countries can be said to be those associated with the rapid ageing of the population and related effects, changes in the disease pattern, increasing demand for medical care and welfare services, and limitation in social resources. These indicate the very important role that public health services must play, and the responsibility they have in comprehensive health-care systems (11).

Health Promotion – a major challenge for public health services

The member states of the World Health Organisation (WHO), on encountering contemporary health problems, had laid new foundations for a long-term health policy, popularly called “Health for All” (9), which was updated in 1999 and is now known as “Health in the 21st Century” (12). The basic principles of this policy are:

- health is a fundamental human right;
- equity in health and solidarity in action by reducing gaps in health status between and within all countries and their inhabitants;
- participation and accountability of individuals, groups, institutions and communities for continued health development

In 1986 the Ottawa Charter for Health Promotion was adopted, which is considered the key strategy for implementation of the new health policy. This document outlines a comprehensive strategy for health promotion through five interactive means of action that cover the whole range of the new approach to health:

- building healthy public policy;
- creating environments supportive to health;
- strengthening of community action;
- development of personal skills and
- reorienting of health care services toward primary health care.

Although health is, above all, considered a personal value, it is the very influence of working and living conditions, which are practically beyond the control of an individual, that makes the society and its organisations responsible for creating the conditions of “a healthy choice being the easier choice”.

Such a radical change in attitude towards health as well as in chances of its implementation and improvement requires a lot more than the mere adoption of global orientation. One should not neglect the fact

that various social sectors, having major impact on human health, were caught completely unprepared for such changes so there are still many parts of developing and developed countries, where even today, after more than twenty years, no changes can be observed – WHO 1998 (7).

Organisations to play the “promoter” role

Health promotion represents an extremely ambitious public health intervention in the society, which is already present in Europe (13). The success of such intervention, however, depends on the knowledge about and accuracy of the structure and dynamics evaluation for the system we wish to exert influence upon. It should be pointed out that this cannot be compared to building a new house on bare ground and in ideal conditions. All health promotion efforts have been addressing a complex, hardly recognisable social structure network, in which resources and energy already interweave. Any modification is to affect all parts of such network.

Case study: public health services in Slovenia

Historical perspective

The organised preventive health services have a long tradition in Slovenia, with the Central Institute of Hygiene in Ljubljana established already in 1923 to be soon afterwards also followed by the district hygiene stations (14). The activities of the Institute of Hygiene followed the ideas of Dr. Andrija Štampar, the then Director of the Department of Hygiene at the Ministry of Health, and the ideological promoter of social medicine. During a period of first two decades, the Institute of Hygiene founded about 20 community health centres throughout Slovenia; among them was the Community Health Centre in Lukovica, established in 1926, which was one of the first in the state at that time, and which became the prototype for such institutions.

However, due to various reasons, this sphere of medicine later failed to keep pace with the development of curative medicine, and has in a certain period of time actually proved regressive. Especially the Second World War drastically interrupted the development of public health at that time. It was continued only in the 1950s, when the population, gradually recovering from the war and finding itself in different political circumstances and with different people, began to project the further development of public health.

There were several attempts made to pave the way for the preventive health services, mostly in the form of various organisational interventions which in the final phase achieved no desired effect. The tasks from the field of social medicine, epidemiology and hygiene were performed partly within the basic health services, and partly by the institutions which were predecessors of contemporary nine Regional institutes of public health and the National Institute of Public Health of the Republic of Slovenia. The co-operation between the individual regional institutes of public health and their linkage with the National Institute of Public Health of the Republic of Slovenia was scarce and not compulsory, except in some joint tasks, stipulated by the legislation (2).

At the end of the 80's, first radical changes took place, which had a significant influence upon the present status and activity of the Regional and National institutes of public health. A uniform national programme was adopted for the tasks in the field of public health. The individual tasks to be performed by the National Institute of Public Health of the Republic of Slovenia and the regional institutes in this field were defined in detail. Both, the number of personnel and their required qualifications, were defined as well. And, very importantly, the funds for the performance of such tasks were also provided. At that time, all the funds intended for health care were part of the integral national budget.

Current organisational scheme of public health institutions in Slovenia

Public health policy in Slovenia

For the time being, in Slovenia we do not have a special act, covering public health sector, but many of public health issues are covered by the Health Services Act adopted in 1992 (16).

According to the Health Services Act (16), there are nine regional institutes of public health operating in Slovenia (Celje, Koper, Kranj, Ljubljana, Maribor, Murska Sobota, Nova Gorica, Novo Mesto, and Ravne), covering corresponding health regions (Figure 3), and the National Institute of Public Health of the Republic of Slovenia.

Figure 3. Nine health regions of Slovenia, where regional public health organisations have been established



The Health Services Act gives a more detailed definition of the services of social medicine, epidemiology, hygiene and environmental health (16). According to the content and sphere of activity, they could be summarized into four main fields:

1. Health situation monitoring and analysis, research, development and implementation of innovative public health solutions;
2. Collection, analysis and interpretation of health informatics data and evaluating of health care system;
3. Surveillance and control of risks and damages in public health, surveillance of communicable and non communicable diseases, health promotion and supporting healthy lifestyles, strengthening communities, and improving health for vulnerable groups;
4. Analysis of data on environmental health with special emphasis on air, water and foods quality, including of assessment of the health risk due the environment and preparation of measures to preserve health of population.

Beside these professional tasks, which are partly financed by government, numerous other tasks are performed:

1. Services of the laboratories for microbiology and for chemistry (samples of human and environmental origin);
2. Monitoring of environmental elements;
3. Counselling in different spheres of public health;
4. Different expert and research projects, and
5. Education.

Tertiary level

The national level of public health in Slovenia is in the domain of the Institute of Public Health of the Republic of Slovenia.

Short history

As described earlier, this institution was established in 1923. Its first tasks were monitoring the quality of drinking water and milk and preparing expert opinions about safe drinking water supply. Two years later, the Institute merged with the Ljubljana Permanent Bacteriological Station, broadened its activities, and reorganized into three units: the bacteriological-serological laboratory, unit for monitoring the drinking water and food provisions, and unit for hygiene promotion and education. The Institute was reorganized into the Central Hygienic Institute in May 1951. Its tasks were to monitor the health of the population and improve it by taking appropriate preventive measures; to monitor and improve the hygiene in the country; to prevent and control communicable diseases; and to develop and coordinate the work of all hygienic stations. In 1974, the Institute reorganized again into the Institute of the Socialist Republic of Slovenia for Health Care. The activities of the Institute covered the fields of social-medicine, hygiene, epidemiology, and preparation of technical

recommendations for health care-related legislation. The contemporary Institute of Public Health of the Republic of Slovenia was established in 1992 (14).

Current organization

Currently, activities of the Institute of Public Health of the Republic of Slovenia are organized within five centres (17):

- Centre for Population Health Research;
- Centre for Health Care Organization, Economics and Informatics;
- Centre for Environmental Health;
- Centre for Communicable Diseases; and
- Centre for Health Promotion,

and two special units:

- Health Statistics Unit, and
- Informational Unit for Illicit Drugs.

It has also three laboratory departments, being:

- Department for Sanitary Chemistry,
- Department for Sanitary Microbiology, and,
- Department for Human Microbiology (including reference laboratories).

The Institute of Public Health of the Republic of Slovenia professionally links the otherwise autonomous regional institutes, which will be presented later, and in co-operation with them performs the tasks of the adopted national programme. Such solution does not encroach upon the independence of individual institutes, yet dictates a similar, if not the same organisational pattern, as the performance of joint tasks would otherwise be hindered.

Secondary level

As described earlier there are nine Regional Institutes of Public Health, covering corresponding health regions (Figure 3). The populations they cover are of very different size: from about 75,000 to about 600,000. The details are presented in Table 1.

Table 1. Population size covered by nine Regional Institutes of Public Health in Slovenia (18)

Regional Institute of Public Health	Approximate population size
1. Celje	299,000
2. Koper	139,000
3. Kranj	197,000
4. Ljubljana	601,000
5. Maribor	320,000
6. Murska Sobota	124,000
7. Nova Gorica	103,000
8. Novo Mesto	135,000
9. Ravne	74,000

All Regional Institutes of Public Health in Slovenia have more or less similar organization, which is also very similar to the organization of the Institute of Public Health of the Republic of Slovenia. They all have three major departments:

- Social Medicine Department – major activities of this department are health statistics and assessment of health status of the population covered by the Regional Institute, and proposals for necessary public health interventions in the context of social medicine;
- Environmental Health (Hygiene) Department – major activities of this department are monitoring of parameters of environmental health (outdoor parameters such as air, soil, water, and food, and indoor parameters of dwelling and occupational places), risk assessment, and proposals for necessary public health interventions in the context of environmental health. The other part of activities is health inspection of food industry processes, potable water supply networks, swimming pools, etc;
- Department for Communicable Diseases Epidemiology - major activities of this department are communicable diseases surveillance, and proposals for necessary public health interventions in the context of communicable diseases epidemiology. Vaccinations and counselling to passengers in regions at high risk for communicable diseases are also the domain of this department.

Beside presented activities, health promotion is coming to the agenda of Regional Institutes of Public Health in Slovenia more and more clearly, which will be discussed later on. Some of them already have special units dealing with health promotion issues, while in others health promotion activities are incorporated in activities of other departments.

In addition to joint undertakings, the Regional Institutes of public health perform some other tasks as well. An important activity and thus the source of funds is the laboratory activity (human and sanitary microbiology, sanitary chemistry) as well as performance of several other tasks for the needs of individual organisations, private persons, and local communities.

Primary level

One should place a special emphasis on the role of the National Institute of Public Health of the Republic of Slovenia and the regional institutes of public health in connecting and co-ordinating various health institutions (e.g. Community Health Centres) and private sector in the implementation of preventive health care at the primary level.

In the past, a lot was unclear in the implementation of preventive programmes at the primary level. Those programmes were not carried out equally in all places, neither in scope nor in quality. By introducing private practices and the institution of a personal physician, it often happened that individual population groups were not included in the preventive programme. For this reason, the Ministry of Health reached a decision and at the beginning of 1998 issued special legal regulation, the Instructions for the implementation of preventive health protection at the primary level (19) with the detailed instructions for the implementation of preventive health care at the primary level. In those instructions, the content and the method of preventive programme implementation have been precisely defined in the following spheres (19,20):

- reproductive health care;
- health care for babies and infants till the age of 6;
- health care for school children and youth till the age of 19;
- health care for students;
- dental care for children and youth;
- health care for adults in general practice;
- health care for persons in the nursing care treatment, and
- health care for sportsmen.

This way, a uniformity of such services can be achieved in Slovenia. Furthermore, the minister appoints experts responsible for each sphere of preventive health care, who are in charge of the proper implementation of the programme.

Health Promotion – major challenge also for Slovene Public Health Services

In view of the situation in Slovenia, we should not be completely satisfied despite some advantage we have over other countries. We can boast a clearly defined orientation towards primary health care, one of the main focuses of this policy, as well as rich infrastructure of preventive institutions. Besides, some preventive health care measures have the tradition of several decades. All this might be one of the reasons why our attitude became even more demanding and as such calls for a more energetic approach to implementation of basic principles of joint European health policy.

But why is this so? To put it briefly, the major problem lies in our inability to determine who is to take the initiative. The existing professions and organisations have their specially defined roles and tasks and have as such adapted to solving of the problems, for which they were established and/or formed.

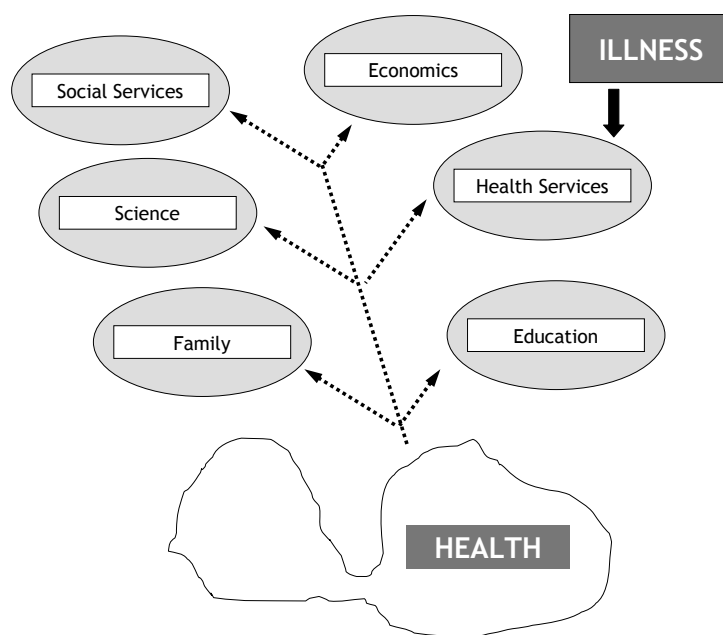
A problem of a particular nature is that the society still holds the prevalent view of considering health as a task and commitment of health professionals and health organisations and not an area of activity to be dealt with also by, or rather, primarily by outside-health professionals and organisations.

In Slovenia, from the organizational point of view, the existing public health organizations already have their tasks and roles defined and assigned. The present health care system puts emphasis on solving problems of ill health (diseases), which is understandable – ill health certainly is one of the major problems.

Complex and sophisticated organizational systems have been developed for treatment of diseases, rehabilitation and compensation of diseases. The tasks and professional roles are well defined, with their working methods and their daily routine. Moreover, they enjoy the benefit of being supported by the system of finance and education (21)

Nevertheless, health is not viewed as a problem so we have not yet reached the decision that is to undertake the tasks in health promotion. No particular social system can be made responsible for health promotion as this issue addresses several systems at the same time (Figure 4) (3).

Figure 4. There is no particular system for health. Health enters each system



There is, however, at least in Slovenia, a possibility that certain tasks related to health promotion are undertaken by the public health services which are in Slovenia the institutes of public health, organized at the national and regional level and considered the central preventive institutions, able to play an active role in health promotion.

Numerous connections, both from the institutional as well as territorial aspect, fostered for the purpose of performing various professional tasks, have enabled the formation of an extremely rich network of adapted means of communication. These organizations have the distinction of great flexibility and are, more than others, able to seek paths yet untrodden and to create new social network, required in the implementation process of health promotion strategy. Figure 5 shows the complexity of connections made by e.g. regional Institute of Public Health. The interconnections among individual organisations are not shown, although rich in number as well.

The advantages of the institutes of public health when applying for the “promoter” role in the implementation process of health promotion strategy are:

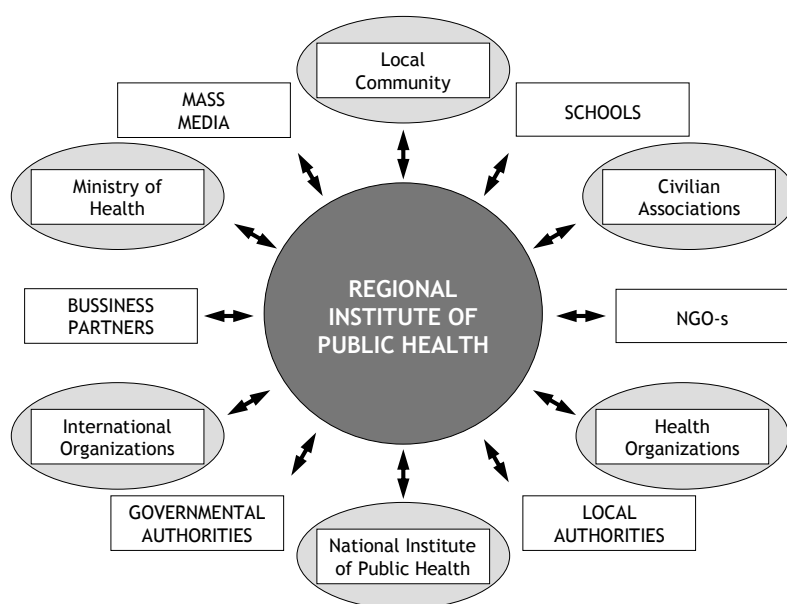
- wide scope of connections made with various social subsystems and their organisations;
- variety of communications skills;
- variety of professions, tasks and working methods used and thus more open for successful introduction of new forms of work;
- awareness and understanding of the importance and possibilities of health promotion.

To be able to perform their task properly, Institutes of Public Health also have to undergo certain changes as well, to adjust their organizational structure and method of work in compliance with the new tasks (5).

Features of health promotion projects

In recent years, the project management has become the most important tool for performance of new, complex tasks. This kind of approach to work was initially characteristic only for profit oriented enterprises, whereas it can currently also be observed in non-profit organizations. In view of the international health promotion movement the project method represents a fundamental approach to task performance. Project management is considered a suitable tool for implementation of health promotion in various settings e.g. business enterprises, schools, hospitals, and can, as such, also be used in performance of programmes, focused on changing lifestyles and improving ecological conditions. It is only through the project approach that multisectoral and interdisciplinary co-operation can be implemented, which is regarded as essential to the performance of new tasks in health promotion.

Figure 5. An example of different communications and connections held by the Regional Institute of Public Health



The development and adoption of health promotion policy is important not only at the national, regional or local level, but also in organizations such as schools, hospitals and business enterprises. By means of health promotion the health criterion is being introduced into decision-making as well as into other activities of a system.

Projects and their successful management has become a favourite instrument in recent years for performing new and highly complex tasks in organisations or in the co-operation between organisations. In the international health promotion movement, projects have become the central implementation strategy. Project management is an appropriate tool for promoting health in businesses, schools or hospitals, as well as carrying out programmes on healthy lifestyles and ecological issues. Features of a health promotion project are:

- it is a type of organization to perform complex, new tasks of various sectors within a single organisation or among various organizations;
- it is an instrument to introduce changes planned in an organization;
- it mobilises and redirects resources from one or more systems to new tasks;
- it evaluates and verifies the efficiency of new forms of co-operation and integration among individual departments and organizations;
- it gives the participants the opportunity to acquire fresh experience and skills to be later incorporated in their everyday activity;
- it exerts influence on the entire organization or other organizations, taking part in the project.

Development and interaction of knowledge among professionals is an integral part of project management. New tasks usually require new expert knowledge as well as different application of knowledge with experience (23,24).

Projects can develop their innovative task solely through development of autonomous activity on the one hand, while they, on the other hand, maintain and make use of their connections with the parent organization.

In distinction from the projects in the area of business enterprises, where predictions of reactions in the target system are often relatively accurate, this is not the case in health promotion projects. The response depends on the internal dynamics of an individual social subsystem and autonomous understanding of the process by such system. The provision of proper project management is therefore of vital importance. Only in this way it is possible to currently adapt goals, working methods and forms of intervention in the environment and to follow the project target to the fullest extent.

Special emphasis should be laid upon the gains from the activity within the project for the collaborators and the parent organization. Successful work for the project results in utterly positive impact both on an individual project team member as well as on the team as a whole. It is of particular importance that through the project activity the innovativeness of an individual can be boosted and developed. And the opportunity for one's

assertion leads to higher motivation for work. Motivation is also encouraged by positively oriented interpersonal relationships and high level of work culture, created in the team.

The activity within the project also very favourably reflects in the parent organisation. The qualifications, acquired by the project team members through such activity, often prove useful for their routine professional role. Social skills and knowledge of organizational development, required in the project, usually to a large extent satisfy the increased demand for such qualities in the rapid development and organizational complexity of modern society.

Conclusion

Implementation of health promotion is not possible without radical changes in approach to and method of work. As this is the case of intervention in several social subsystems, the project method is considered the most adequate tool for implementation of health promotion in organizations. National and regional institutes of public health in Slovenia have, due to their role in the society of today, developed various kind of knowledge and skills to facilitate the implementation of project work. They are closely connected with several social subsystems so they stand a real chance of undertaking the role of project co-ordinators in health promotion.

The benefits, gained by the institutes of public health through taking part in health promotion projects, will not only be those reflected in broader social community and other organisations. The new working methods will, above all, find their most rapid and positive expression in the very same institutes i.e. in the process of performing their regular professional tasks.

Exercises

Task 1: Carefully read this module, and recommended reading #1, especially Section 3 - The organization, financing and decision-making processes in public health in eight countries. Discuss the organizational scheme of public health services in presented countries and Slovenia.

Task 2: Discuss the organizational schemes of public health services in eight countries, presented in this book, and in Slovenia.

Task 3: Write a short essay on inner organizational scheme of one of public health services in the country (or if students are from different countries, organizational scheme of public health services in your country) and its tasks, and prepare a short presentation for other students.

Task 4: Discuss differences between different public health services.

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Recommended readings

1. Allin S, Mossialos E, McKee M, Holland W. Making decisions on public health: a review of eight countries. Copenhagen: World Health Organization, Regional Office for Europe and European Observatory on Health Systems and Policies, 2004. <http://www.euro.who.int/Document/E84884.pdf>.
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HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title	Disability-adjusted life years as a key tool for the analysis of the burden of disease
Module: 1.14	ECTS (suggested): 0.4
Author(s), degrees, institution(s)	Adriana Galan, Public Health Consultant National Institute of Public Health Alexandra Cucu, Lecturer, MD, PhD Faculty of Nurses and Midwives, University of Medicine and Pharmacy Bucharest
Address for correspondence	National Institute of Public Health 1-3 Dr. Leonte Street 76256 Bucharest Romania Tel: (4021) 3183620; Fax: (4021) 3123426 Email: adriana.galan@insp.gov.ro
Keywords	Disability, global burden of disease, population health status, premature death.
Learning objectives	At the end of this course, students should: <ul style="list-style-type: none"> - identify the basic concepts of the global burden of disease assessment - be able to describe the factors influencing the calculation of DALYs (age-weights, discount rate, severity of disability) - be able to describe and compare the health status of population based on global burden of disease methodology
Synopsis (Abstract)	This course covers the following topics: <ul style="list-style-type: none"> - Definitions and basic concepts - Health status assessment by use of DALY - Exercise
Teaching methods	Lecture, interactive presentation of key concepts, overheads or PowerPoint presentation Exercise will be solved in small groups (4-5 persons) and an overhead will be presented by each group with their comments.
Specific recommendations for teacher	Use examples of studies performed in own countries. This course takes 3 hours of lecturing and exercise solving (suggested ECTS: 0,25).
Assessment of Students	<ol style="list-style-type: none"> 1. Reports presented by each group are considered an assessment. 2. An essay on the types of interventions required in own countries based on information from WHO sites or studies performed at national/local level.

DISABILITY-ADJUSTED LIFE YEARS AS A KEY TOOL FOR THE ANALYSIS OF THE BURDEN OF DISEASE

Adriana Galan, Alexandra Cucu

Definitions and basic concepts

Generally, statistics describing the health status of population suffer some limitations, reducing their practical value for the decision-making process:

- First, the data are incomplete and fragmented. Even if for example, the mortality data are available, they cannot describe the impact on health status of the different diseases or non-fatal disorders (like dementia or blindness for instance).
- Second, the estimates of death cases of different diseases can be inflated by epidemiologists acting as advocates for a target population, in order to obtain more resources.
- Last, but not least, traditional statistics don't allow decision-makers to compare the relative cost-effectiveness of different interventions (1).

There is a long history of efforts to develop summary measures of population health, there has been a markedly increased interest in the development, calculation and use of summary measures. They include:

- comparison of health conditions or overall health status between two populations or the same population over time;
- quantification of health inequalities;
- inclusion of non-fatal health outcomes to ensure they receive appropriate policy attention;
- measurement of the magnitude of different health problems using a common currency;
- analysis of the benefits of health interventions for use in cost-effectiveness studies; and
- provision of information to assist in setting priorities for health planning, public health programs, research and development, and professional training (2).

Two classes of summary measure have been developed: health expectancies and health gaps. Both classes of summary measure use time (lived in health states or lost through premature death) as an appropriate common metric for measuring the impact of mortality and non-fatal health outcomes.

This is why a new approach called the "Global Burden of Disease" was proposed, trying to solve the above-mentioned problems and having three explicit goals:

- To include the non-fatal conditions into the health status evaluation.
- To produce objective, independent and demographically credible evaluation of the burden of disease.
- To convert the burden of disease into a general currency, in order to calculate the cost-effectiveness of different interventions.

In order to integrate both the impact of premature death and disability into one single currency, time measurement was considered to be an important integrative factor: time (years) lost by premature death and time (years) lived with disability. A standardized indicator called Disability Adjusted Life Year (DALY), a health gap measure, was proposed for the measurement of the global burden of disease. DALY represents the years of life lost due to premature death and years lived with disability of a specified degree of severity and duration. Therefore, one DALY represents one year of healthy life lost.

Premature death is defined as one that occurs before the age to which a dying person would have expected to survive, if this person would belong to a standardized population pattern having the longest life expectancy at birth in the world, meaning the female population of Japan.

To calculate the total number of DALY for a certain condition in a population, Years of Life Lost (YLL) and Years Lived with Disability (YLD) of a certain degree of severity and duration must be estimated. Then, these estimates must be summed up. For instance, to calculate DALY due to traffic accidents for one year, the total number of years of life lost due to fatal traffic accidents and the total number of years lived with disability by the accidents survivors must be summarized.

Even if to quantify the burden of disease looks like a simple exercise, a society must define first its ideal health status, considered to be the reference one. This means to find the answer for fundamental basic questions:

- What would be the ideal life expectancy? The researchers must decide on the expected number of years a person of a certain age would live in a reference (ideal) population.
- Are the healthy life years more precious for young adults than for infants or elderly?
- Is a healthy life year more important now for a society than 30 years later?

- Are all people equal? Are healthy life years for a certain socio-economic group equally important as for another population group?
- How can one compare YLL with YLD?

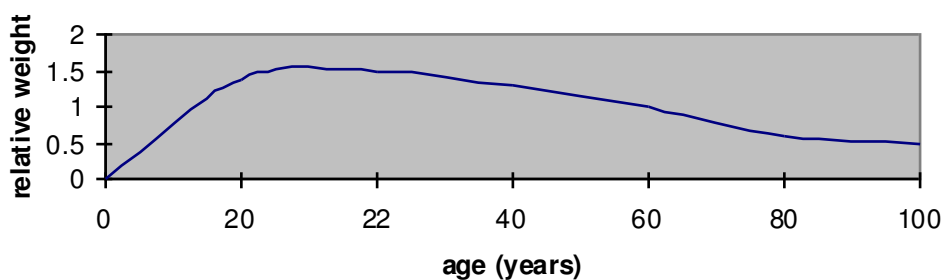
What would be the ideal life expectancy?

DALY is based on an egalitarian principle. Only age and gender were considered for calculating the burden of disease, these two characteristics not being directly related to health. There were not considered characteristics such as: socioeconomic level, ethnicity or level of education. According to these principles, for calculating DALY a standard life-table was used for all populations, life expectancy at birth being 82.5 years for females and 80 years for males.

Are the healthy life years more precious for young adults than for infants or elderly?

Generally, if one should choose between saving a life of a 2 years old child and of a 22 years old person, most people would prefer the 22 years old person. This is due to the fact that an adult plays a more important role in family, community and society. This was the reason for the researchers to include an age-weighting to calculate DALY. It was assumed that the relative value of one life year rapidly increases from zero (at birth) to a peak around 20 years of age, decreasing after this age but less sharply (see graph).

Relative value of one year lived at different ages, included into DALY



Is a healthy life year more important now for a society than 30 years later?

It is very likely that a person would prefer to receive today 100 € rather than after one year. Like the depreciation of one EURO over time, it seems that the value of healthy life is depreciating over time. Usually it is preferred to experience a healthy year of life now rather than some years thereafter, - even if this opinion has initiated lots of debates among economists, experts in medical ethics and public health decision-makers.

Despite these debates, the researchers decided to discount the future years of life, e.g. by 3% per year. Discounting looks like an exponentially decreasing function. Due to the fact that the discount is significant, the researchers are usually publishing also DALY calculated without the discount factor.

Discounting future health reduces the value of interventions having a long-term impact – for example the impact of vaccination against hepatitis B, which can prevent thousands of future cases of liver cancer, however many years later.

How can one compare YLL with YLD?

While death can be easily defined, the definition of disability is more complicated. Usually, there are two methods used to evaluate the social preferences of certain health states.

Both methods involve peoples' judgement on the compromise between quantity (length) and quality of life. This can be expressed as a compromise for time (how many years lived with disability would be changed for a fixed period of perfect health) or a compromise between persons (the choice between saving one year of life for 1000 healthy people or half a year of life for 2000 persons having health problems).

A protocol based on person trade-off method was established. This was possible due to a formal exercise organized by WHO in 1995 (3), where worldwide health professionals have participated. The severity for 22 disability conditions was weighted between 0 (perfect health) and 1 (equivalent of death). (See Table 1) These weights for the 22 disability conditions were grouped into 7 classes.

Table 1. Severity of disability: disability classes and weights set for 22 indicator conditions

Disability class	Severity weights	Indicator conditions
1	0.00 – 0.02	Vitiligo on face, weight-for-height less than 2 standard deviations
2	0.02 – 0.12	Watery diarrhea, severe sore throat, severe anemia
3	0.12 – 0.24	Radius fracture in a stiff cast, infertility, erectile dysfunction, rheumatoid arthritis, angina
4	0.24 – 0.36	Below-the-knee amputation, deafness
5	0.36 – 0.50	Rectovaginal fistula, mild mental retardation, Down syndrome
6	0.50 – 0.70	Unipolar major depression, blindness, paraplegia
7	0.70 – 1.00	Active psychosis, dementia, severe migraine, quadriplegia

Weights established by WHO-Geneva in 1995.

To assess the impact of varying these social choices on the final measures of burden of disease, the researchers have calculated DALY with alternative age-weighting and discount rates, and with alternative methods for weighting the severity of disability.

Generally, the ranking of diseases and the distribution of burden by cause groups are substantially not affected by age-weighting and slightly affected by the method for weighting disability. By contrast, changes of the discount rates may have a more significant effect on overall results. The most significant effect of changing the discount rate and age weights is to reduce the relative importance of psychiatric conditions.

However, the accuracy of basic epidemiological data from which DALY is calculated will influence the final results much more than any of the above-mentioned weights. We can conclude that efforts should be firstly invested in improving the basic epidemiological data.

Health Status Assessment by use of DALY

A WHO study on the world burden of diseases (4) showed that the top 10 causes of disease burden are responsible for 37% of all DALY (see Table 2). It was also shown that five of the top 10 causes of DALY primarily affect children under 5 years of age. Two causes (malaria and tuberculosis) predominantly affect poor populations. These 7 causes are all part of infectious diseases, perinatal conditions and nutritional disorders, representing WHO priorities. The remaining 3 causes (unipolar major depression, ischemic heart disease and cerebrovascular disease) are chronic diseases.

Rankings based on DALY differ substantially from rankings based on the number of deaths. The importance of major depression worldwide, even if it generates only few deaths, was one of the key findings of this study.

Table 2. Leading Causes of DALYs, all ages, World 2004

Rank	Cause	DALYs*	Percent of total DALYs
1	Lower respiratory tract Infections	94.5	6.2
2	Diarrheal diseases	72.8	4.8
3	Unipolar depressive disorders	65.5	4.3
4	Ischemic heart disease	62.6	4.1
5	HIV/AIDS	58.5	3.8
6	Cerebrovascular diseases	46.6	3.1
7	Prematurity and low birth weight	44.3	2.9
8	Birth asphyxia and birth trauma	41.7	2.7
9	Road traffic accidents	41.2	2.3
10	Neonatal infections and other	40.4	2.7
11	Tuberculosis	34.2	2.2
12	Malaria	34.0	2.2
13	COPD	30.2	2.0
14	Refractive errors	27.7	1.8
15	Hearing loss, adult onset	27.4	1.8
16	Congenital anomalies	25.3	1.7
17	Alcohol use disorders	23.7	1.6
18	Violence	21.7	1.4
19	Diabetes mellitus	19.7	1.3
20	Self-inflicted injuries	19.6	1.3

Data source: WHO World study (4)

The weight of certain causes of total DALY differs significantly if the results are analyzed by geographical distribution. For example, in sub-Saharan Africa, HIV accounted for 20% of the burden of disease in the region; malaria, tuberculosis and vaccine-preventable childhood diseases were responsible for another 20%. On the other hand, although road traffic accidents, falls and self-inflicted injuries account for 6.7% of total DALYs, their prevention was not a key issue of the public health policy in developing countries.

If we analyze the burden of disease attributable to different risk factors, we notice that in 2004, high blood pressure accounted for almost 7.5 millions of deaths (12.8% overall) representing only 3.7% of attributable DALYs; tobacco use accounted for 5.1 million deaths and 3.7% of attributable DALYs (see Table 3). The most important risk factor generating DALYs was the childhood underweight, representing 5.9% of total DALY. There are substantial differences in the disease patterns between high, middle- and low-income countries (5).

Table 3. Burden of Disease Attributable to Selected Risk Factors in the World, 2004

Risk Factor	Deaths*	Percent of total deaths	DALY*	Percent of total DALY
Childhood underweight	2.2	3.8	91	5.9
Unsafe sex	2.4	4.0	70	4.6
Alcohol use	2.3	3.8	69	4.5
Unsafe water supply, sanitation and hygiene			64	4.2
High blood pressure	7.5	12.8	57	3.7
Tobacco use	5.1	8.7	57	3.7
Suboptimal breastfeeding			44	2.9
High blood glucose	3.4	5.8	41	2.7
Indoor smoke from solid fuels	2.0	3.3	41	2.7
Overweight and obesity	2.8	4.8	36	2.3
High cholesterol	2.6	4.5		
Physical inactivity	3.2	5.5		

* Values are expressed in millions. Data source: WHO World study. (5)

Projections of future burden of disease and risk factors are extremely useful for the decision-making process. The secular trend analyses allow for an approximate prediction of the burden of disease at any moment in the future. At Harvard School of Public Health, Murray and Lopez (6) performed a study, which revealed that by 2020, the ranking of burden of disease is expected to be dominated by ischemic heart disease, unipolar major depression and road traffic accidents (see Table 4). By contrast, diseases affecting mostly children are projected to decrease due to the globalization of immunization campaigns.

Table 4. Projected Change in Rank Order of DALYs for the 15 Leading Causes in the year 2020 compared with 1990

Rank by Year		Disease or Injury
2020	1990	
1	5	Ischemic heart disease
2	4	Unipolar major depression
3	9	Road traffic accidents
4	6	Cerebrovascular disease
5	12	COPD
6	1	Lower respiratory tract infections
7	7	Tuberculosis
8	16	War
9	2	Diarrheal disease
10	28	HIV
11	3	Perinatal conditions
12	19	Violence
13	10	Congenital abnormalities
14	17	Self-inflicted injuries
15	33	Trachea, bronchus and lung cancers

Reprinted from Murray and Lopez Study

In Romania, the former Institute of Public Health Bucharest has carried out a study aiming to assess the burden of disease for 1998. The study revealed that the predominant causes of DALYs in Romania are the non-communicable diseases and accidents, a pattern similar with the American one rather than the world pattern. Ranking order of DALYs in Romania is presented in Table 5.

Table 5 shows that the burden of mental and behavioral disorders is placed on the third rank, like in the predicted American pattern for 2020. The same study revealed that there are 7 deprived districts in Romania, clustering in the south and western part of the country.

Table 5. Structure of DALY by causes, Romania, 1998

Group of diseases	DALYs (years)	Percent of total DALYs
1. Cardiovascular diseases	1 350 203	31,88
2. Cancers	426951	10,10
3. Mental and behavioral disorders	422853	9,98
4. Accidents, injuries, poisonings	376500	8,89
5. Central nervous system diseases	307684	7,26
6. Digestive system diseases	267621	6,32
7. Respiratory system diseases	242524	5,72
8. Infectious diseases	82802	1,95
9. Congenital abnormalities	69715	1,64
10. Perinatal conditions	52317	1,23
11. Genitourinary system diseases	46550	1,09
12. Endocrin and nutrition diseases	44032	1,04
13. Blood diseases	39615	0,93
14. Diabetes	24916	0,58
15. Bones diseases	14877	0,35
16. Pregnancy, delivery conditions	13174	0,31
17. Organic mental disorders	10183	0,24
18. Tuberculosis	2049	0,04
19. Skin diseases	1358	0,03
20. Other	438963	10,41
Total	4 232 887	100

Data source: Study performed by IPHB.

Exercises

Read the two files containing WHO reported data on Mortality and DALY: (http://www.who.int/healthinfo/global_burden_disease/estimates_regional/en/index.html)

- Compare the mortality rankings with DALY rankings and comment the differences.
- Compare DALY rankings between different WHO countries and comment the differences.

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Recommended Readings

In BMJ collection (<http://bmj.com>): search/archive keywords: Disability Adjusted Life Years

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title	Advertising public health services
Module: 1.15	ECTS (suggested): 0.2
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Keywords	Health information campaigns, medicinal products, public service advertising, social marketing.
Learning objectives	After completing this module students and public health professionals should: <ul style="list-style-type: none"> • Increase their knowledge in the potential of public service advertising in the field of public health; • Increase knowledge of legal framework of advertising activities; • Understand the social aspects of medicinal products’ advertising.
Abstract	Advertising is a product of public demands, which determines its engagement in public, political, economic and cultural environment it functions in. From educational and cultural point of view the advertising potential should be focusing on the promotion of healthy lifestyle; the demonstration of tolerant attitude to people with mental and physical disabilities; the respect and protection of the environment, etc. A significant positive effect of the mass popularization of medicinal products via advertising is the increase of the general educational level of consumers.
Teaching methods	Teaching methods include lectures, interactive group discussions, case studies, exercises, internet searches.
Specific recommendations for teachers	<ul style="list-style-type: none"> • work under teacher supervision/individual students’ work proportion: 30%/70%; • facilities: a lecture room, a computer room; • equipment: computers (1 computer on 2 students), LCD projection, access to the Internet and bibliographic data-bases; • training materials: recommended readings or other related readings; • target audience: public health specialists, healthcare managers and PR specialists.
Assessment of students	Assessment should be based on the group-work, seminar papers, and case-problem presentations

ADVERTISING PUBLIC HEALTH SERVICES

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Theoretical background

Main functions of advertising

There are many *definitions of the term “advertising”*. They differ depending on the emphasis placed in them, i.e. on the content and form of the advertising message and the target audience. The common parameters that contain in almost every interpretation are related to the fact that advertising is a purposeful activity in the field of the persuasive communication addressed to certain target groups, selected based on socio-demographic indicators. The essence of advertising is expressed in introducing or enlarging the knowledge of a certain product, service or idea, formation of positive attitude to it, retaining in consumers’ memory and inciting the consumers to undertake certain actions. The messages are spread through the means of communication and funded by a famous source.

Advertising is multifunctional. Some of its main functions are:

1. Economic – relates to trade promotion;
2. Informational – relates to mass distribution of information about goods, services and ideas;
3. Social – promotes and boosts ideas that are significant for the public, thus forming the public opinion, helps for communication processes, outlines concrete behaviour patterns and promotes certain values and standards;
4. Educational – in relation to propaganda of novelties in different fields of life;
5. Aesthetic – it is intended to create the consumers’ taste for the exquisiteness and beauty. Most of the ads are made by talented designers, artists, directors, copywriters and representatives of other creative professions.

Olivero Toscani defines the advertising as the “new journalism” and on the opinion of Paul Humphrey the advertising should provoke the addressee in the intellectual aspect and to make him/her start thinking about problems concerning him/her personally and concerning the society as a whole (1).

Nature and specificity of public service advertising

The definition of public service advertising (or public service announcement) given in the marketing Terms Dictionary of the American Marketing Association is that it is created in order to educate or motivate certain target groups with the aim of provoking socially significant behaviour. As part of the social marketing, the public service advertising (PSA) strives to educate and motivate the audience to accept or change certain attitudes and behaviour. The appeals could be at local, national or world scope.

PSA is initiated in relation to concrete socially significant problems. Its role is to show the problems and the possible ways to overcome them. However, the personal decision of addressees for getting influenced by the advertising messages remains a matter of one’s choice. Here comes the skill of advertising creators to select the necessary facts in order to give arguments for the idea they maintain, to succeed in motivating the recipients or to change their attitudes. That is why the advertising messages dealing with social issues are often personalized and put the emphasis on the role of every single individual in solving given global problem.

The advertising impact on PSA is achieved by applying psychological methods that influence consciously and subconsciously. The audience is provoked through the power of language as the texts contain many epithets, inclusion of scenes from the real life in TV spots, selection of appropriate music, etc. Every year the American Advertising Federation awards premiums to the best projects in the field of PSA in the Public Service Category.

Specific target groups

The elderly people

The population of the EU as a whole would be slightly larger in over coming decades than today, but much older. It would increase by almost 5% by 2035, when it would peak (at 520.1 million) [2,3]. The number of elderly people will increase very markedly. It will almost double, rising from 85 million in 2008 to 151 million in 2060 in the EU. The progressive ageing of the elderly population itself is a notable aspect of population ageing. The number of elderly persons aged 65 or above already surpasses the number of children in 2008, but their numbers are relatively close. In 2060, there would be more than twice as many elderly than children [2].

Each generation in the history of the human civilization has had its specific features which distinguish it from the previous and the next generations. The study of these specific features contributes to increase the efficiency of communication with representatives of certain generation, to identify its needs and expectations in order to satisfy them, to find out its weak and strong points in order to create basis for cooperation and succession of values and norms that had won recognition in certain society in the course of time.

Elderly people are a specific socio-demographic group which increases constantly worldwide. Within this context an essential trend of every social policy should be targeted at the integration of this contingent in the society and the establishment of positive tolerant attitude of the other generations towards the people at the age of 65 and over. The potential of advertising to influence consciously or subconsciously wide range of people allow for purposeful advertising messages to be spread in order to overcome some intergenerational conflicts and to establish relations of understanding and mutual assistance between the young and the elderly people. The advertising also helps the elderly people to adapt more adequately to the contemporary market relations, social trends and modern way of life.

The efficiency of each advertising campaign depends, to a considerable degree, on the adequacy of the needs of certain target group which the advertising is aimed at. The specific features of people at the age of over 65 years make them a specific kind of target audience to which characteristics that are not typical to any other age category are inherent. The representatives of this generation approach with marked distrust and scepticism to the goods and services promoted through advertising. After having finished their active professional activities, these people depend mainly on their pensions with which they manage to cover their basic expenditures. In relation to this, they approach to the advertising in a rational and pragmatic way. The advertising helps them in choosing basic commodities and services and also informs them about different promotional advertising campaigns for goods at discounted prices.

For objective reasons the elderly people are much more dependent on medicines than is the young generation. Body aging is accompanied by the appearance of number of diseases. It is well known that approximately 80% of the people at the age of 65 and over suffer from one or more diseases which gradually become chronic. It has been found out that in the USA the income from medicines intended for the elderly people amount for \$4,6 billion, and after 7 years only (1995) it become \$10,1 billion. In Italy 40% of the people at the age of over 70 take 4-6 medicines every day and 12% - over 9 kinds of medicines [4].

The children's advertising audience

The interaction between children and advertising is complex and it often causes strong debates in the society. The elderly person perceives the information while refracting it in the light of his own experience and assessing all data and making conclusions. The child perceives everything in the literal sense and cannot analyse things, and approach with confidence to the surrounding reality. It is often that the advertisers abuse with this naivety. The advertising turns the children into users while imposing them the rules from the life of the adults and creating sustainable stereotypes.

Small kids don't perceive the life routine. The advertising characters for them are real people and their way of life, tastes, partialities and language become an example for the kids. Strong is the influence of the favourite characters – athletes, artists, musicians, dear cartoon characters, etc. TV advertising is most interesting for the children. They like advertisings with plots, jokes and interesting music that could be remembered.

According to data from researches made by I. Vladimirova [5] for a period of one year, the Bulgarian students spent a period of time equal to 30 days in front of the TV. For students in the age group between 11 and 15 years, the factor of television represents the second most important right after the communication and interaction with their coevals. The time spent in front of the TV set is at the expense of preparation for school, practicing sport and hobbies. Such unhealthy daily lifestyle inevitably reflects on the nourishing habits, level of general knowledge as well as on the language and grammatical knowledge. In this context the role and responsibility of ads which are permanently present on the TV are of key importance for making children (who, in many cases, are addressees of the messages) healthy, intelligent and harmoniously developed personalities.

According to Texas A & M University, in 2002 McDonald's and Kraft Foods spent on advertising for children more than \$ 15 billion, which is \$ 2.5 billion more than in 1998. It is found that children spend approximately \$ 30 billion of food in fast food restaurants. Such marketing companies raise great dissatisfaction among public, because according to research conducted by the US Centres for Disease Control and Prevention, in the past 25 years the number of overweight children in the U.S. nowadays has doubled to 16 obese children out of 100 [6].

Fast-food giants and manufacturers of fizzy drinks attract children in various ways. They contain the logos on the boxes of toys on the covers of books and notebooks, video games, etc.

The emphasis in the report of the U.S. Institute of Medicine, an independent consultant to the U.S. government on issues related to health, is on the negative impact of the aggressive advertising of food and fizzy drinks to young people. The analysis shows that in 2004 the U.S. food industry has invested in advertising of its products about \$ 11 billion. However, these companies actively develop and implement new methods of advertising which impact on children's audience mainly through its inclusion in the internet and computer games.

Aiming to restrain the manipulative advertising influence on children's consciousness, several countries undertook some legislative initiatives. In 1991, in Sweden the advertising targeted at children at the age of under 12 years, was prohibited. Denmark, the Netherlands and Belgium support Sweden in its attempts to pass this restriction on the territory of all EU member states, but France, Germany and Great Britain uphold the position for professional self-regulation of the advertising business. In Great Britain significant amount of incomes from children advertising is allocated for the production of educational TV programmes [6].

Many countries realize the potential of TV advertising and the dangers that it hides to the health of children. On the occasion of advertisements of alcohol or cigarettes, there are international codes of self-marketing and advertising, created by the International Chamber of Commerce. These codes are implemented at national level by national regulatory bodies and have the desirable nature not to encourage children to activities that could seriously threaten their health. In Europe, the European Advertising Standards Alliance promotes various initiatives to regulate unethical advertising directed at children age category. The website of this organization contains practical information on how to proceed in finding a violation on a national level, concerning the laws and rules for advertising of goods for children [7].

As a positive characteristic of the advertising for children it is found out that from early age the children get themselves better oriented in the plethora of goods, their characteristics, advantages and disadvantages. Through the advertising children begin to know what is price, salary, discount, quality. The advertising helps children to socialize. Often the advertising characters are successful lucky people whom the children strive to imitate and thus start thinking what to strive to and what aims to set.

Case study

Health Informational Campaigns in Bulgaria

In the past few years, in Bulgaria there is a strong trend for initiating many campaigns promoting healthy lifestyle or explaining the prevention of socially significant diseases. Main channel for broadcasting such type of information is the internet, but in some cases it is only one of the sources which is used together with the printed and electronic media.

Indicative example in this relation is the National informational anti AIDS campaign with advertising slogan "*Don't say 'It could not catch me'. Know what's what*", which campaign was under the patronage of Ministry of Health, Joint UN Programme and Anti-AIDS Campaign [8]. The main aim of this campaign is to inform the public about the possibilities for prevention. One of the most loved Bulgarian actors - Vasil Vasilev Zueka was chosen to be the advertising image in the advertising spots and blocks. In his typically comic style he explains the serious problem regarding the transmission of AIDS. In a series of TV spots and printed ads Zueka warns the public that: "You could prevent yourself from transmission of HIV if you always use condoms", that "You will not die if you share your food with a person who lives with the AIDS virus" or that "Mosquito bite does *not cause risk of HIV infection*". The possible ways for transmission of HIV are outlined in the advertising campaign and an appeal is addressed to prevent personal health and to show sympathy to those who live with HIV.

Although most of the PSAs have commercial aims it should be noted that their social effect is significant and therefore the health culture gradually increases.

For example, statistical data for the abortions are presented during the campaign against abortions with the motto "Abortion leaves invisible scars. It depends on you!" [9]. The medical and psychological consequences of this act are emphasized as well as the low birth rate and the fact that in Bulgaria 270 000 couples in fertility age have reproductive problems and that is serious social problem. There is a link to a site where all interested could find information and this site is part of the national information campaign "Become a mother when you are ready", carried out under the aegis of the Bulgarian Society of Obstetrics and Gynaecology". Detailed information is provided about the different methods for prevention of undesired pregnancy, the advantages of using contraceptives. A new service was launched – receiving free of charge SMS reminding the ladies when to take their contraceptive pill.

In April 2008 national campaign against cervical cancer with the motto "For you and those you love" was launched. Every Bulgarian woman could support the campaign by sending SMS with a photo to a given site and thus join the photo petition in support of the prevention from the insidious disease. On this site, detailed and in depth information could be found on the problems related to this disease, its diagnosis and ways of prevention and continuous protection. The revealed data are edited by the chairman of the Bulgarian Cancer Association [10].

Since 2006, through its "1 Pack = 1 Vaccine" campaign [11], Pampers has supported UNICEF's Maternal and Neonatal Tetanus Elimination Program, a global campaign to protect the lives of mothers and babies in less industrialised countries. To date Pampers has successfully donated 300 million tetanus vaccines, which are helping to protect 100 million women and their babies around the world. The funding helps UNICEF to procure life-saving tetanus vaccines for countries in need to ensure that pregnant women and their new-borns are

protected against tetanus through regular vaccination services and campaigns, especially in areas where access to health services and specifically delivery care represents logistic and costing challenges.

The campaign entitled “Because we love life” has a long tradition and is strongly supported by many famous ladies from different fields of public and cultural life in the country. Its main objective is to inform the Bulgarian women about the necessity to regularly go to examinations and to help for more accessible prevention and thus to help for the early diagnosis of breast cancer which is absolutely treatable if medical help is given in time [12].

Socially significant advertising campaign is also the initiative called “Sport against osteoporosis” aimed at informing about the possibilities for prevention and reduction of the risk from this disease. The advertising messages published in the printed and electronic media are supplemented with free DVD containing advice, diets and sport exercises which could be practiced in the office [13].

Nationwide public service advertising in Bulgaria was implemented through EU and Poland funded campaign for promotion of carrot juices, without taking into account any concrete brand. The main advertising text is “*Drink carrot juices and nectars. That’s the way for you to smile... fibres take care of your figure and provitamin A helps you to keep your tan fresh and bright. Everybody looks at you with admiration!*” In relation to the balanced nutrition, an EU platform with motto “Nutrition, physical activity and health” [14] is established as one of the basic components of healthy lifestyle. National and international multisectoral actions are planned. Example is that the Union of European beverages associations - UNESDA declared its readiness to refrain from direct advertising and promotion to children under 12 years of age. One of the most famous fast food chains also made a commitment to include information about the food content on the packages of all its products throughout Europe. Fruit and vegetable producers undertake to promote on the European market a logo which encourages the children to consume more fresh products. A lot of educational programmes and events are planned in relation to healthy nutrition and physical activity.

Of great social importance is the European campaign “HELP – For a life without tobacco” [15], which was launched in Bulgaria in 2007. A multimedia approach is adopted in order that the messages reach maximum addressees. TV advertising campaign was implemented with thematic video clips. Internet advantages are used as web page is developed containing detailed information for health and social problems, useful advice, tests for active and passive smokers, etc. Brochures are handed out with contact details of medicinal cabinet throughout the country where one could get professional aid.

Another social initiative of similar nature is the campaign entitled “Knowledge saves! Lack of knowledge kills! Be ahead of street lessons!” [16] and aims at providing young people and their relatives with reliable and professional information about the drug problem and different programs and alternatives for rehabilitation of those who already abuse. Contact details are given of the special aid centres throughout the country – foundations and programs, therapeutic communities, parents’ associations and others. This kind of public service advertising is performed through an attractive banner of frequently visited site, which aims at drawing the attention of the mass audience which is asked to show sympathy and to have an active civil stand regarding the problems that drug addicted face.

Positive public response has marketing campaigns that are bound with a cause. Example here is also the initiative of one Bulgarian bank and one foreign pharmaceutical company providing medicines for children suffering from significant growth delay.

Advertising activities aiming at reduce smoking and alcohol consumption

According to the European Commission data, 23 million European citizens are addicted and the alcoholism costs Europe 125 billion EURO or 1.3% of the European Gross Domestic Product. Alcoholism is the main reason for 7.5% of diseases and untimely death in Europe. For young people between 15 and 29 years of age these figures are respectively 10% for women and 25% for men. Every ninth teenager tried alcohol for the first time at the age of 12,5 years. The last Eurobarometer research shows that 19% of young people (in the age group 15-24) in the EU drink five or more glasses of alcohol every time they sit at the table. Alcohol is one of the main reasons for the violence and road accidents. According to the ex-Health Commissioner Markos Kyprianou the media, advertisers, sellers and owners of clubs and food and beverage establishments should contribute to change the attitude and behaviour of young people. We could not afford to lose so many young human lives every year because of alcohol abuse [17].

The International Trade Chamber has drafted many international codes for marketing and advertising self-control in relation to advertising of alcohol and tobacco that is intentionally addressed to children and popularized via the internet. These codes are implemented at national level by national self regulating bodies and contain recommendations not to incite children to activities that could seriously harm their health. The European Advertising Standard Alliance (EASA) operates in Europe and it promotes different initiatives for regulation of non-ethic advertising directed to children [7]. The National Council for Self-Regulation (NCSR) is the Bulgarian self-regulatory organization, which is a member of EASA. The National Ethical Rules for Advertising and Commercial Communication are based on the Consolidated ICC Code of Advertising and Marketing Communications. The Code is applicable to any form of advertising and marketing communication, which is to

be taken in the broadest sense, and covers all communication channels: TV, cinema, radio, outdoor, print, direct marketing, internet as well as new technologies for marketing communication [7].

These legislative measures aim to restrict the unfavourable downward trend in the age limit of persons consuming alcohol, to reduce traumas and death caused by road accidents, to reduce the negative effects on the economy, to increase the public awareness on problems related to alcohol abuse.

Advertising – a means to increase the audience’s dental culture

The power of advertising effect is also used in the field of dental medicine. TV and radio spots, printed media blocks, i.e. the advertising through all kinds of information distribution channels are full with plenty of ads appealing for maintaining high level of mouth hygiene. This type of ads is one of the sources to increase the health culture of society on dental health issues. Via everyday multiple repetition of one of the most popular ads of specific toothpaste in the primetime, the Bulgarian consumer is already acquainted with the seven signs of strong teeth.

The role of advertising in the formation of environmental awareness of people

Another topic of advertising, which is directly related to individual’s and the society’s health as a whole, is the advertising activities in the field of environment. In Bulgaria, the campaigns initiated by the world organization World Wildlife Fund are actively promoted. Several campaigns intended directly for the Bulgarian audience can be distinguished. The slogan “*A single piece of garbage does not pollute – You think, so as 7 720 000 Bulgarians do*” – appeals to people’s awareness to deposit their wastes to the relevant places. In 2007 the campaign entitled “*For Sale – Protect Protected Areas*” was awarded the golden prize of the first Bulgarian competition for advertising efficiency, Effie. The advertising concept finds the following expressions: outstanding panorama views from the mountains of Strandzha, Rila and Pirin are presented, with plate “*For Sale*” in the foreground, accompanied with different parameters of the mountains for the purpose to associate natural wealth with real estates (18). At present the next action of WWF with motto “*Climate anomalies happen here and now. We can stop them*” is being popularized across the World Wide Web. The visual design of this advertising is presented by means of analogy with the roulette game, as instead of numbers, the high temperatures as a result of global warm up are written on the table pot. This advertising technique is aimed to demonstrate that society neglects environmental problems and does not consider them serious.

The advertising campaign launched by an organization active in the establishment of sustainable systems for divided deposit and use of packaging wastes also has significant contribution for the increase of health-environmental culture of our nation. Attractive video spots and printed ads appeal for the formation of environmental awareness and behaviour by means of demonstrating the advantages of divided disposal of wastes. Specific facts are pointed out, for example the recycling of one glass bottle ensures 4 hours of electricity, thus appealing the addressees to support the process of divided disposal of everyday wastes made of glass.

Social aspects of medicinal products’ advertising

Educational function of medicinal products’ advertising

A significant positive effect of the mass popularization of medicinal products via advertising is the increase of the general educational level of consumers. The significant use of terminology is determined by the nature of advertised products. In this case the main components, the active substances of the medicine, as well as the names of different types of diseases. As a result, the Bulgarian consumer deals with the medical and pharmaceutical terms better and better.

Manipulative tactics for production and promotion of messages promoting medicinal products

The main purpose of corporate supply of medicines is to increase profit through encouraging consumer demand of medicinal products. Thus unethical methods for advertising thereof are encouraged. Pharmaceutical companies give the fact that they provide valuable information and increase the healthcare culture of people, as the only argument of theirs. But in practice, encouraging the irrational use of medicines may adversely affect the health.

Manipulation is mainly applied by means of misleading or incorrect statements about medicinal products or by means of deliberate non-disclosure of specific risk factors or side effects of some medicines. Widely used approach applied by the pharmaceutical companies is the sponsorship of patients’ organizations, on one hand, and on the other – provision of financial or material incentives for the physicians to prescribe the medicines manufactured by the relevant company, at the expense of their competitors. The websites with detailed information for medicines, which do not have authorization for advertising, are essential channel for distribution of information. From them the mass consumer obtains information which is not attested and has biased character. Another important adverse trend is the financing of health campaigns for popularization of medicinal products, instead of investing the funds in promotion of prophylaxis and healthy lifestyle.

The advertising market of medicinal products

TV ad is still one of the most expensive advertising channels worldwide. In relation to medicines, until 1997 manufacturers were prohibited to announce medicinal products and their application in TV spots, as the mass effect of the message distributed via television was taken in consideration. At present, there are no such limitations and according to the monitoring of TV advertising carried out by Media Links Agency (19), both during the first quarter of 2006 and in 2007 the product categories with the highest advertising budgets at the Bulgarian TV advertising market, are for the telecommunication, cosmetics, pharmaceutical, beverages and washing and cleaning detergents sectors.

What is most characteristic for the category of medicinal products is the relatively larger number of advertisers in comparison with the other categories. The advertisers from the pharmaceutical sector have increased their activeness and thus such category is now among the top 5 of TV advertising budgets for the first quarter of 2007. The existing situation directly results in 50% of the patients in Bulgaria to go to the drugstores rather than to the doctor (19).

This trend is observed globally being also confirmed by the analysis carried out by a group of American scholars published in *Fitness and Wellness Week* (20). The authors of the research found out that the advertisement of medicines does not only popularize and recognize the relevant medicinal, but also encourage its use. To the researchers' opinion, the fact that patients have clearer and clearer idea about the application of different medicinal products makes them confident to apply self treatment during the first symptoms when they even can avoid the use of medicines.

The consumption of medicinal products without doctor's prescription is also encouraged by the fact that there are no statutory restrictions for advertising of drugstores which attract their clients through spots with the cheerful pharmacist who plays the role of confident friend and healthcare adviser and offers quick and efficient solution for the health problems of the client who has visited the polished drugstore.

Within the existing unfavourable situation, not only legislation, but also public liability of advertising creators has to regulate the market of medicinal products and restrict the use of medicines without prescription. We already witness the first attempts in this direction. This is an example with message of a drugstore chain – *“Because we sell medicines, we know that they are not the single remedy”*.

Attempts for restriction of unethical advertising of medicinal products worldwide

The World Health Organization has drafted global criteria for assessment of unethical offering of medicinal products, but they are rather a wish than an obligation, thus such criteria does not cause any legal consequences.

The European Federation of Pharmaceutical Industries and Associations (EFPIA) is the representative authority of the pharmaceutical industry in Europe. The associations of local national industries of more than twenty European countries manufacturing medicinal products, and more than forty pharmaceutical companies are members of EFPIA. Realizing the importance of providing correct, just and objective information about medicinal products, thus taking reasonable decisions for their use, EFPIA adopted a Code of Practices for Promotion of Medicines (Code of EFPIA) (21). It is aimed at maintaining an environment where the society can be sure that the choice in relation to medicines is made on the basis of the merits of each medicine and the health demands of each patient. The Code is fully compliant with the Council's Directive 2004/27/EC Relating to Medicinal Products for Human Use in the European Union Member States.

In the USA, Australia and Canada (22, 23), medicines promotion is controlled on daily basis by means of national associations of manufacturers. During this process, mainly five aspects are analysed related to the mechanism of recognition of aggressive behaviour, responsible commissions, sanctions in case of offences, data about qualitative and quantitative accumulation of complaints, and procedure for complaints review.

In the United Kingdom the Code for Best Practices Application in the Field of Medicinal Products Promotion has been enforced since 1958. Pursuant to this Code a commission is established with the following members: an independent lawyer, 12 representatives of companies and two doctors, 1 representative of the patients' association. Since 1985 another member is one independent medical consultant who has the obligation to study the advertising blocks in printed materials. The conclusions of the commission are only recommendations (22).

The manufacturing companies in the pharmaceutical sector also take active position in the establishment of ethical and legal standards for the promotion of medicines. At present, in our country an Code of Ethics of the Association of Research-based Pharmaceutical Manufacturers in Bulgaria is enforced, which is based on the provisions of the Code of the European Federation of Pharmaceutical Industries and Associations, and the Code of the International Federation of Pharmaceutical Manufacturers and Associations for Pharmaceutical Marketing Practices providing also the advertising activities in the field of medicinal products (23-26).

The importance of advertising of medicinal products cuts both ways – on one hand, it educates the addressee in relation to the market of medicines, their variety and functions, contributes for the formation of consumers' culture in the field of pharmaceutical industry, but on the other hand, it leaves misleading impression in people who need treatment, that they are competent to take decision for their health on their own, neglecting

the professional diagnosis and treatment to overcome the relevant health problem. Namely this specification of the medicinal products' advertising contains our statement that it has an ambiguous effect on the overall picture of public health.

From healthcare education and culture's point of view the advertising potential should be directed to the promotion of healthy lifestyle, to demonstration of tolerant attitude to people with mental and physical disabilities, to respect and protect the environment, etc.

Advertising is a product of public demands, which determine its engagement in public, political, economic and cultural environment it functions in. Advertising is an essential stimulating and regulating factor of impact on the general audience's mind and behaviour, and these specific features of it, in addition to its mass character, make advertising one of the major elements in the process of health though the creation of purposeful messages for different target groups of the population, and through demonstration of specific behaviour patterns.

Via public service advertising people's attitudes to a specific socially significant problem are changed, new values are being formed, which afterwards turn to be the basis for responsible behaviour to ourselves, to the other, and to the surrounding environment as a whole. Some of the most effective and affecting public service advertisements are related to the public health issues, thus their potential must be used to the highest extent in order to popularize the healthy lifestyle and the prevention of socially significant diseases.

Exercises

Task 1: Specify an example of successfully realized public service advertising campaign for prevention of a socially significant disease.

Task 2: Compose a message about a specific public health problem. Develop an advertising argument corresponding to the relevant target group set up on the basis of social demographic principle.

Task 3: Development of an overall strategy for model campaign, including advertising, to promote healthy lifestyle.

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title	Introduction to occupational health
Module: 1.16	ECTS (suggested): 1.0
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Keywords	Occupational diseases, occupational health, occupational injuries, work-related diseases.
Learning objectives	After completing this module students and public health professionals should: <ul style="list-style-type: none"> • Improve their knowledge in the history, organization and development of Occupational health; • Fully understand main goals of Occupational health; • Be able to recognize the main factors influencing health of the workers; • Understand different organizational models in Occupational and Environmental health; • Consider Occupational and Environmental health as important part of Public health.
Abstract	Occupational health is a discipline devoted to prevention and management of occupational injury, illness, and disability; and promotion of health and productivity of workers, their families, and communities. Having in mind that the economic and social well-being of society is directly linked to the health of workforce, occupational health could be recognized as one of the important factors for general socioeconomic development. During its development, various organizational models of occupational health were established in European countries. So far, none of them is ideal, but it seems that the strictly preventive concept of occupational health has some advantages compared to mixed preventive and curative concept.
Teaching methods	Lectures, Focus group discussions, Written reports, Factory visits.
Specific recommendations for teachers	Students should contact at least two different occupational health services to obtain data on its organization and problems, as well as to get an overview of main health problems in enterprises covered by these two services. They should prepare two written reports on their findings in these two services emphasizing their fails as well as their achievements.
Assessment of students	Multiple choice questionnaire, Defending written reports

INTRODUCTION TO OCCUPATIONAL HEALTH

Petar Bulat

Occupational health

Occupational health is a discipline devoted to prevention and management of occupational injury, illness, and disability; and promotion of health and productivity of workers, their families, and communities.

Occupational health objectives

According to joint committee International Labor Organization (ILO) and World Health Organization (WHO) in 1950 occupational health should aim at

- the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations;
- the prevention amongst workers of departures from health caused by their working conditions;
- the protection of workers in their employment from risks resulting from factors adverse to health;
- the placing and maintenance of the worker in an occupational environment adapted to his physiological and psychological capabilities and;
- to summarize: the adaptation of work to man and of each man to his job.

In 1995 ILO/WHO joint committee (1) made addition to previous definition. They proposed that the main focus in occupational health is on three different objectives:

1. The maintenance and promotion of workers' health and working capacity;
2. The improvement of working environment and work to become conducive to safety and health and;
3. Development of work organizations and working cultures in a direction which supports health and safety at work and in doing so also promotes a positive social climate and smooth operation and may enhance productivity of the undertakings. The concept of working culture is intended in this context to mean a reflection of the essential value systems adopted by the undertaking concerned. Such a culture is reflected in practice in the managerial systems, personnel policy, principles for participation, training policies and quality management of the undertaking.

Besides ILO/WHO with a more global view on occupational health (OH) objectives, there are many other detailed views like Felton's (2). According to its view OH objectives are:

- to protect the health and well-being of workers against the stressors and potential health hazards of the work environment;
- to place job applicants or current employees in work commensurate with their physical and emotional capacities, work that can be performed without endangering the worker or fellow employees and without damaging property;
- to provide emergency medical care for injured or ill workers and definitive care and rehabilitation for those with work-generated injuries or illnesses, in keeping with the medical, surgical, or psychotherapeutic expertise of the staff, medical department policy, managerial policy, and the availability of community resources;
- to maintain or improve the health of the worker through promotional, educational, counseling, or informational activities, preventive health measures including fitness or wellness programs, and periodic clinical reviews of health status.

Occupational health history

The history of OH can be traced back to antiquity. Observations of increased rates of illnesses and mortality among miners date back to Greek and Roman times. Hippocrates warned his followers to observe the environment to understand the origins of illnesses in their patients. But, Bernardino Ramazzini (1633-1714) is recognized worldwide as the father of occupational medicine. He published in 1700 the book "De Morbis Artificum Diatriba" (Diseases of Workers) - first systematic study of trade diseases based on visits to workshops in Italy. Bernardino Ramazzini described diseases in a number of occupations such as: painters, intellectuals, potters, midwives, miners etc. He recognized mercurialism, lead intoxication among potters using lead glaze etc. Bernardino Ramazzini emphasized the importance of data on occupation in patient history. The real development of Occupational medicine started during the industrial revolution. The first OH laws originate from 19th century. During the 19th century, in England, first laws regulating child labor, work safety, limiting working hours were installed. In 1901, in England, the first law regulating periodical check ups of workers was empowered. After it similar laws were empowered in Germany, France and Russia. The first Institute of Occupational Health was

established in Frankfurt (Germany) at the start of 20th century. In 1910 the first clinic of Occupational Diseases were established in Milan (Italy) as well as the first hospital for occupational diseases in New York (USA). The first scientific meetings on OH started with Berlin (Germany) conference on occupational diseases in 1890. The first international congress on OH was held in Milan (Italy) 1906 and the International Commission on Occupational Health (ICOH) was established. This organization is still active and plays a major role in international OH.

Since the start of 20th Century, the development of OH in developed countries was much more rapid than in past centuries, especially in countries with developed industry where continuous progress was registered. In Russia, due to political reasons, a huge development of OH was registered after revolution. The same trend was registered in so called Eastern countries after Second World War under Russian influence.

Occupation health facts

As already mentioned, according to ILO the total workforce is around 3200 million persons. Similar are WHO estimates that about 45% of the world's population and 58% of the population over 10 years of age belong to the global workforce.

Occupational health hazards are present in many different sectors and influence large numbers of workers.

According to ILO data, among 3200 million total workforce there are 800 million unemployed (26%), 150 million (5.5%) aging workers, 250 million (8.3%) child workers, 300 million (10%) handicapped workers, 1000 million (33.3%) female workers, 150 million (5.5%) migrant workers, 1000 million (33.3%) high risk workers and 750 million (25%) illiterate workers. WHO data suggest at least 30% of workers report hazardous physical, chemical or biological exposures or overload of unreasonably heavy physical workload; an equal number of working people report psychological overload at work resulting in stress symptoms. Many individuals spend one-third of their adult life in such hazardous work environments. About 120 million occupational accidents with 200,000 fatalities are estimated to occur annually. In addition to unnecessary human suffering, the costs involved in these health hazards have been estimated to amount of 4% gross domestic product (GDP).

According to ILO estimates in 2000, there are 355 millions occupational accidents per year (among them 350.000 fatal accidents). Also, every year there are 160 million occupational diseases and 3 million of pesticide poisonings (40.000 fatal pesticide poisonings). It is estimated that total economic loss (4-5 % of World GDP) due to occupational accidents and diseases is 1500 billion US dollars.

Having in mind the importance of workers' well-being for development of society, the WHO data on their hazardous exposures, as well as the data on fatalities and consequent GDP loss it is obvious that development of OH services is of utmost importance for society. But, according to WHO data, in developing countries only 5-10% of workers are covered by OH services. In developed countries the situation is a bit better, but even there only 20-50% of workers have access to OH services. Having in mind that most of workers exposed to occupational work hazards in developing countries (80% of global working population) it is obvious that there is a great need for development of OH services.

According to WHO Occupational Health for All strategy (3) the most important challenges for occupational health beyond 2000 will be: occupational health problems linked with new information technologies and automation, new chemical substances and physical energies, health hazards associated with new biotechnologies, transfer of hazardous technologies, aging of working populations, special problems of vulnerable and underserved groups (e.g. chronically ill and handicapped), including migrants and the unemployed, problems related to growing mobility of worker populations and occurrence of new occupational diseases of various origins. In order to deal with those issues WHO developed a Global Plan of Action on Workers' Health 2008–2017 (4) with four main objectives:

1. to devise and implement policy instruments on workers' health
2. to protect and promote health at the workplace
3. to improve the performance of and access to occupational health services
4. to provide and communicate evidence for action and practice

WHO adopted Global Plan of Action on Workers' Health on Eleventh plenary meeting in May 2007. Since then WHO invested a tremendous effort in implementation of Global Plan of Action on Workers' Health through a global network of WHO Collaborating Centers for Occupational Health.

Occupational Health organization

According to the principles of the ILO Convention No. 161 on OH Services, the primary responsibility for improvement of health and safety at work and for occupational health services at the workplace and within the enterprise lies with the employer. Most countries implement occupational health and safety policies and practices at the national level through tripartite collaboration between government, employers and employees.

Principal actors responsible for OH and safety at the workplace level are the employers and workers who according to the internationally accepted principles should collaborate in carrying out activities for health and safety at work (5). They often need advice, assistance and services of occupational health and safety experts.

Through past years of OH development, due to many factors (political, social, economic, etc.) two main concepts of OH organization were established (6,7). The first one, "classical", "integral", is focused on the worker and his health and beside preventive actions include curative actions too. The second concept, "occupational and environmental health", includes environmental health as well and it is focused only on preventive actions. The "classical" concept was developed in Russia and implemented in various forms in Eastern European countries. The "occupational and environmental health" concept was developed in Western Europe and now tends to spread all over Europe. In USA, they developed a kind of mixture of these two concepts. The main differences between "classical" and "occupational and environmental health" concepts are based on who cures the worker. In "classical" one, the OH specialist applies preventive and curative measures on contrary to "occupational and environmental health" concept where family doctor or general practitioner is responsible for treatment and OH specialist for prevention. The second most important difference is that "classical" concept does not include environmental health, as well as influence of working conditions on environment. So, in that concept, the enterprise gate is border of OH influence. Every concept has its advantages and disadvantages.

The advantages of "classical" concept:

The physician who cures the worker has all information on workplace hazards and their possible influence on worker's health. He could much better recognize occupational as well as work related disease than the GP. Also, in case of disease, he could better assess worker's fitness for work. In this concept, the OH specialist has all necessary data on worker's health so he could better estimate his ability for work.

The disadvantages of "classical" concept:

OH specialist is limited to working environment. Due to interlinking of preventive and curative work, OH specialists tend to give advantage to curative and to abandon preventive work. Also, the OH specialist in "classical" concept does not have enough education and knowledge for curative and preventive work, so he is insufficient in both (8).

The advantages of "occupational and environmental health" concept:

In this concept OH specialist is not limited to working environment. His knowledge in occupational hazards could be used also in environmental medicine. As his work is limited to prevention, it could be expected that his knowledge is sufficient and that he is focused only on prevention.

The disadvantages of "occupational and environmental health" concept:

The OH specialist does not have all necessary data when evaluating ability for work. Family doctor who provides health care usually does not have information on working conditions. Also, during his education the family doctor receives a limited knowledge on occupational health, so even in case that he has all necessary information on working conditions he could not use it.

All mentioned advantages and disadvantages of both concepts make it impossible to conclude which concept is better. But, it seems, that "occupational and environmental health" concept gain more and more support and that in near future it will become a dominant concept in Europe.

In "occupational and environmental health" concept the OH physician assist employer in: identifying hazards, detecting exposures, protecting the workforce, educating people regarding workplace hazards. As fulfillment of mentioned tasks demands multidisciplinary approach, the OH physician must develop the OH team in enterprise. Usually participants in OH team are from industry (safety professional, industrial hygienist, worker or trade union representative, ergonomist and environmental engineer) and from medicine (family doctor, nurse, epidemiologist, etc.) quite often human resources department representative have an important role in the team. In small and medium enterprises the OH team is slightly different. In that case, usually, members of OH team from industry are the owner or director and worker representative. Other members of OH team in small and medium enterprises come from external services. In some cases, bigger OH services have own ergonomists, safety professionals, and industrial hygienists so they do not engage external services.

Factors influencing the health of workers

Factors influencing the health of workers could be divided in four groups:

1. Physical factors;
2. Chemical factors;
3. Biological;
4. Socio-economical factors;

In most cases, workers are not exposed to a single hazard. Usually, they are exposed to a number of different hazards. Exposure assessment, in some cases, is a rather complex task. Even in the easiest situation,

when the worker is exposed to a limited number of well known physical and chemical hazards, exposure assessment includes a number of rather complicated procedures of environmental and biological monitoring, job analysis and evaluation. In more complex situations when the worker is exposed to new chemicals, various physical factors, work under stress, and in hostile environment, hazard assessment is rather difficult.

Modern OH during analysis of factors influencing the health of workers, beside analysis of hazards, performs a risk assessment. It is the process of characterizing and quantifying potential adverse effects of hazards. In risk assessment, the goal is shifted from concern for immediate hazards with readily perceptible linkages between a specific hazardous situation and an adverse outcome to situations where there are only probabilistic linkages between exposure to an agent and the occurrence of an adverse health effect over a long period of time.

Risk assessment should be performed by competent occupational safety and health professionals with appropriate theoretical and practical knowledge and experience of relevant systems. To be able to identify all hazards and events, it may be necessary to split them into manageable parts. A risk assessment is performed by considering types of hazards, extent of exposure to the hazard and the relationship between exposures and responses, including variation in susceptibility. In general, risk assessment consists of the following four components:

1. Hazard identification;
2. Dose-Response Assessment;
3. Exposure Assessment;
4. Risk Characterization.

Hazard identification evaluates the weight of evidence for adverse effects in humans based on assessment of all available data on health impact and mode of action. This step aims to determine the probability that an individual receiving a specific dose of the contaminant (chemical, radiation, noise, etc.) will develop an adverse effect.

The dose-response assessment identifies the relationship between the exposure level and the magnitude of risk.

The exposure quantification determines the amount of a contaminant (dose) that individuals and populations will receive. This is done by examining the results of the exposure assessment.

The results of the previous three steps are then summarized and integrated into quantitative and qualitative characterizations of risk.

A risk characterization is the final step in risk assessment. It is the estimation of the incidence and severity of the adverse effects due to actual or predicted exposure including risk estimation or calculation, i.e. the quantification of that likelihood. The calculation of the risk is made by combining the severity of consequence with the likelihood of occurrence in a risk rating matrix. This can be expressed mathematically as a quantitative assessment (by assigning low, medium and high likelihood and severity with integers and multiplying them to give a risk factor), or as a description of the circumstances by which the harm could arise i.e. qualitative (Table 1). Risks that fall into the "unacceptable" category (e.g., high severity and high probability) must be mitigated by some means to reduce the level of safety risk.

Table 1. Risk rating matrix

		Probability		
		1	2	3
Severity	3	MEDIUM	HIGH	HIGH
	2	MEDIUM	MEDIUM	HIGH
	1	LOW	MEDIUM	MEDIUM

The risk assessment is a dynamic process and should be reviewed periodically and whenever there is a significant change to work practices. It is the ethical and legal responsibility of industry and government.

Occupational diseases

Occupational disease is any disease contracted as a result of an exposure to risk factors arising from work activity (the ILO definition from 2002 Occupational Safety and Health Convention). All definitions of occupational diseases specify causality between the disease and the exposure factor (physical, chemical, biological and others) present in the work/activity taken into account.

In contrast with the definition of occupational diseases, which is almost similar in different countries, the structure of national lists is not uniform. Because of the differences in their structure and content, these are difficult to compare internationally. It should be noted that national practice varies widely from country to country.

For example, in the European Union there is a significant difference in a list of occupational diseases among countries (8). According to official EU sources, in Italy there is list of 58 occupational diseases, in France 98 tables of occupational diseases, in Germany list of 67 occupational diseases, in Austria list of 52 occupational diseases, in United Kingdom list of 70 occupational diseases and in The Netherlands occupational diseases are not recognized at all. Also in many EU countries there is a possibility to claim for occupational diseases through, so called, open list (when occupational hazards are found to be the determining and direct cause of the disease). It has to be mentioned that among EU countries there are great differences in prerequisite conditions for occupational diseases. All these differences make it difficult, in some cases impossible, for a comparison of occupational disease incidence. In case of occupational injuries there are also great differences among countries in their regulation. To solve this issue EU Commission brought Recommendation in 2003 concerning the European schedule of occupational diseases. In Annex I of the document they listed 108 occupational diseases (9). Since this recommendation contains only a list of occupational diseases without diagnostic criteria, EU member states should develop their own criteria. This will cause a lot of troubles in data comparison.

Generally, every country has to publish its list of occupational diseases, prerequisite conditions for its approval and reporting statutes having in mind actual knowledge in the field as well as its specificity and economic potentials. The occupational injuries regulation demands clear, firm criteria and definitions for its approval and strong monitoring of reporting.

Occupational injuries

Occupational injury is any personal injury, disease or death resulting from an occupational accident (ILO). According the ILO definition, Occupational accident: is an unexpected and unplanned occurrence, including acts of violence, arising out of or in connection with work which results in one or more workers incurring a personal injury, disease or death. ILO suggests that as occupational accidents are to be considered travel, transport or road traffic accidents in which workers are injured and which arise out of or in the course of work, i.e. while engaged in an economic activity, or at work, or carrying on the business of the employer.

According to Occupational Health and Safety Administration (OSHA), occupational injury is defined as any injury that results from a work accident or from an exposure involving a single incident in the working environment. Comparison of ILO and OSHA definitions of occupational injury will not show significant difference except in one detail - ILO definition leaves open possibility that commuting accident² could cause occupational injury. In clarification of that definition, ILO clearly indicates that injuries during commuting accidents as well as occupational diseases are not occupational injuries but many countries still did not change their regulation of commuting accidents. This difference in classification of occupational injuries causes a lot of problems in statistics of occupational accidents and injuries. At the moment there is no consensus among countries regarding that. Even EU countries do not share unique regulation for occupational accidents and injuries.

Beside the mentioned problem, there are plenty of other problems in comparison of occupational injuries. In some countries regulation forces employer to report every injury, even minor one, in some employer must report only injury which leads to sick leave of at least three days. Also, there is a problem of underreporting in some countries, as well as injuries among workers which are not officially employed. There is also a problem of comparison of two injuries; from statistical point of view one minor accident resulting in a finger slash is the same as serious accident resulting with eye lost or death. To overcome this problem tree indicators are introduced:

- Frequency rates-the number of new cases of injury during the calendar year divided by **the total number of hours worked by workers** in the reference group during the year, multiplied by 1,000,000.
- Incidence rates are calculated as the number of new cases of injury during the calendar year divided by **the number of workers** in the reference group during the year, multiplied by 100,000.

² Commuting accident is an accident occurring on the habitual route, in either direction, between the place of work or work-related training and (i) the worker's principal or secondary residence; (ii) the place where the worker usually takes her/his meals; or (ii) the place where she/he usually receives her/his remuneration; which results in death or personal injury).

- Days lost, by economic activity-the number of days lost by cases of occupational injury with temporary incapacity for work. In a few cases, they also include days lost by cases with permanent incapacity, which may include estimates. The days lost are generally the calendar days during which the injured worker was temporarily unable to work, excluding the day of the accident, up to a maximum of one year. In some countries, however, particularly those where the source of the statistics is an accident compensation scheme, days lost are expressed in workdays. Temporary absences from work of less than one day for medical treatment are not included.

It should be born in mind that changes in figures of occupational injuries over a period of time may reflect not only changes in conditions of work and the work environment, but also modifications in reporting procedures or data collection methods.

Prevention of occupational accidents, injuries and diseases

Having in mind the estimation that annually there are around 120 million occupational accidents with 200,000 fatalities, prevention of occupational injuries is an important issue in modern society. There are several strategies in prevention of occupational accidents injuries and diseases and each of them has some good and bad points. The only one which has to be avoided is that occupational accidents and diseases are employer's problem and that he has to deal with it.

Usually, every prevention strategy starts with the estimation of problem's magnitude. It is already mentioned that there are a lot of obstacles in recording occupational injuries and diseases which could lead us to wrong conclusions, but however the prevention strategies are usually national ones so policy makers are aware of the data limitations. In data analysis the particular attention has to be focused on comparison of data between different industrial branches and, if it is possible within the most affected industrial branches. Depending on the results of the data analysis there are several options in its prevention. The first one is to start global national activity on safe work through media, trade unions, chambers of commerce backed up with increased presence of labor inspectors in field. The second option is to focus activity on most affected sector (in most countries it is construction industry) and the third one is to start national activity with focus on most affected sector. Whichever option is selected it is of utmost importance that all stakeholders are involved in it. Active participation of trade unions, employers and government is essential. The general focus of campaign has to be directed toward promotion of safe work and benefits of it for individual, group and society. Beside general focus, campaign has to have and more specific focuses based on statistics of accident reports. During this specific campaign particular attention has to be focused on rectification of problems discovered in this branch of industry.

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title	The public health strategy of the European Union
Module: 1.17	ECTS (suggested): 1.5
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Keywords	European Union, health systems, legal basis, Open Method of Coordination (OMC), public health.
Learning objectives	Applying the content of this module the student will be able: <ul style="list-style-type: none"> • to identify key areas of EU's involvement to complement national policies in the field of public health; • to oversee present developments, such as the implementation of the European treaties and the Open Method of Co-ordination; • to put the own professional field in relation to European fields of action.
Abstract	European activity in the field of public health started late, and the diversity of public health systems makes the development of common strategies more difficult than in other fields. The legal basis of EU's action in the field of health is fairly basic and simple but implies a broad and strong impact not only for health related matters but also for other political fields. EU's activity in the field of health is based on a public health point of view and complementary to national activities. Since its start in special fields it has grown into whole programs but constantly limited by Member States' responsibility to organise public health systems. The legal provisions have only marginally changed in the recent amendments of the European treaties. Still, the importance of European health strategies is growing, especially within the framework of the Open Method of Co-ordination which becomes even more important in the light of the enlargement of the European Union.
Teaching methods	Lecture, individual work, group work
Specific recommendations for teachers	This module should be organised within 1,5 ECTS, out of which one third will be under the supervision of teacher, and the rest is individual students work. After an introductory lecture the student should become familiar with information sources of the European Commission in the internet or by ordering through common mail. By looking for related EU legislation the student can become aware of the relevance for her/his field of profession (individual work). Results can be presented and discussed in groups.
Assessment of students	Presentation or essay discussing the national or professional impact of one particular field of EU's Public Health Policy.

THE PUBLIC HEALTH STRATEGY OF THE EUROPEAN UNION

Thomas Hofmann

Key players and frameworks

From a political perspective the recent years have been very remarkable when looking at EU's public health strategy. For the first time approaches have been taken which go beyond legal and administrative actions. At the same time, health moves away from a marginal position within the various sectors of the EU administration and becomes subject of other interested sectors, especially finance and economy. Debates on values and perspectives have already started. Member States are also struggling in defining their positions somewhere in between appreciating a strong EU policy for the sake of health benefits and protecting national values and sovereignty.

Linked to that is the very confusing relationship between the EU (European Union, based on the treaty of Maastricht in 1993) and the EC (European Community, based on the first treaty in 1952). The creation of the European Union in 1993 did not abolish the European Community, but complemented it. The European Community can only act on the basis of its legislation; the European Union can act upon any kind of agreement between the Member States. The actor of EC's action is the European Commission; the actor of the European Union is the respective member state as presidency. It is clear that strategies can be developed in both ways – administratively or politically.

In the absence of legal and political action in the field of healthcare, the obvious need for regulations on an EU level created other (third) modes of action. For many years, the European Court of Justice determined some cornerstones of European integration. As this happened without Member States involvement this phenomenon is also called "negative integration". Any other political approach is consequently called "positive integration". But still, legal instruments make up the biggest part among strategic fields in the health sector.

The role of EU agencies has also become stronger in recent years. New players entered the field, most remarkably the European Centre for Disease Prevention and Control (ECDC) in Stockholm, and the Executive Agency for Health and Consumers (EAHC) in Luxembourg, to which the European Commission outsourced the management of EU funded research projects. The ECDC, founded in 2005, has by now already more than 300 employees. It has the mandate to (scientifically) advise Member States in the field of health security, public health threats and risks posed by communicable diseases. Even though its mandate is much more limited in scope and nature than WHO's, it has become one of the most important European players in the field of communicable diseases. Not so new, but still important to be mentioned is the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) in Lisbon.

Legal instruments

Going back to the roots of the European Community, the Treaty of Rome in 1952 did not provide any legal basis for public health activities. The first so-called "action plans" started in 1987 on the basis of the Single European Act. Action was taken to prevent cancer, AIDS and drug consumption and trafficking. Still, there was no basis for European legislation in the health sector. Only in 1993, the Treaty on European Union (TEU - the Maastricht Treaty) created the first legal competence for the Community. Article 129 foresees the co-ordination of health programmes and policies of the Member States, a significant focus on prevention of diseases, the obligation to combat major health problems (e.g. drug dependence) and the Community's co-operation with other organisations. It outlines as well the criteria which allow the definition of priorities of action (1):

- a disease's impact on mortality and morbidity;
- a disease's socio-economic impact;
- how far a disease is amenable to effective preventive action;
- and, of particular importance, how far there is scope for Community action to complement and add value to what is being done by the Member States.

The Treaty of Amsterdam in 1997 amended and extended this article of the EU Treaty. According to the treaty, the protection of human health is now to be ensured in all Community policies and activities, both in their definition and in their implementation. The meaning of the revised article also goes beyond the prevention of illness and disease, including the improvement of public health and the obviation of sources of danger to human health. The Community's public health policy is seen as subsidiary to the Member States' effort. At several points, the article emphasises the Member States' responsibility for organising the delivery of health care, including action in the public health field.

The Treaty of Lisbon (signed in 2007) entered into force in 2010. Its regulatory subject is similar to what was planned to be included in a European Constitution, which failed to succeed after a number of referenda

in Member States voted against. The “public health article” became now Art. 168 (see table 1). There are only a few changes and additions compared to the previous version. More emphasis has been put on the safety of medical products and on the area of cross-border threats to health.

Table 1: Article 168, Treaty of the European Union

<p>1. A high level of human health protection shall be ensured in the definition and implementation of all Union policies and activities. Union action, which shall complement national policies, shall be directed towards improving public health, preventing physical and mental illness and diseases, and obviating sources of danger to physical and mental health. Such action shall cover the fight against the major health scourges, by promoting research into their causes, their transmission and their prevention, as well as health information and education, and monitoring, early warning of and combating serious cross-border threats to health. The Union shall complement the Member States’ action in reducing drugs-related health damage, including information and prevention.</p> <p>2. The Union shall encourage cooperation between the Member States in the areas referred to in this Article and, if necessary, lend support to their action. It shall in particular encourage cooperation between the Member States to improve the complementarity of their health services in cross-border areas. Member States shall, in liaison with the Commission, coordinate among themselves their policies and programmes in the areas referred to in paragraph 1. The Commission may, in close contact with the Member States, take any useful initiative to promote such coordination, in particular initiatives aiming at the establishment of guidelines and indicators, the organisation of exchange of best practice, and the preparation of the necessary elements for periodic monitoring and evaluation. The European Parliament shall be kept fully informed.</p> <p>3. The Union and the Member States shall foster cooperation with third countries and the competent international organisations in the sphere of public health.</p> <p>4. By way of derogation from Article 2(5) and Article 6(a) and in accordance with Article 4(2)(k) the European Parliament and the Council, acting in accordance with the ordinary legislative procedure and after consulting the Economic and Social Committee and the Committee of the Regions, shall contribute to the achievement of the objectives referred to in this Article through adopting in order to meet common safety concerns:</p> <p>(a) measures setting high standards of quality and safety of organs and substances of human origin, blood and blood derivatives; these measures shall not prevent any Member State from maintaining or introducing more stringent protective measures;</p> <p>(b) measures in the veterinary and phytosanitary fields which have as their direct objective the protection of public health;</p> <p>(c) measures setting high standards of quality and safety for medicinal products and devices for medical use.</p> <p>5. The European Parliament and the Council, acting in accordance with the ordinary legislative procedure and after consulting the Economic and Social Committee and the Committee of the Regions, may also adopt incentive measures designed to protect and improve human health and in particular to combat the major cross-border health scourges, measures concerning monitoring, early warning of and combating serious cross-border threats to health, and measures which have as their direct objective the protection of public health regarding tobacco and the abuse of alcohol, excluding any harmonisation of the laws and regulations of the Member States.</p> <p>6. The Council, on a proposal from the Commission, may also adopt recommendations for the purposes set out in this Article.</p> <p>7. Union action shall respect the responsibilities of the Member States for the definition of their health policy and for the organisation and delivery of health services and medical care. The responsibilities of the Member States shall include the management of health services and medical care and the allocation of the resources assigned to them. The measures referred to in paragraph 4(a) shall not affect national provisions on the donation or medical use of organs and blood.</p>

Besides this article which refers exclusively to health, public health can now be found in other articles and areas of EU legislation as well. Some examples are:

- Art. 4 – Union competence – (“Shared competence between the Union and the Member States applies in the following principal areas: [...] (k) common safety concerns in public health matters,...”);
- Art. 6 – Union competence – (“The Union shall have competence to carry out actions to support, coordinate or supplement the actions of the Member States. The areas of such action shall, at European level, be: (a) protection and improvement of human health...”);
- Art. 9 – General provisions – (“In defining and implementing its policies and activities, the Union shall take into account requirements linked to the promotion of a high level of employment, the guarantee of adequate social protection, the fight against social exclusion, and a high level of education, training and protection of human health.”)
- Art. 191 – Environment – (“Union policy on the environment shall contribute to pursuit of the following objectives: [...] protecting human health, ...”);
- Art. 153 – Worker’s health and safety.

Public health has even reached high-priority fields of EU legislation and principles such as trade (and trade restrictions), right of establishment and free movement. There public health is listed as potential limiting factor.

Strategies and objectives of the European Commission's health programmes

The European Commission's public health directorates C (Public Health) and D (Health Systems and Products) consist of about 250 employees divided into six units and are located in Luxembourg and Brussels. They are integrated into the Directorate General (DG) for Health and Consumer Protection (SANCO) with about 650 employees which is one of 33 DGs. The units show a very slim structure and a strategic organisation (2). In the legislative process the Commission has the monopoly of making proposals.

Up until 2008, nine different programmes of Community action in the field of public health were set up. The objectives of the current tenth Health Programme (2008-2013) with a financial volume of 321.5 million euro are described as (3):

- to improve citizens' health security;
- to promote health, including the reduction of health inequalities;
- to generate and disseminate health information and knowledge.

This action programme includes the previous action programmes for health promotion, cancer, AIDS and other communicable diseases, drug prevention, health monitoring, pollution related diseases, rare diseases and injury prevention. Besides the action programme there are other funding opportunities such as co-financing of conferences and operating grants for networks.

The Health Programme is embedded in the EU Health Strategy "Together for Health" adopted in 2007 and in the Europe 2020 strategy. "Together for Health", similar to the preceding strategies, relates to a broad range of public health topics. However, relevance and impact for the European and the national level is much debated (4). Also the latest evaluation indicated that the strategy did not prove its added value yet. Especially the lack of concrete and measurable goals has been criticised (5).

In order to support the Commission services and the definition of strategies and objectives, the EU Health Forum has been established as an informal advisory body, mainly operating at the EU Health Policy Forum which is organized twice a year. Its members are from NGOs, unions, health services, insurances and private businesses (6).

Open Method of Coordination (OMC)

In 2004, a very outstanding process in the field of health had its start. In April, the Commission submitted a document which introduces the "Open Method of Co-ordination" (OMC) as a measure to support national strategies in health care and long term care. Originally developed in the field of EU's social policy since 1997, after the Lisbon Summit 23 and 24 March 2000 OMC has aimed to allow action in the field of health in areas where competence was not clear between the Community and the Member States. Generally, OMC goes in parallel to Commission activities. It ideally promotes the principles of subsidiarity and decentralisation. Without any legal basis it only exists out of the Member States' commitment. OMC's procedure is similar to any benchmarking process. The Council of Ministers decides measures which should be reflected in national policy. The Member States present their efforts in reports to the Council and the Commission. The Council formulates recommendations to be taken into account by the Member States and so on (7).

Any strategy developed within this new framework should respect three principles: access, quality and financial sustainability meaning:

- promoting universal access, adequacy and solidarity, reducing social, ethnical and regional exclusion, developing palliative care and adjusting the supply of qualified health care workers;
- assessing health technology, pharmaceuticals and therapeutical standards, promoting life-long learning, streamlining the co-ordination of administrations and stakeholders in the field of health, determining rights of patients and raising awareness of gender specific needs in prevention and health policy;
- promoting prevention strategies for all age groups, improving co-ordination of health care providers, introducing incentives to reward cost-saving behaviour and developing mechanisms to cope with the financial challenges of an ageing society.

In a first phase the 25 Member States should present reports on national challenges until 2005. In a second phase the Commission assisted the Member States in defining development and reform strategies for the years 2006 to 2009. A first evaluation was presented in the framework of the report on social protection and social inclusion in 2007. In that process the OMC was assessed as effective mechanism and reinforced thereafter (8). The relevant body for the OMC process is the Social Protection Committee (SPC), which is composed of Member States and European Commission representatives.

There is apparent need for measurable standards and indicators at the same time. Hence, extensive discussions on methods and fields of indicator development are part of that process. However, international comparisons in the field of health are a very sensitive issue, all the more as EU indicators are going to be even more binding for EU Member States than existing indicators published by OECD or WHO. It took more than 20 years since the treaty of Amsterdam that EU-wide agreed indicators are now becoming part of national monitoring systems (9).

Perspectives of EU health policy and international cooperation

Despite the limits set by Article 168, the importance of the European Union in the field of health has increased. As health threats are becoming more complex and internationally linked, the need for strong international action becomes greater. Not only in certain fields but also in international processes and negotiations the European Union has taken an outstanding role. From 1999 to 2003, for the first time in EU's public health history, the European Commission took the lead in the international negotiations for the WHO Framework Convention on Tobacco Control (FCTC) for those parts, for which the Member States had transferred competence to the European Commission. In order to specify the FCTC provisions for the EU Member States, the regulatory substance has been complemented by two directives on the manufacture, sale and advertisement of tobacco products in 2001 and 2003. The European Commission had the same mandate during the negotiations for the revision of the International Health Regulations (IHR) in 2004 and 2005. However, here the competences were less. Now since 2011, again in order to specify further the capacity building, coordination and reporting mechanisms for EU Member States, a proposal of the European Commission on serious cross-border threats to health is being negotiated. These two examples show both, the stronger role of EU's public health policy on the global level and its stronger national impact in EU Member States.

To achieve international goals, the European Commission is cooperating with both WHO Headquarters in Geneva and the Regional Office for Europe in Copenhagen. Joint strategies in the field of non-communicable diseases, health security, health information, research and health, and environment and health are in the main focus and discussed in regular management meetings.

Also for many years, the European Union is collaborating with the Council of Europe, especially in the fields of: equity in health, health information, the impact of information technologies on health care, the media and health, health promotion, quality and safety of organs and substances of human origin, blood and blood derivatives and drug dependence. A very famous example of this collaboration is the European Network of Health Promoting Schools.

Similar agreements have been made with the OECD in the field of health monitoring and health data collection, since the EU has the unique status of a full participant under the founding convention of the OECD.

Conclusions

Compared to other policies, health as topic is climbing up in the priority agenda of the European Union, but still with limited regulatory and financial power. The largest items of the EU budget remain the Common Agricultural Policy (CAP) and structural funds. Remarkably, the European Commission's health services are located in Luxembourg away from the more powerful services in Brussels. Policy instruments such as mainstreaming public health into other sectors and impact assessment requirements – despite their limitations – help administratively to strengthen the standing of public health within the Commission services (10).

As the health sector generally grows in importance, both because of its own economic power and because of emerging topics such as health security and cross-border health threats, the need to for coherent developments and the interest to link to its dynamics is growing, too. However, in all this the EU Member States are still very sensitive when it comes to their competencies. Therefore, some experts regard the current legal basis as being too weak from a health perspective and as economy driven. They are also pointing out that there is ongoing lack of social aspects and ethical values in European Commission's health strategies (4).

And similar for the OMC, although it helps European health and social strategies to gain attention within the European Commission and in relation to the economically powerful national health systems, some see the OMC also as economy driven and influenced by commercial powers within the Commission as it allows extensive control in the future (11).

Others are more optimistic and regard these developments as being in time and appropriate (12). They also expect great gains from more co-ordination (13). As European health policy is continuing to be organised according to the principle of subsidiarity, it increasingly can discover gaps, which can't be filled through national activities (14). And although health policy development at the EU level is facing the same challenges in between different political interests as on the national level, it is less influenced by legislature periods and serves as catalyst in the variety of national public health priorities. The example of the tobacco advertising directive shows that not even the limited legislative power in the field of public health can stop this function, if provisions in other fields of the EU treaty are being used to justify legislative action on the EU level (15).

The need for public health strategies in the EU can't be denied. It will even increase, not only in the course of enlargement, but generally in all Member States. Increasing differences in health status and life expectancy between European countries and between population groups within countries can't be neglected. And regarding the fact that the countries with the most expensive systems are not necessarily the ones with good health status of the populations they are made for, call not only for further analysis, but for action other than cure. The soft law which is going to be created through OMC is going to play an important role. Soft law in that

context can be built out of recommendations and unsolicited agreements which are formally non-binding, but create an international and diplomatic pressure to be applied. And to a certain extent Member States are also willing to support this process, as issues such as “trade in services” or “patient mobility” can’t be solved on a national level.

The development of EU health strategies will always be debated as it interferes with national health strategies and touches national sovereignty. But with or without a strong EU health policy, research funding and health programmes, and regardless of the broadness of the legal mandate for the European Commission, the impact on EU policies in general on the health sector will be tremendous, of course not always for the benefit of health (16).

Probably it’s better for the Member States to face this reality and join forces on the EU level to define and defend their public health interest. Alongside European integration processes concerning trade and internal market affairs, health needs strong mechanisms as well. It will be a challenge for present and future Member States to draw attention to the specific needs of their regions and to uphold their social values versus economic gains. The European Commission in turn can contribute with its core competence and support the Member States in the areas of research, creating competence and strengthening regions. The interregional networking of research institutes which is required in any of EU’s grant application procedure bears great potential in itself for developing public health ideas bottom-up and debating values and principles. By doing so, regions, especially in the light of globalisation, keep their important role.

Exercise

Search for or order the Public Health Programme of the European Commission and discuss opportunities for your country/region in small groups.

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Internet Links

1. Community Research and Development Information Service: <http://www.cordis.lu>
2. Enlargement: <http://ec.europa.eu/enlargement/>
3. EU Health Portal: <http://www.health.europa.eu>
4. European Centre for Disease Prevention and Control: <https://www.ecdc.europa.eu>
5. European Commission - Directorate General Health & Consumers: <http://www.ec.europa.eu/health>
6. European Monitoring Centre for Drugs and Drug Addiction: <http://www.emcdda.europa.eu>
7. EUROSTAT: <http://europa.eu.int/eurostat.html>
8. Framework Programme for Research and Development: <http://europa.eu.int/comm/research>
9. Regional Policy: http://ec.europa.eu/regional_policy/index_en.cfm

Recommended readings

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title:	Food and human health
Module: 1.18	ECTS (suggested): 0.25
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Keywords	Diet, dietary value references, food, food based dietary guidelines, nutrients, nutrition.
Learning objectives	At the end of the module, students should be able to: <ul style="list-style-type: none"> • Distinguish between “food”, “nutrition” and “public health nutrition”; • Describe the factors which drive food choices; • Discuss why nutrition is important to health; • Identify the six classes of nutrients in foods and their respective roles; • Describe the contribution of nutrition to both a long and healthy life; • Describe five characteristics of a nutritious diet; • Define Dietary Reference Values for fats, carbohydrates, fibre, water and energy; • Describe FBDG according to WHO; • Describe “Twelve steps to healthy eating”, by CINDI.
Abstract	<p>Food refers to the plants and animals we consume. Nutrition is the scientific study of food and how food nourishes the body and influences health. “Public health nutrition,” refers to the population-focused branch of public health that monitors diet, nutrition status and health, and food and nutrition programs, and provides a leadership role in applying public health principles to activities that lead to health promotion and disease prevention through policy development and environmental changes.</p> <p>Nutrition is an important component of wellness and is strongly associated with physical activity. Poor nutrition can lead to reduced immunity, increased susceptibility to disease, impaired physical and mental development, and reduced productivity. An unhealthy diet combined with physical inactivity increase the risk for NCD enormously. Good nutrition – an adequate, well balanced diet combined with regular physical activity – is a cornerstone of good health.</p> <p>Malnutrition occurs when a person’s nutritional status is out of balance. Undernutrition occurs when someone consumes too little energy or nutrients, and overnutrition occurs when too much energy or too much of a given nutrient is consumed over time.</p> <p>The Dietary Reference Values are a set of standards that define the amounts of energy, nutrients, other dietary components, and physical activity that best support health. Energy requirement is the amount of food energy needed to balance energy expenditure in order to maintain body mass, body composition, and a level of physical activity consistent with long-term good health.</p> <p>Food-based dietary guidelines are science-based recommendations for healthy eating, which translate nutritional recommendations into messages about foods, aimed at the general public. WHO and FAO periodically undertake a revision of at least the major nutrient requirements and recommended intakes. Upon request from the European Commission, the European Food Safety Authority provides guidance on intakes of fats, carbohydrates, protein, fibre, vitamins, minerals and water considering the new evidence. FBDG are not only a tool for communication and education, but are rather part of an integrated strategy to improve nutrition and health.</p>
Teaching methods	<ol style="list-style-type: none"> 1. Introductory lectures: <ul style="list-style-type: none"> • Overview of food, nutrition and public health; • Macronutrients and micronutrients; • Food-based Dietary Guidelines. 2. Case Studies: <ul style="list-style-type: none"> • FBDG in SEE vis-à-vis EU Countries; • Energy intake in Europe and SEE Countries.
Specific recommendations for teachers	<ul style="list-style-type: none"> • This module should be assigned 0.25 ECTS.
Assessment of Students	<ul style="list-style-type: none"> • Take-home assignment: Case study – current situation regarding the development and implementation of FBDG in students’ own countries.

Food and human health

Jolanda Hyska, Genc Burazeri, Ehadu Mersini, Gentiana Qirjako

Many people think that food and nutrition mean the same thing, but they do not (1).

Food refers to the plants and animals we consume, and most foods are complex mixtures of different components.

These foods contain the energy and nutrients our bodies need to maintain life and support growth and health. Nutrition, in contrast, is a science. Specifically, it is the science that studies food and how food nourishes our bodies and influences our health. It identifies the processes by which we consume, digest, metabolize, and store the nutrients in foods, and how these nutrients affect our bodies.

Nutrition is an important component of wellness and is strongly associated with physical activity. Nutrition also involves studying the factors that influence our eating patterns, making recommendations about the amount we should eat of each type of food, maintaining food safety, and addressing issues related to the global food supply. Because nutrition science is an active, changing, growing body of knowledge, scientific findings often seem to contradict one another or are subject to conflicting interpretations.

Although the phrases “nutrition in public health,” “nutrition and public health,” and “public health nutrition” sound as if they are synonymous, differences exist among these phrases (2). On the one hand, “nutrition and public health” suggests the coexistence of the fields of nutrition and public health. On the other hand, “nutrition in public health” refers to the discipline of nutrition that functions as a branch of the vast field of public health.

“Public Health Nutrition,” refers to the population-focused branch of public health that monitors diet, nutrition status and health, and food and nutrition programs, and provides a leadership role in applying public health principles to activities that lead to health promotion and disease prevention through policy development and environmental changes.

Food choices and human health

Most people realize that their food habits affect their health, but they often choose foods for other reasons. After all, foods bring to the table a variety of pleasures, traditions, and associations as well as nourishment. The challenge, then, is to combine favorite foods and fun times with a nutritionally balanced diet (3). A person selects foods for a variety of reasons. Cultural traditions and social values revolve around food and often find expression through foodways. Many factors other than nutrition drive food choices (4). Physical, psychological, social, and philosophical factors (5) all influence how people choose the foods they generally eat. These include: advertising, availability, cost, emotional comfort, habit, personal preference and genetic inheritance, positive or negative associations, region of the country, social pressure, values or beliefs, weight, nutrition and health benefits.

Just the last two of these reasons for choosing foods assign a high priority to nutritional health. Whatever those reasons may be, food choices influence health. For this reason, people are wise to think “nutrition” when making their food choices.

Foods provide nutrients—substances that support the growth, maintenance, and repair of the body's tissues. Our bodies need about 40 different nutrients to maintain health (6).

The six classes of nutrients include: Carbohydrates · Lipids (fats) · Proteins · Vitamins · Minerals · Water (3). Foods rich in the energy-yielding nutrients (carbohydrates, fats, and proteins) provide the major materials for building the body's tissues and yield energy for the body's use or storage (5). Vitamins, minerals, and water facilitate a variety of activities in the body. Energy-yielding nutrients are also called macronutrients because they are needed in relatively large amounts in the diet. Vitamins and minerals are known as micronutrients because they are needed in only tiny amounts.

Carbohydrates are the primary source of fuel for the human body, particularly for neurologic functioning and physical exercise (1).

Lipids provide energy and other essential nutrients.

Proteins play a major role in building new cells and tissues, maintaining the structure and strength of bone, repairing damaged structures, and assisting in regulating metabolism and fluid balance. Although proteins can provide energy, they are not usually a primary energy source.

Alcohol is found in certain beverages and foods, and it provides energy—but it is not considered a nutrient. This is because it does not support the regulation of body functions or the building or repairing of tissues. In fact, alcohol is considered to be both a drug and a toxin.

Vitamins assist in the regulation of the body's physiologic processes. They do play an important role in the release and utilization of the energy found in carbohydrates, lipids, and proteins. They are also critical in building and maintaining healthy bone, blood, and muscle; supporting our immune system so we can fight illness and disease; and ensuring healthy vision.

Minerals have many important physiologic functions. They assist in fluid regulation and energy production, are essential to the health of our bones and blood, and help rid the body of harmful by-products of metabolism.

Water supports all body functions. Water is an inorganic nutrient that is vital for our survival. Adequate water intake ensures the proper balance of fluid both inside and outside of our cells and also assists in the regulation of nerve impulses and body temperature, muscle contractions, nutrient transport, and excretion of waste products.

The **Acceptable Macronutrient Distribution Ranges (AMDR)** are ranges of intakes for a particular energy source that is associated with reduced risk of chronic disease while providing adequate intakes of essential nutrients (7).

The AMDR is expressed as a percentage of total energy or as a percentage of total kcal. The AMDR also has a lower and upper boundary; if we consume nutrients above or below this range, there is a potential for increasing our risk for poor health (1).

Requirements for nutrients differ at different ages and stages; for example, during rapid adolescent growth and during pregnancy, people need extra protein and minerals (8).

Health, consequently, is related to an optimum supply of both macronutrients and micronutrients. Insufficient or excess intake of either can lead to problems. In the world today, the main nutritional issues are primarily related to excess intake of macronutrients or insufficient intake of micronutrients.

A primary nutrient deficiency occurs when a person does not consume enough of a given nutrient in the diet. A secondary nutrient deficiency occurs when a person cannot absorb enough of a nutrient, when too much of a nutrient is excreted, or when a nutrient is not efficiently utilized.

The contribution of nutrition to a long and healthy life

People are living longer than ever before. The average life expectancy in the mid 19th century was 40 years, today it is almost 80. Worldwide, the average life expectancy at birth was 67.88 years (65.71 years for males and 70.14 years for females) (9). Along with better hygiene and the advancement of medical care, there is no doubt that dramatic improvements in the availability, quality and safety of the food supply have contributed to this remarkable progress. But living longer can become a burden if the years gained are spent in sickness rather than in health.

Diet has always played a vital role in supporting health. Early nutrition research focused on identifying the nutrients in foods that would prevent such common diseases as rickets and scurvy, the vitamin D- and vitamin C-deficiency diseases. With this knowledge, developed countries have successfully defended against nutrient deficiency diseases. World hunger and nutrient deficiency diseases still pose a major health threat in developing countries, however, but not because of a lack of nutrition knowledge. More recently, nutrition research has focused on chronic diseases associated with energy and nutrient excesses. Once thought to be "rich countries' problems," chronic diseases have now become epidemic in developing countries (10).

Eating a balanced diet is vital for good health and wellbeing. We need a wide variety of different foods to provide the right amounts of nutrients for good health. Enjoyment of a healthy diet can also be one of the great cultural pleasures of life.

Eating well is easy in theory (5). In practice, eating well proves harder than it appears. Many people are overweight, or undernourished, or suffer from nutrient excesses or deficiencies that impair their health—that is, they are malnourished.

Poor nutrition can lead to reduced immunity, increased susceptibility to disease, impaired physical and mental development, and reduced productivity. Good nutrition – an adequate, well balanced diet combined with regular physical activity – is a cornerstone of good health.

A healthy diet is adequate in nutrients, is balanced with regard to food types, offers food energy that matches energy expended in activity, is moderate in unwanted constituents, and offers a variety of nutritious foods (11).

A nutritious diet has five characteristics (5):

adequacy: the foods provide enough of each essential nutrient, fiber, and energy;

balance: the choices do not overemphasize one nutrient or food type at the expense of another;

calorie control: the foods provide the amount of energy you need to maintain appropriate weight—not more, not less;

moderation: the foods do not provide excess fat, salt, sugar, or other unwanted constituents;

variety: the foods chosen differ from one day to the next. In addition, to maintain a steady supply of nutrients, meals should occur with regular timing throughout the day.

Using Nutrient Recommendations

Scientists learn about nutrition by conducting experiments that follow the protocol of scientific research. The steps in the scientific method are (i) observing a phenomenon, (ii) creating a hypothesis, (iii) designing and conducting an experiment, and (iv) collecting and analyzing data that support or refute the hypothesis. Their findings must be reviewed and replicated by other scientists before being accepted as valid (1). Using the results of thousands of research studies, nutrition experts have produced a set of standards that define the amounts of energy, nutrients, other dietary components, and physical activity that best support health. These recommendations are called Dietary Reference Values (DRVs).

Given that in recent decades it has become clear that the nutrient makeup of the diet has a profound impact on the development of chronic diseases like cancer, diabetes, osteoporosis and heart disease, and therefore on long-term health, DRVs now include recommendations on intakes for nutrients like carbohydrates, fibre and fats.

Establishing requirements means that the public health and clinical significance of intake levels – both deficiency and excess – and associated disease patterns for each nutrient need to be thoroughly reviewed for all age groups (12). WHO in collaboration with FAO, continually reviews new research and information from around the world on human nutrient requirements and recommended nutrient intake. This is a vast and never-ending task, given the large number of essential human nutrients.

Every ten to fifteen years WHO and FAO undertake a revision of at least the major nutrient requirements and recommended intakes. Many countries rely on WHO and FAO to establish and disseminate this information, which they adopt as part of their national dietary allowances. Others use it as a base for their standards. The establishment of human nutrient requirements is the common foundation for all countries to develop food-based dietary guidelines for their populations.

Upon request from the European Commission, the European Food Safety Authority (EFSA) provides guidance on intakes of fats, carbohydrates, protein, fibre, vitamins, minerals and water considering the new evidence.

These dietary reference values establish optimum intakes of nutrients in a balanced diet which when part of an overall healthy lifestyle, contribute to good health. EFSA is currently updating the dietary reference values (DRVs) published in 1993 (13). After extensive consultation with Member States, the scientific community and other stakeholders, DRVs for fats, carbohydrates, dietary fibre, water and energy have been published (14). Those for protein, vitamins and minerals are still in the pipeline.

Panel conclusions are summarized below:

- The intake of **total carbohydrates** (15) - including carbohydrates from starchy foods such as potatoes and pasta, and from simple carbohydrates such as sugars - should range from 45 to 60% of the total energy intake for both adults and children.
- No specific intake or upper limit for intake of total sugars or added sugars is set as available evidence was found insufficient to link high sugar intakes with weight gain, micronutrient deficiencies or tooth decay. Appropriate oral hygiene measures with fluoridated toothpaste contribute to caries prevention.
- A daily intake of 25 grams of **dietary fibre** (15) is adequate for normal bowel function in adults. In addition evidence in adults shows there are health benefits associated with higher intakes of dietary fibre (e.g. reduced risk of heart disease, type 2 diabetes and weight maintenance).
- Evidence is still inconclusive on the role of the glycemic index and glycemic¹⁵ load in maintaining weight and preventing diet-related diseases.
- Intakes of **fats** (15) should range between 20 to 35% of the total energy intake, with different values given for infants and young children taking into account their specific developmental needs.
- There is good evidence that higher intakes of **saturated fats** and **trans fats** (15) lead to increased blood cholesterol levels which may contribute to development of heart disease. Limiting the intake of saturated and trans fats, with replacement by mono- and poly-unsaturated fatty acids, should be considered by policy makers when making nutrient recommendations and developing food-based dietary guidelines at national level.
- A daily intake of 250 mg of **long-chain omega-3 fatty acids** (15) for adults may reduce the risk of heart disease.
- For water a daily intake of 2.0 litres is considered adequate for women and 2.5 litres for men (15).

Energy requirement is the amount of food energy needed to balance energy expenditure in order to maintain body mass, body composition, and a level of physical activity consistent with long-term good health. This includes the energy needed for the optimal growth and development of children, for the deposition of

tissues during pregnancy, and for the secretion of milk during lactation, consistent with the good health of both mother and child (16).

DRVs for energy are not specified as defined amounts of a single nutrient but are expressed in units of energy (17). DRVs for energy differ from those for nutrients in that (a) there is a wide inter-individual variation in the behavioural, physiological and metabolic components of energy needs, and the energy requirement of a defined group cannot be applied to other groups or individuals who differ from the defined group in sex, age, body mass, activity level and possibly other factors; and (b) there are differences between the energy supply needed to maintain current body mass and level of actual physical activity and the energy supply needed to maintain desirable body mass and a level of physical activity consistent with good health.

The DRVs for food energy provide a best estimate of the food energy needs of population groups within Europe, and present criteria against which to judge the adequacy of their food energy intakes. They constitute the basis for policy-makers and authorities to make recommendations for populations which can be used for the development and monitoring of nutrition programmes, and for planning agricultural production, food supplies and, if required, the mobilisation and distribution of emergency food aid.

Following a request from the European Commission, the Panel on Dietetic Products, Nutrition and Allergies (NDA) derived dietary reference values for energy, which are provided as average requirements (ARs) of specified age and sex groups (17). For children and adults, total energy expenditure (TEE) was determined factorially from estimates of resting energy expenditure (REE) plus the energy needed for various levels of physical activity (PAL) associated with sustainable lifestyles in healthy individuals. To account for uncertainties inherent in the prediction of energy expenditure, ranges of the AR for energy were calculated with several equations for predicting REE in children (1-17 years) and adults.

Table 1: Summary of Average Requirement (AR) for energy for adults expressed in kcal/day (17)

Age (years)	REE ^(a) (kcal/day)	AR at PAL=1.4 (kcal/day)	AR at PAL=1.6 (kcal/day)	AR at PAL=1.8 (kcal/day)	AR at PAL=2.0 (kcal/day)
Men					
18 - 29	1,674	2,338	2,672	3,006	3,340
30 - 39	1,621	2,264	2,588	2,911	3,235
40 - 49	1,599	2,234	2,553	2,873	3,192
50 - 59	1,578	2,204	2,519	2,834	3,149
60 - 69	1,440	2,017	2,305	2,593	2,882
70 - 79	1,416	1,984	2,267	2,550	2,834
Women					
18 - 29	1,346	1,878	2,147	2,415	2,683
30 - 39	1,296	1,813	2,072	2,331	2,590
40 - 49	1,285	1,798	2,055	2,312	2,569
50 - 59	1,274	1,783	2,037	2,292	2,547
60 - 69	1,164	1,628	1,861	2,093	2,326
70 - 79	1,154	1,614	1,844	2,075	2,305

(a): REE, resting energy expenditure predicted with the equations of Henry (2005) using body mass and height. Because these have overlapping age bands (18-30 years, 30-60 years, ≥60 years)

For infants (7-11 months), the AR was derived from TEE estimated by regression equation based on doubly labelled water (DLW) data, plus the energy needs for growth.

For children, median body masses and heights from the WHO Growth Standards or from harmonised growth curves of children in the EU were used. Energy expenditure for growth was accounted for by a 1 % increase of PAL values for each age group.

For pregnant and lactating women, the additional energy for the deposition of newly formed tissue, and for milk output, was derived from data obtained by the DLW method and from factorial estimates, respectively. For pregnant women, an increase in body mass of 12 kg was considered to be associated with optimal maternal and fetal health outcomes.

The proposed ARs for energy may need to be adapted depending on specific objectives and target populations.

Table 2: Summary of Average Requirement (AR) of energy for infants, expressed in kcal/day (17)

Age	AR (kcal/day)		AR (kcal/kg body mass per day)	
	Boys	Girls	Boys	Girls
7 months	636	573	76	76
8 months	661	599	77	76
9 months	688	625	77	76
10 months	725	656	79	77
11 months	742	673	79	77

Table 3: Summary of Average Requirement (AR) of energy for children and adolescents, expressed in kcal/day (17)

Age (years)	REE ⁽¹⁾ (kcal/day)	AR ⁽²⁾ at PAL ⁽³⁾ =1.4 (kcal/day)	AR ⁽²⁾ at PAL=1.6 (kcal/day)	AR ⁽²⁾ at PAL=1.8 (kcal/day)	AR ⁽²⁾ at PAL=2.0 (kcal/day)
Boys					
1	550	777			
2	727	1,028			
3	830	1,174			
4	888	1,256	1,436	1,615	
5	942	1,332	1,522	1,712	
6	996	1,409	1,610	1,811	
7	1,059	1,497	1,711	1,925	
8	1,126	1,592	1,819	2,046	
9	1,191	1,684	1,925	2,165	
10	1,196		1,930	2,174	2,416
11	1,264		2,043	2,298	2,554
12	1,345		2,174	2,445	2,717
13	1,444		2,333	2,625	2,916
14	1,555		2,513	2,828	3,142
15	1,670		2,699	3,036	3,374
16	1,761		2,845	3,201	3,556
17	1,819		2,940	3,307	3,675
Girls					
1	503	712			
2	669	946			
3	775	1,096			
4	826	1,168	1,335	1,502	
5	877	1,239	1,417	1,594	
6	928	1,312	1,500	1,687	
7	984	1,392	1,591	1,790	
8	1,045	1,477	1,688	1,899	
9	1,107	1,566	1,790	2,013	
10	1,125		1,818	2,046	2,273
11	1,181		1,908	2,146	2,385
12	1,240		2,004	2,255	2,505
13	1,299		2,099	2,361	2,624
14	1,346		2,175	2,447	2,719
15	1,379		2,228	2,507	2,786
16	1,398		2,259	2,542	2,824
17	1,409		2,277	2,562	2,846

(a): REE, resting energy expenditure computed with the predictive equations of Henry (2005) using median heights and body masses from the WHO Growth Standards (WHO Multicentre Growth Reference Study Group, 2006) (for children aged 1-2 years) or from harmonised growth curves of children in the EU (van Buuren et al., 2012) (for children aged 3-17 years).

(b): Taking into account a coefficient of 1.01 for growth.

(c): PAL, physical activity level.

Table 4: Summary of Average Requirement (AR) of energy for pregnant and lactating women (in addition to the AR for non-pregnant women), expressed in kcal/day (17)

	AR (kcal/day)
Pregnant women	
1 st trimester	+70
2 nd trimester	+260
3 rd trimester	+500
Lactating women	+500
0-6 months <i>post partum</i>	

Food-Based Dietary Guidelines

While nutrition education has always been important in public health, the need to inform and educate the public has become crucial as the world is rapidly changing. Different foods are entering local markets and lifestyles are changing, factors which lead to new dietary patterns. While these changes can provide opportunities to improve nutrition, they can also present risk. Guidance is necessary to ensure that health is protected and diseases are prevented.

Countries face a number of nutrition challenges. There are still millions of people who are chronically hungry. Billions of people do not get all vitamins and minerals they need. Obesity and related diseases as diabetes and coronary diseases are becoming serious burdens in the developing world. FBDG are a tool for communication and education to create demand for healthy diets and desirable eating patterns leading nutritional well-being and prevention of diet related diseases.

FBDG are described by the WHO as “the expression of the principles of nutrition education mostly as foods” (18). FBDG are science-based recommendations for healthy eating. They translate nutritional recommendations into messages about foods. They give an indication of what a person should be eating in terms of foods rather than nutrients, and provide a basic framework to use when planning meals or daily menus. Based on this principle, FBDG aim to improve the way people eat, which in turn will improve prevailing diet-related public health problems as a whole. They recognise that a healthy diet is more than just nutrient requirements and recommended intake levels. Other elements taken into account in FBDG are the enjoyment of meals, the social and cultural aspects of eating as well as the importance of having a varied diet.

Reasons for developing and using FBDG, in addition to the development of dietary reference values for nutrients, include (19):

- Foods make up diets;
- Nutrients interact differently, depending on the food matrix;
- Methods of food processing, preparation and cooking influence the nutritional value of foods;
- Specific dietary patterns are associated with reduced risk of specific diseases;
- Some food components may have beneficial biological functions;
- Foods and diets have cultural, ethnic, social and family aspects that individual nutrients themselves do not have.

The development (19) of food-based dietary guidelines may be carried out using a stepwise approach:

- Identification of diet-health relationships
- Identification of country’s specific diet-related health problems
- Identification of nutrients of public health importance
- Identification of foods relevant for food-based dietary guidelines
- Identification of food consumption patterns
- Recommendations for FBDG should be made taking into account specific needs of population groups;
- Testing and optimising food-based dietary guidelines
- Graphical representations of food-based dietary

The development and implementation of FBDG is a comprehensive process involving multiple stakeholders. This process leads to information and dietary advice for the public, which should be easy to understand, remember and use.

Following the 1992 International Nutrition Conference, the World Health Organization (WHO) and the Food and Agriculture Organization of the United Nations (FAO), embarked on several activities to promote the

development of dietary guidelines for the public. In 2005, WHO reported that 33 European countries (75 in the world) had developed FBDG (20). To be effective FBDG should be well-suited to a country's environment and social, economic and cultural context.

FBDG are not only a tool for communication and education, but are rather part of an integrated strategy to improve nutrition and health (21). Food-based dietary guidelines should be integrated into other policies that have an impact on food availability within the population and also fit with other public health messages. Therefore, it is recommended to include into food-based dietary guidelines encouragement of daily physical activity and maintenance of a healthy body weight and, if suitable, also other lifestyle and health-related messages.

If a country has no national food-based dietary guidelines, it can adapt and/or utilise existing foodbased dietary guidelines from neighbouring or similar countries that have already produced food-based dietary guidelines. The use of the CINDI (Countrywide Integrated Non-communicable Disease Intervention Project) dietary guide (22) might be also an interim alternative (20). The CINDI dietary guide highlights 12 key areas for action:

Table 5: Twelve steps to healthy eating (22)

1. Eat a nutritious diet based on a variety of foods originating mainly from plants, rather than animals.
2. Eat bread, grains, pasta, rice or potatoes several times a day.
3. Eat a variety of vegetables and fruits, preferably fresh and local, several times per day (at least 400g per day).
4. Maintain a body weight between the recommended limits (a BMI9 of 20-25) by taking moderate levels of physical activity, preferably daily.
5. Control fat intake (not more than 30% of daily energy) and replace most saturated fats with unsaturated vegetable oils or soft margarines.
6. Replace fatty meat and meat products with beans, legumes, lentils, fish, poultry or lean meat.
7. Use milk and dairy products (kefir, sour milk, yoghurt and cheese) that are low in both fat and salt.
8. Select foods that are low in sugar, and eat refined sugar sparingly, limiting the frequency of sugary drinks and sweets.
9. Choose a low-salt diet. Total salt intake should not be more than one teaspoon (6g) per day, including the salt in bread and processed, cured and preserved foods. (Salt iodisation should be universal where iodine deficiency is endemic.)
10. If alcohol is consumed, limit intake to no more than 2 drinks (each containing 10g of alcohol) per day.
11. Prepare food in a safe and hygienic way. Steam, bake, boil or microwave to help reduce the amount of added fat.
12. Promote exclusive breastfeeding and the introduction of safe and adequate complementary foods from the age of 6 months while breastfeeding continues during the first years of life.

Exercises

Task 1: Calculating Energy Contribution of Carbohydrates, Lipids, and Proteins is an important first step in evaluating the quality of an individual's diet.

Students are asked to determine the percentage of the total energy someone eats that comes from carbohydrates, lipids, or proteins.

Task 2: Students are asked to present energy intake of different group ages in European Countries, and then to compare this data with EFSA- Average Requirement Energy (based on a comprehensive literature review).

Task 3: Students are asked to give information on the availability of FBDG and the principles in setting these FBDG, in SEE Countries, based on experience from countries, which already have developed FBDG.

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title	Healthy nutrition
Module: 1.19	ECTS (suggested): 0.25
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Keywords	Health, nutrition, obesity, prevention.
Learning objectives	After completing this module students and public health professionals should: <ul style="list-style-type: none"> - define healthy nutrition - recognise health food and healthy feeding - understand all about healthy nutrition - improve knowledge in nutrition
Abstract	Many costly and disabling conditions - cardiovascular diseases, cancer, diabetes and chronic respiratory diseases - are linked by common preventable risk factors. Tobacco use, prolonged, unhealthy nutrition, physical inactivity, and excessive alcohol use are major causes and risk factors for these conditions. The ongoing nutritional transition expressed through increased consumption of high fat and high salt food products will contribute to the rising burden of heart disease, stroke, obesity and diabetes. Changes in activity patterns as a consequence of the rise of motorised transport, sedentary leisure time activities such as television watching will lead to physical inactivity in all but the poorest populations. Many diseases can be prevented, yet health care systems do not make the best use of their available resources to support this process. All too often, health care workers fail to seize patient interactions as opportunities to inform patients about health promotion and disease prevention strategies. Nutrition is an input to and foundation for health and development. Interaction of infection and malnutrition is well-documented. Better nutrition means stronger immune systems, less illness and better health. Healthy children learn better. Healthy people are stronger, are more productive and more able to create opportunities to gradually break the cycles of both poverty and hunger in a sustainable way. Better nutrition is a prime entry point to ending poverty and a milestone to achieving better quality of life.
Teaching methods	<ul style="list-style-type: none"> • The introduction lecture relating to basic definitions and concepts. • The guided discussion in small groups. • The distribution of topics for seminar papers to each student. • The presentation and evaluation for seminar paper. • Learning how to measure with specific equipment.
Specific recommendations for teachers	This module could be tailored in accordance with other similar teaching modules depending on the specific context of each training institution.
Assessment of students	Multiple choice questionnaire (MCQ) and seminar paper.

HEALTHY NUTRITION

Gorica Sbutega Milosevic, Jelena Ilic Zivojinovic, Milos Maksimovic

Obesity has become a public health problem in many countries, in developed as well as in developing countries (1). It is estimated that more than 1 billion adults worldwide are overweight, 300 millions of whom are obese. If the current trend continues, this number will increase to 1.5 billion by 2015. Definition and diagnosis of diabetes mellitus and intermediate hyperglycemia (2). Data from Serbia show that almost every second person aged ≥ 20 years had a body mass index (BMI) >25 kg/m², of whom 36.2% were overweight and 18.3% were obese (3).

Due to public health successes, populations are ageing and increasingly, people are living with one or more chronic conditions for decades. This places new, long-term demands on health care systems. Not only are chronic conditions projected to be the leading cause of disability throughout the world by the year 2020; if not successfully prevented and managed, they will become the most expensive problems faced by our health care systems. People with diabetes, for example, generate health care costs that are two to three times those without the condition, and in Latin America the costs of lost production due to diabetes are estimated to be five times the direct health care costs. In this respect, chronic conditions pose a threat to all countries from a health and economic standpoint.

Many costly and disabling conditions - cardiovascular diseases, cancer, diabetes and chronic respiratory diseases - are linked by common preventable risk factors. Tobacco use, prolonged, unhealthy nutrition, physical inactivity, and excessive alcohol use are major causes and risk factors for these conditions. The ongoing nutritional transition expressed through increased consumption of high fat and high salt food products will contribute to the rising burden of heart disease, stroke, obesity and diabetes. Changes in activity patterns as a consequence of the rise of motorised transport, sedentary leisure time activities such as television watching will lead to physical inactivity in all but the poorest populations. Many diseases can be prevented, yet health care systems do not make the best use of their available resources to support this process. All too often, health care workers fail to seize patient interactions as opportunities to inform patients about health promotion and disease prevention strategies (4).

In 1998, WHO recommended clinical guidelines on the identification, evaluation, and treatment of overweight and obesity (5). These guidelines included BMI (Body Mass Index), which is calculated as weight in kilograms divided by the square of height in meters-kg/m². This classification system was divided into 6 categories as follows:

- Underweight <18.5
- Normal weight (18.5-24.9)
- Overweight (25.0-29.9)
- Obese-I class (30.0-34.9)
- Obese-II class (35.0-39.9)
- Obese-III class >40.0

BMI-for-age

BMI is used differently for children. It is calculated the same way as for adults, but then compared to typical values for other children of the same age. Instead of set thresholds for underweight and overweight, then, the BMI percentile allows comparison with children of the same gender and age. A BMI that is less than the 5th percentile is considered underweight and above the 95th percentile is considered overweight. Children with a BMI between the 85th and 95th percentile are considered to be at risk of becoming overweight.

A second anthropometric parameter for diagnosing obesity is waist circumference, which gives data about abdominal obesity.

According to the WHO criteria patients with abdominal obesity defined as those with a WC >102 cm (men) and >88 cm (women) (5).

The health risk increased when the BMI moved to higher group (7). The same in case is with WC where also was notified that people with greater WC have greater risk than patients with normal WC values. Increased visceral fat has been associated with increased plasma triglycerides (TG), decreased high-density lipoprotein (HDL), cholesterol, and increased glucose levels, as well as with type 2 diabetes (8-10). Abdominal obesity is the important risk factor for diagnosed metabolic syndrome (MSy). According to the NCEP ATP III criteria, who proposed diagnostic criteria for metabolic syndrome and cut-off points for its components (abdominal obesity, hypertension, increased level of triglycerides and fasting plasma glucose and low level of HDL) (11).

In 2006, the International Diabetes Federation recommended a new definition of metabolic syndrome – IDF definition, suggested that the abdominal obesity is the most important risk factor with new cut-off value (94 cm in men and 80 cm in women) and in these criteria abdominal obesity is the obligatory risk factor (12).

According to literature data, the frequency of MSy varies from 9% to 34% depending on population and definition which was used in investigation (13-15).

MSy prevalence is higher in patients with cardiovascular disease, and it is higher than 50% (16,17,18). The first National Health Examination Survey covering the period 1960-62, estimated the prevalence of obesity at 13.4% (19). In the United States, more than 64% of adults aged 20 to 74 were overweight or obese according to the NHANES (20). Obesity is associated with conventional cardiovascular risk factors (eg. hypertension, dyslipidemia, and diabetes mellitus) (21) and atherosclerotic disease (22).

Lately, obesity is also associated with so called novel risk factors (inflammatory markers such as high-sensitivity C-reactive protein [hs-CRP] and interleukin-6 [IL-6]) (23). Authors assessed that the CRP, especially high sensitivity CRP, is important for prognosis of risk for cardiovascular disease (24,25).

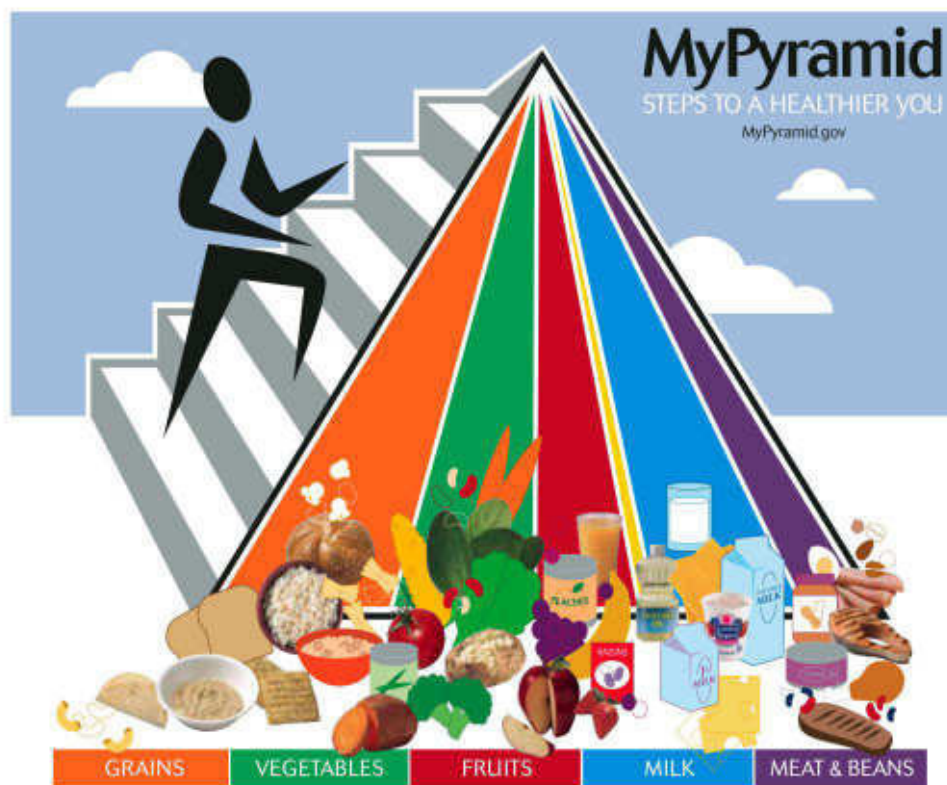
In patients with cardiovascular disease CRP is in correlation with the degree of disease (26).

Obesity is now the second most preventable cause of death in USA (27).

Nutrition is an input to and foundation for health and development. Interaction of infection and malnutrition is well-documented. Better nutrition means stronger immune system, less illness and better health. Healthy children learn better. Healthy people are stronger, are more productive and more able to create opportunities to gradually break the cycles of both poverty and hunger in a sustainable way. Better nutrition is a prime entry point to ending poverty and a milestone to achieving better quality of life (5).

The Food Pyramid, developed by the US Department of Agriculture (USDA), is an excellent tool to help you make healthy food choices. The food pyramid can help you choose from a variety of foods so you get the nutrients you need, and the suggested serving sizes can help you control the amount of calories, fat, saturated fat, cholesterol, sugar or sodium in your diet (28).

Figure 1. The Food Pyramid (source: MyPyramid.gov)



Breads, grains, cereals and pastas

At the base of the food pyramid, there is the group that contains breads, grains, cereals and pastas. These foods provide complex carbohydrates, which are an important source of energy, especially for a low-fat meal plan. You can make many low-fat choices from foods in this group. You will need 6 to 11 servings of these foods in a day.

One serving of this group can be:

- 1 slice of bread

- 1/2 cup of rice, cooked cereal or pasta
- 1 cup of ready-to-eat cereal
- 1 flat tortilla

Try to eat whole-grain breads, cereal and pasta for most of your servings from this group. Whole-grain foods (which are made with whole wheat flour) are less processed and retain more valuable vitamins, minerals and fiber than foods made with white flour.

Fruits and Vegetables

Fruits and vegetables are rich in nutrients. Many are excellent sources of vitamin A, vitamin C, folate or potassium. They are low in fat and sodium and high in fiber. The Food Pyramid suggests 3 to 5 servings of vegetables each day.

One serving of vegetables can be:

- 1 cup of raw leafy vegetables
- 1/2 cup of other vegetables, cooked or raw
- 3/4 cup of vegetable juice

The Food Pyramid suggests 2 to 4 servings of fruit each day. One serving of fruit can be:

- One medium apple, orange or banana
- 1/2 cup of chopped, cooked or canned fruit
- 3/4 cup of fruit juice

Beans, Eggs, Lean Meat and Fish

Meat, poultry and fish supply protein, iron and zinc. Non-meat foods such as dried peas and beans also provide many of these nutrients. The Food Pyramid suggests 2 to 3 servings of cooked meat, fish or poultry. Each serving should be between 2 and 3 ounces. The following foods count as one ounce of meat:

- One egg
- 2 tablespoons of peanut butter
- 1/2 cup cooked dry beans
- 1/3 cup of nuts

Dairy Products

Products made with milk provide protein and vitamins and minerals, especially calcium. The Food Pyramid suggests 2 to 3 servings each day. If you are breastfeeding, pregnant, a teenager or a young adult age 24 or under, try to have 3 servings. Most other people should have 2 servings daily.

Fats and Sweets

A food pyramid's tip is the smallest part, so the fats and sweets in the top of the Food Pyramid should comprise the smallest percentage of your daily diet. The foods at the top of the food pyramid should be eaten sparingly because they provide calories but not much in the way of nutrition. These foods include salad dressings, oils, cream, butter, margarine, sugars, soft drinks, candies and sweet desserts.

Calorie needs

You need to have enough calories every day in order for your body to have the nutrients it needs. How many calories that actually amounts to depends on a variety of factors including:

- Age
- Sex
- Size
- Activity level
- Special Needs such as pregnancy and dieting, or chronic illness

The Dietary Guidelines for Americans are the cornerstone of Federal nutrition policy and nutrition education activities. They are jointly issued and updated every 5 years by the Departments of Agriculture (USDA) and Health and Human Services (HHS).

The Dietary Guidelines provide authoritative advice for people two years and older about how good dietary habits can promote health and reduce risk for major chronic diseases.

The key point is on regular physical activity, and according to the WHO, various population groups have different levels of amounts recommended (WHO).

Components of energy requirements

Basal metabolism: This comprises a series of functions that are essential for life, such as cell function and replacement; the synthesis, secretion and metabolism of enzymes and hormones to transport proteins and other substances and molecules; the maintenance of body temperature; uninterrupted work of cardiac and respiratory muscles; and brain function. The amount of energy used for basal metabolism in a period of time is called the basal metabolic rate (BMR), and is measured under standard conditions that include being awake in the supine position after ten to 12 hours of fasting and eight hours of physical rest, and being in a state of mental relaxation in an ambient environmental temperature that does not elicit heat-generating or heat-dissipating processes. Depending on age and lifestyle, BMR represents 45 to 70 percent of daily total energy expenditure, and it is determined mainly by the individual's age, gender, body size and body composition.

Physical activity: This is the most variable and, after BMR, the second largest component of daily energy expenditure. Humans perform obligatory and discretionary physical activities. Obligatory activities can seldom be avoided within a given setting, and they are imposed on the individual by economic, cultural or societal demands. The term "obligatory" is more comprehensive than the term "occupational" that was used in the 1985 report (WHO, 1985) because, in addition to occupational work, obligatory activities include daily activities such as going to school, tending to the home and family and other demands made on children and adults by their economic, social and cultural environment.

Discretionary activities, although not socially or economically essential, are important for health, well-being and a good quality of life in general. They include the regular practice of physical activity for fitness and health; the performance of optional household tasks that may contribute to family comfort and well-being; and the engagement in individually and socially desirable activities for personal enjoyment, social interaction and community development.

Estimated Average Requirement (EAR): This is an estimate of the average requirement for energy or a nutrient - approximately 50% of a group of people will require less, and 50% will require more. For a group of people receiving adequate amounts, the range of intakes will vary around the EAR. Reference Nutrient Intake (RNI): The RNI is the amount of a nutrient that is enough to ensure that the needs of nearly all the group (97.5%) are being met. By definition, many within the group will need less.

Lower Reference Nutrient Intake (LRNI): The amount of a nutrient that is enough for only the small number of people who have low requirements (2.5%).The majority need more.

Energy requirements

The EARs for energy are based on the present lifestyles and activity levels of the UK population. Although an increase in energy expenditure might have desirable health benefits for many people, the COMA panel did not believe this should be used as an argument for raising the DRVs for energy intake. (If people increase their energy intake without increasing energy expenditure they will become overweight).

Energy requirements are related to age, gender, body size and level of activity. Energy requirements tend to increase up to the age of 15-18 years. On average, boys have slightly higher requirements than girls and this persists throughout adulthood. After the age of about 18 years energy requirements tend to be lower, but this depends on the individual's level of activity. By the age of 50 years, energy requirements are lower still which is partly due to a reduction in the basal metabolic rate (BMR) and to a reduced level of activity.

The EARs for various groups are shown in Table 1.

Table 1. Estimated Average Requirements for Energy

Age	EAR - MJ/day (kcal/day)				Age	EAR - MJ/day (kcal/day)			
	Males		Females			Males		Females	
	(MJ)	(kcal)	(MJ)	(kcal)		(MJ)	(kcal)	(MJ)	(kcal)
0-3 months	2.28	(545)	2.16	(515)	11-14 years	9.27	(2220)	7.72	(1845)
4-6 months	2.89	(690)	2.69	(645)	15-18 years	11.51	(2755)	8.83	(2110)
7-9 months	3.44	(825)	3.20	(765)	19-50 years	10.60	(2550)	8.10	(1940)
10-12 months	3.85	(920)	3.61	(865)	51-59 years	10.60	(2550)	8.00	(1900)
1-3 years	5.15	(1230)	4.86	(1165)	60-64 years	9.93	(2380)	7.99	(1900)
4-6 years	7.16	(1715)	6.46	(1545)	65-74 years	9.71	(2330)	7.96	(1900)
7-10 years	8.24	(1970)	7.28	(1740)	>74 years	8.77	(2100)	7.61	(1810)

The EARs for adults are based on the current lifestyle in the UK which is fairly sedentary. The EARs were calculated by multiplying BMR by a factor – the Physical Activity Level or PAL – which reflects current levels of physical activity.

$$\text{Energy EAR} = \text{BMR} \times \text{Physical Activity Level (PAL)}$$

A factor, or multiple of BMR, of 1.4 reflects the lifestyle of most adults in the UK. This factor is suitable for people who do little physical activity at work or in leisure time. If people are more active, larger factors (PALs) are used. For example a PAL of 1.9 would be appropriate for very active adults.

Special note

The EAR for women who become pregnant increases by 0.8 MJ/day (200 kcal/day) but only in the final three months. Although energy is needed for the growth of the fetus and to enable fat to be deposited in the mother's body, pregnant women can compensate for these extra demands by becoming less active and using energy more efficiently.

Breastfeeding mothers have increased requirements for energy but this will depend on the amount of milk produced, the fat stores that have accumulated during pregnancy and the duration of breastfeeding (29).

Calculation of energy requirements

The total energy expenditure of free-living persons can be measured using the doubly labeled water technique (DLW) or other methods that give comparable results. Among these, individually calibrated heart rate monitoring has been successfully validated. Using these methods, measurements of total energy expenditure over a 24-hour period include the metabolic response to food and the energy cost of tissue synthesis. For adults, this is equivalent to daily energy requirements. Additional energy for deposition in growing tissues is needed to determine energy requirements in infancy, childhood, adolescence and during pregnancy, and for the production and secretion of milk during lactation. It can be estimated from calculations of growth (or weight gain) velocity and the composition of weight gain, and from the average volume and composition of breast milk (30).

Exercises

Task 1: Calculate your Body Mass Index.

Task 2: Calculate your energy necessity.

Task 3: The distribution of topics for seminar papers. Each student should choose one of suggested topics, find and read appropriate paper. After consultations with tutor and corrections, if any, student should prepare Power Point presentation for final discussion. During this session the quality of the paper and presentation will be evaluated and discussed.

Task 4: Proposal for menus in kindergarten.

List of potential topics for seminar papers:

1. Healthy nutrition in pregnancy
2. Healthy nutrition for old people
3. Prevention of obesity in childhood
4. Healthy food – how to choose and prepare
5. Health risk for obesity
6. Health nutrition in community
7. Metabolic syndrome and cardiovascular disease

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title	Unhealthy nutrition and physical inactivity
Module: 1.20	ECTS (suggested): 1.0
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Keywords	Diet, physical inactivity, public health, risk factors.
Learning objectives	After completing this module students and public health professionals should: <ul style="list-style-type: none"> • Be aware of diet the importance of diet as a determinant of non-communicable diseases; • Recognise diet and physical inactivity as risk factors; • Increase knowledge on diet policy; • Understand current public health issues related to diet and physical inactivity
Abstract	<p>The EU Platform for Action on Diet, Physical Activity and Health was presented. Diet has long been recognised as an important determinant of health. Over recent decades advances in epidemiological methods and in the relevant basic sciences have led to the identification of specific links between diet and the risk of important noncommunicable diseases. Many constituents of diet are associated with health risk, but in general, it is their relative proportions that matter.</p> <p>Problems in measuring diet are reviewed in this paper and comparison of the main candidate methods is presented.</p> <p>Magnitude of the problem in countries of South Eastern Europe (SEE) is analyzed.</p> <p>The nutrition policy recommend by WHO is presented,</p> <p>Physical activity is a complex behaviour, which is defined as "bodily movement accomplished by muscle power and energy expenditure".</p> <p>Physical inactivity has been associated with increased risk of coronary heart disease, stroke, elevated blood pressure, and osteoporosis. Physical inactive people are twice as likely to develop cardiovascular diseases as physically active people.</p> <p>European Database on Nutrition, Obesity and Physical Activity (NOPA) that compiles information for the WHO European Region Member States to monitor progress on nutrition, diet, physical activity and obesity is presented. The major strategies to increase the physical activity level in individuals and in the population are demonstrated.</p>
Teaching methods	Lectures, exercises, individual work, interactive methods such as small group discussions, seminars.
Specific recommendations for teachers	Work under teacher supervision – 40%, individual students' work – 60%. Facilities, equipment and training materials: computers, HFA (Health For All) Data Base, WHO, Regional Office for Europe; WHO Comparative Risk Assessment Target audience: lecturers and students in medicine, master and PhD students in public health.
Assessment of Students	Assessment could be based on multiple choice questionnaire (MCQ), structured essay, seminar paper, case problem presentations, oral exam, attitude test etc.

UNHEALTHY NUTRITION AND PHYSICAL INACTIVITY

Lidia Georgieva, Kremena Lazarova, Genc Burazeri

The United Nations General Assembly held a High Level Meeting on the Prevention and Control of Noncommunicable Diseases in 2011 and adopted a Political Declaration. The Declaration argues that a whole-of-society effort to reduce risk factors for noncommunicable diseases is needed and calls upon the United Nations Secretary-General to present “options for strengthening and facilitating multi-sectoral action for the prevention and control of non-communicable diseases through effective partnership” by the end of 2012 (United Nations, 2011).

The EU Platform for Action on Diet, Physical Activity and Health was founded in 2005, and the overall aim is to contain or reverse the trend of increasing overweight and obesity rates in the EU. The Platform operates under the leadership of the European Commission, whose role is to guide a cooperative and action-oriented approach. It is an innovative multistakeholder forum in which members from the business sector and civil society come together to share knowledge and ideas, and discuss their concrete efforts towards healthy nutrition, physical activity and the fight against obesity (European Commission, 2010).

Diet

Description of the problem

Epidemiological studies have demonstrated a relationship between diet and the incidence of certain important noncommunicable diseases. Many constituents of diet are associated with health risk, but in fact, it is their relative proportions that matter. Increased risk has been associated with a high proportion of dietary fat (particularly certain saturated fats), excess energy intake and high salt intake; reduced risk has been associated with a high intake of complex carbohydrates and dietary fiber. The recent discussions concern the possible role of antioxidants such as vitamins A (from B-carotene and retinoids), C and E; and the importance of minerals, such as selenium, iron and calcium. The diet components widely blamed for causing disease are: excess intake of total fat, saturated fats, cholesterol, refined sugar, salt, alcohol and total energy; and insufficient intake of polyunsaturated fats, complex carbohydrates and fiber, vitamins and minerals.

Methodology

Problems in measuring diet

Diet evaluation is an important adjunct to anthropometric, clinic, and biochemical assessment. It provides a description of the dietary background that may serve to explain observed chronic disease prevalence and can suggest appropriate interventions. It is difficult however, accurately to quantify dietary intake in the context of large scale surveys and to infer that dietary patterns obtained by assessment techniques are indicative of long-term dietary habits. The main candidate methods are:

- 24-hour recall;
- A diet diary (for return by mail after the survey);
- Food frequency questionnaire;
- Question dietary practices in selected area;
- Biological markers.

Advantages and disadvantages of each method are given in Table 1.

Dietary data may be analysed and reported as foods (frequency and quantity of consumption) or as nutrients (quantity consumed). Nutrient values may be obtained by chemical analysis or from national standard food tables. The most common method used in large-scale studies is the calculation of intake from standard food tables on the basis of data collected by an interview or from diaries. On the other hand as the food tables are the means of values obtain from chemical analyses, this method is particularly suitable for the processing of information on large number of individuals, especially when time, money and personal are limited. Food tables should be judged according to the nutrients of interest and the goals of the investigation. They should be prepared and supplemented where necessary by chemical analyses of samples of local foods and with data from commercial food processing forms and local recipes. Furthermore chemical analyses are helpful in securing compatibility of data from studies of different populations.

Fruits and vegetables are important components of a healthy diet designed to regulate weight and provide appropriate nutrients for growth and development. Low fruit and vegetable intake is causally linked to incidence of cancer and heart disease (Ness and Powles, 1997; World Cancer Research Fund and American Institute for Cancer Research, 1997).

Health promotion programmes emphasize the importance of eating five or more servings of fruit and vegetables combined a day. Some developed countries collect this information in their national health surveys. Other surveys collect information on presumed average fruit and vegetable intake per capita. Still others find it easier to report 'never eats fruit' or 'never eats vegetable' as categories.

Definitions that designate the part of the population that is not eating enough fruit and vegetable are preferred because they relate directly to the risk category of low fruit and vegetable intake. Such definitions include "less than or equal to five fruit and vegetable servings per day", "never eats vegetables", and "never eats fruit". The WHO STEPs survey instrument collects information on how many servings of fruit and vegetable are eaten on a typical day and uses this information to calculate the proportion of adults who are not eating 5 or more combined servings of fruit and vegetable.

Table 1. The main candidate methods for dietary assessment in population health surveys

	Advantages	Disadvantages	Comments
24 hour recall	Does not reselect foods for inclusion.	Does not characterise the usual diet of individuals (due to day variability) Need to conduct survey on all week days	30-40 min. to administrate + labour intensive + post coding Readily adjusted to South Eastern Europe (SEE) conditions
Diet diary	Does not reselect foods Characterised current diet of individuals.	Needs careful explanation to respondents Substantial proportion of incomplete returns or non-returns	Would need feasibility study for SEE populations
Food frequency questionnaire	Labour efficiency (eliminates post-coding) Can be designed for self-completion	Reselects foods needs to be developed and tested for local populations	Would need considerable developmental work within SEE
Questions dietary practices in selected areas	Can be incorporated in main questionnaires	Needs prior developmental study to establish which practices best predict food and nutrient intakes of interest	
Biological markers	Measurement error may be reduced Objective measures can be compared with literature	Only evidence for limited number of dietary constituents e.g. S. Ferritin, Plasma vit C, Urinary Na, K, Subcutaneous adipose –carotene	Adaptable to SEE conditions

Health risks attributed to dietary factors

Diet is believed to be a major factor in the aetiology of cardiovascular disease (1), but there is still considerable scientific uncertainty about the relationship between specific dietary components and cardiovascular disease risk and epidemiological doubts about the adequacy of the classic diet-heart hypotheses (2).

Increased risk has been associated with high proportion of dietary fat and particularly certain saturated fats, low energy turnover and salt intake. Reduced risk has been associated with a high intake of antioxidants such as vitamin C and E (3). The main uncertainty is not about the presence of protective constituents in plant foods, but about which are most important.

High total fat, particularly saturated fat, and high total energy intake are associated with increased risk of cancer of the breast, colon and rectum, endometrium and ovaries. High salt consumption is implicated in gastric cancer; low intake of dietary fiber is linked to colorectal and breast cancer. A protective effect, however, has been demonstrated for vitamins A, C and E and minerals such as selenium against a number of types of cancer (4).

Obesity is associated with an increased risk of several conditions, including non-insulin-dependent diabetes, high blood pressure, stroke and some types of cancer. The intake of iodine is crucial for the prevention of goitre and other syndromes resulting from deficiencies. Osteoporosis is affected by a low supply of dietary calcium and vitamin D, particularly during growth in adolescence. Finally, the intake of complex carbohydrates in food can prevent constipation and diverticular disease of the bowels.

Public health significance

In public health practice, the percentage of total dietary energy derived from fat is often used as a major indicator of the quality of the diet of a population (5). According to the data regularly published by the Food and Agricultural Organization of the United Nations (FAO), much of the population of Europe lives in countries in which this proportion is too high: over 35%. For the past 20 years, nearly all countries of the European Region have experienced a steady increase in fat intake. Only some southern countries have not exceeded the recommended level. Northern and western countries have reached a level of around 40%, although some have recently reversed their trends. The southern and particularly the central and eastern countries and the former USSR, which started with a lower level of average fat intake, seem to have experienced a rapid increase. Too little fiber, and too much sugar and salt in the diet are common problems in most countries.

A nutrition policy should recommend a healthy diet (6), urging the population:

- to reduce fat consumption to no more than 30% but not less than 15% of total energy intake, by switching from saturated (maximum 10% of total energy) to polyunsaturated fats (maximum 7% of energy), with a ratio of polyunsaturated to saturated fats of 0.45, and reducing cholesterol intake to a maximum of 300 mg per day;
- to increase consumption of complex carbohydrates to a maximum of 70% and a minimum of 50% of total energy intake, and dietary fiber to a maximum of 40 g and a minimum 27 g per day, by adding vegetables and fruit to the diet with a daily average vegetable intake of at least 400 g;
- to reduce sugar consumption to a maximum of 10% of total energy (equivalent to 60 g per day);
- to reduce the consumption of salt to a maximum of 5 g per day;
- to reduce excess alcohol consumption; and to reduce excess weight (7).

Magnitude of the problem in countries of South Eastern Europe (SEE)

The highest average number of calories available per person per day was demonstrated by Romania and Slovenia (close to this in EU average), and the lowest average number of calories available per person per day was shown in Serbia and Montenegro and Moldova – fig. 1 (8). The greatest drop was observed in Bulgaria—from about 3700 kcal in 1988 to about 2600 in 2001.

The highest percent of total energy available from fat was shown in Serbia and Montenegro. Particularly unfavourable is the situation in Bulgaria, where the consumption of calories is very low and over 30% of it is from fat (fig. 2).

The lowest percent of fat consumption for the last 5 years was observed in republic of Moldova - less than 20%.

Average amount of the SEE countries demonstrated a steady tendency of fruit and vegetables available per person per year of around 150-200 kg. Traditionally higher fruit and vegetables availability was observed in TFYR Macedonia. The most favourable tendency of constant increase of fruit and vegetables availability (from 100 to 300 kg) was shown in Albania (fig. 3).

Note that data such as these which are based on food balance sheets are subject to substantial error. However for many countries they provide the only available indication of dietary trends. Data will be more comparable within countries and can therefore provide suggestive evidence on trends within countries.

Figure 1. Average number of calories available per person per day (kcal)
 (Source: HFA Data Base, updated June 2012. WHO, Regional Office for Europe)

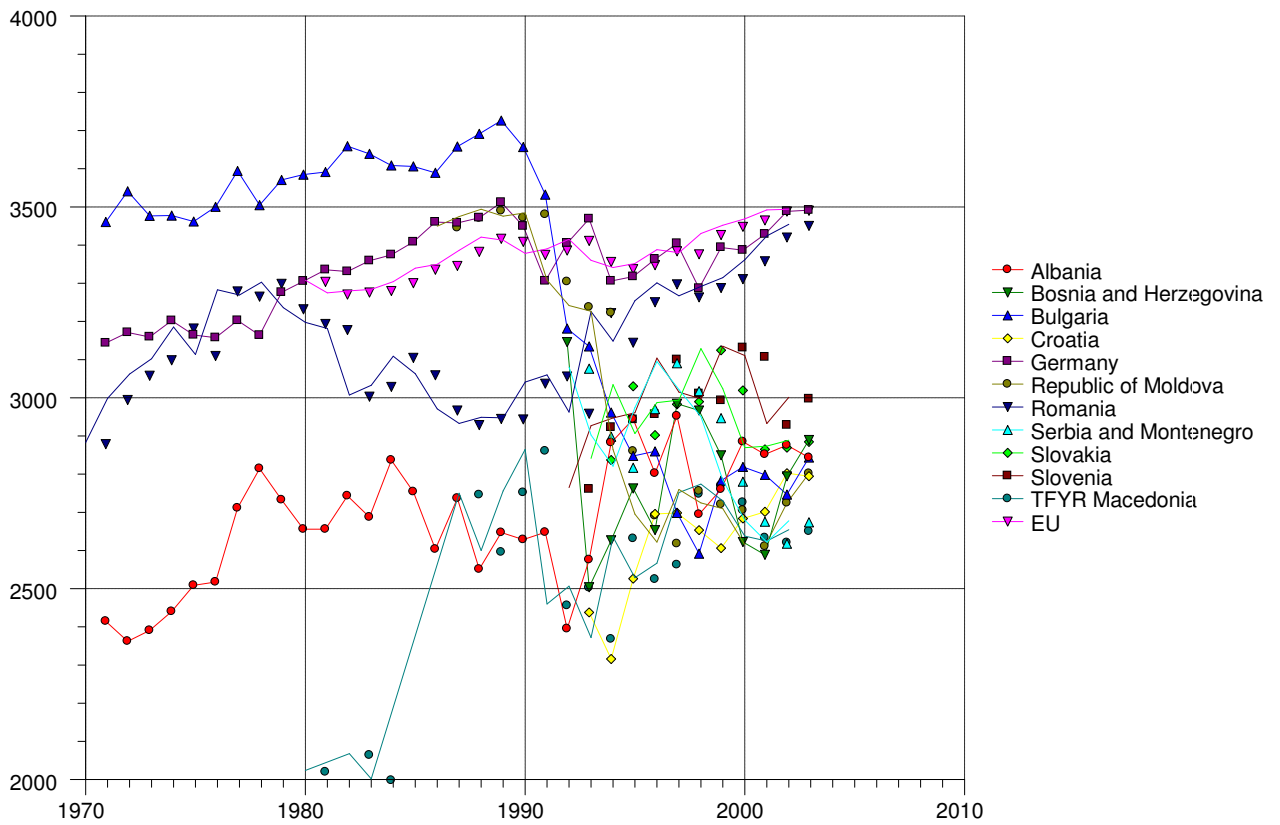
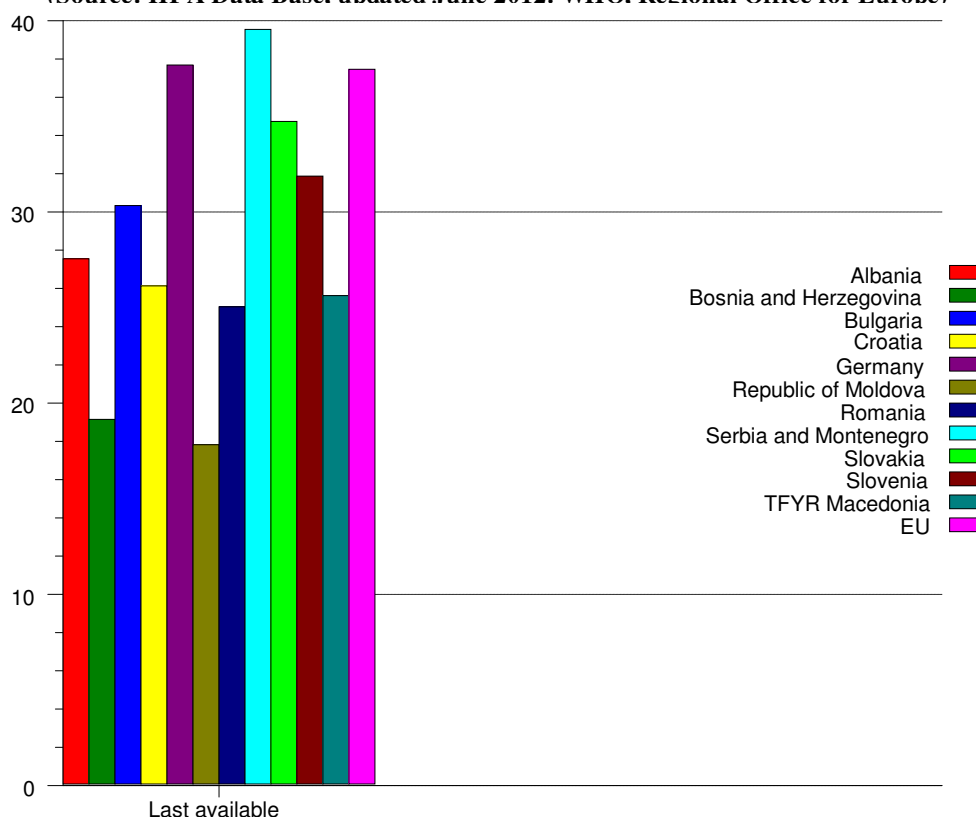


Figure 2. Percent of total energy available from fat
 (Source: HFA Data Base, updated June 2012. WHO. Regional Office for Europe)



The importance of diet for the multi-causal nature of leading chronic diseases

Major vascular diseases, principally ischemic heart disease and stroke are the leading contributors to high rates of premature death and of disease burden in the countries of this region. For these diseases the risks from the contributing causes — high blood pressure, sub-optimal blood cholesterol levels, adiposity, low intakes of fruit and vegetables, low physical activity levels — are believed to combine multiplicatively to determine the overall risk of these diseases. Dietary composition and physical activity levels are believed to be the most important determinants of these diseases.

The application of standard multiplicative models of attributable risk both to individuals and to populations shows that the absolute differences in risk associated with a health determinant depend on the other causes with which it is interacting. For example, cigarette smoking roughly doubles the (non-smoking) risk of heart attack. So the absolute effect of smoking on the risk of heart attack is twice as big, on average, in populations where the risk of heart attack in non-smokers is twice as high. This same logic applies to the dietary causes of vascular disease. Thus the Comparative Risk Assessment component of the Global.

Burden of Disease 2000 estimated that the absolute burden of disease attributable to sub-optimal cholesterol levels (expressed as DALYs lost per 1000 total population) was three times higher in Russia than in Western Europe even though cholesterol levels are not higher in Russia. The implication of this is that where absolute risks are high, the absolute effect of all the causes contributing to that risk will be high and — most importantly — the benefits of lowering these risks will be bigger than in lower risk populations. The practical message of the ‘absolute risk approach’ — for both individuals and populations — is that where risks are higher, more effort needs to be made to lower all amenable risk factors, including dietary risk factors, irrespective of their current level.

The citizens of the states of South East Europe therefore have much more to gain from similar reductions in obesity, in blood pressure or cholesterol levels, or increases in fruit and vegetable intakes and physical activity than the citizens of countries where the risks of premature vascular disease are much lower (7).

The nutrition policy should recommend a healthy diet (WHO) (9), urging the population:

- to reduce fat consumption to no more than 30% but not less than 15% of total energy intake, by switching from saturated (maximum 10% of total energy) to polyunsaturated fats (maximum 7% of

energy), with a ratio of polyunsaturated to saturated fats of 0.45, and reducing cholesterol intake to a maximum of 300 mg per day;

- to increase consumption of complex carbohydrates to a maximum of 70% and a minimum of 50% of total energy intake, and dietary fiber to a maximum of 40 g and a minimum 27 g per day, by adding vegetables and fruit to the diet with a daily average vegetable intake of at least 400 g;
- to reduce sugar consumption to a maximum of 10% of total energy (equivalent to 60 g per day);
- to reduce the consumption of salt to a maximum of 5 g per day;
- to reduce excess alcohol consumption; and to reduce excess weight (10).

In 2006, at the WHO Forum and Technical Meeting in Paris, the following steps in planning and implementing national salt reduction strategies were identified (Penney, 2009; WHO, 2010).

Leadership: strong political leadership by national health ministries, adequate resources and a clear mandate are crucial for the success of population-wide salt reduction strategies. A coordinating group needs to be formed at this stage.

Data collection and measurement: evidence-informed policy-making is only possible if sufficient scientifically recognized data are available and the population's salt intake and eating patterns and the salt content of manufactured food are well known.

National target-setting: WHO recommends a salt intake per person of less than 5 grams per day. Based on the collected data, countries may, however, choose a higher target to begin with.

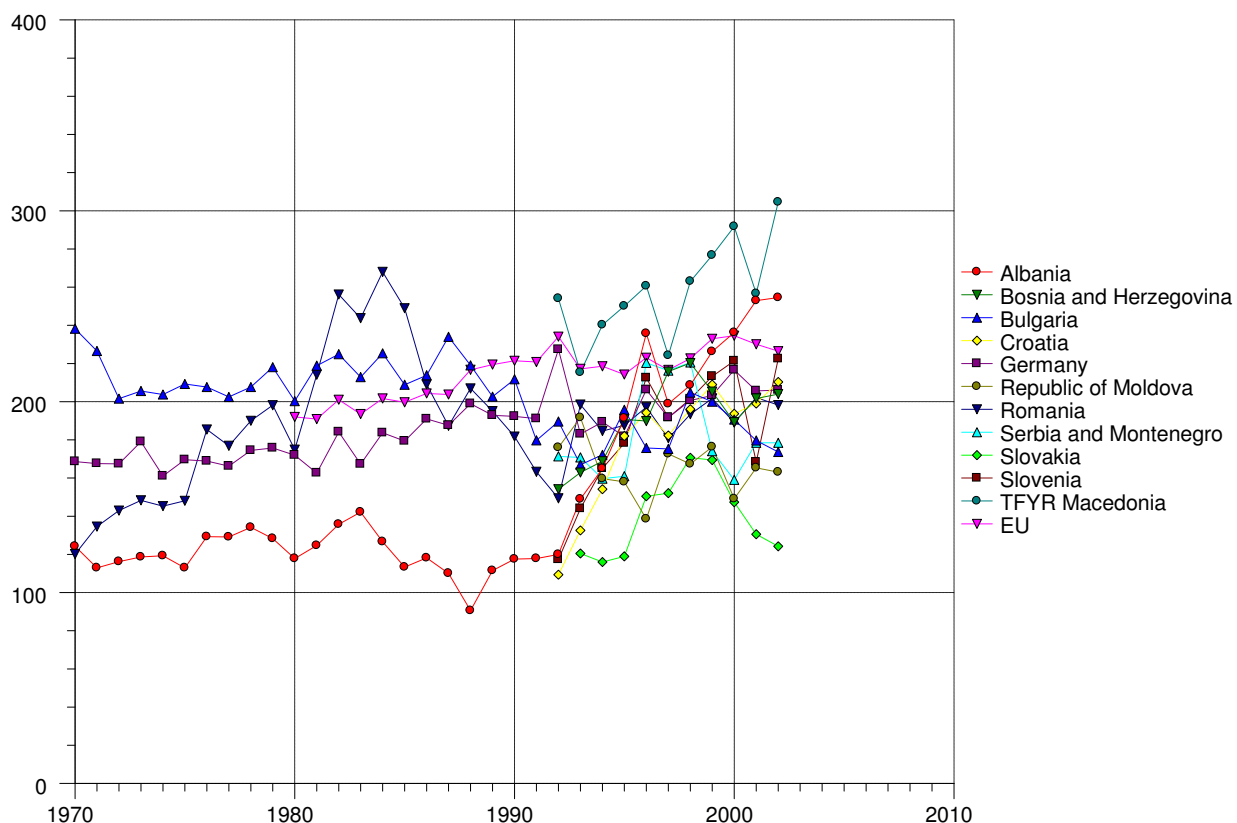
Stakeholder identification and engagement: the coordinating group must identify all relevant stakeholders (food industry, nongovernmental organizations, mass media, academe, government departments etc.) with whom it needs to collaborate and the methods to achieve this.

Consumer awareness campaign and food labelling: a media campaign on the negative effects of high salt consumption as well as clear and easy to understand food labels must inform consumers.

Product reformulation and regulation: agreements with the food industry need to be negotiated. Regulation for the reduction of salt in foods should be introduced gradually.

Monitoring and evaluation: a national surveillance system should measure all efforts and include a review of resources needed to maintain a sustainable and effective strategy.

Figure 3. Average amount of fruit and vegetables available per person per year (in kg)
(Source: HFA Data Base, updated June 2004. WHO, Regional Office for Europe)



Physical activity

Description of the problem

There is clear evidence on the importance of physical activity as a leading factor for good health (Department of Health, 2004; WHO, 2004; WHO, 2008). Physical inactivity is the fourth leading risk factor for mortality in the European Region (just behind, tobacco, high blood pressure and overweight) and the sixth for burden of disease (WHO, 2009).

Physical activity is a complex behaviour, which is defined as "bodily movement accomplished by muscle power and energy expenditure" (9).

Physical inactivity has been associated with an increased risk of coronary heart disease (10,11), stroke, elevated blood pressure, and osteoporosis. Physical inactive people are twice as likely to develop cardiovascular diseases as physically active people.

On the other hand physical activity has a well-documented protective effect. It can reduce the risk of coronary heart disease (12), stroke, lower blood pressure (13), improve the lipoprotein profile, that is, increase the level of HDL and decrease that of LDL (14), improve the balance between energy intake and expenditure and promote weight loss and thus preventing obesity (15), decrease fibrinogen and factor VII activity, increase fibrinolytic activity (16) improve psychological fitness, and coping with stress and fatigue (17). In addition, people in higher fitness categories have lower rates of mortality from all causes.

Physically fit people have a risk of mortality that is up to 25% lower than the risk of mortality of people with low levels of physical activity. The same analyses show that people with moderate levels of physical activity have a 20% lower risk of all-cause mortality compared to inactive people. Analysis by sex show a gender effect with a stronger reduction of all-cause mortality in women compared to men (Löllgen H. et al., 2009).

With few exceptions, mainly in eastern European countries, men tend to be more physically active than women. Significant differences exist also across different socio-economic groups with fairly consistent evidence showing that people at the top of the socio-economic status (with no significant differences between different definitions based on income, occupation, education level or area of residence) are more likely to have higher levels of moderate-vigorous intensity physical activity compared with lower socio-economic groups (Dowler E, 2001 and Gidlow et al., 2006).

At the global level, the presence of physical inactivity is linked to the level of country income (WHO, 2011) with high income countries having double the prevalence of physical inactivity compared to low-income countries.

Methodology

Problems in measuring physical activity

Measuring the levels of activity or inactivity in a population has proved difficult. There is no internationally agreed definition or measure of physical activity. To add to the problem, physical activity exists in multiple domains of a person's life, from main occupation (especially if the job involves physical labour), to means of transport, domestic duties and leisure time.

Physical activity can be broadly divided to activity associated with paid work and other, non-work activity. Non-work or leisure time physical activity is commonly regarded as taking three main forms: sports, games and keep-fit exercises; getting about (walking), cycling, stair-climbing; home activities (18). These areas of physical activity should be covered in the questionnaire. Since physical activity may show considerable variation from week to week, the chances for miss-classifying individuals will be reduced if data are collected over a longer period, but this requirement must be balanced against the increasing problems of accurate recall as the reference period is extended. Development work for the U.K. National Fitness Survey indicated that four weeks was the longest period for which accurate information of the required details could be collected relying on respondents' memories and that this period providing a fairly stable picture of individuals' current activity (19). Physical activity tends to show a great deal of seasonal variation. Studies addressing the lifestyle factors should take this into account and the questionnaires should be modified and standardised accordingly.

The SuRF report of WHO focuses on lack of activity as a risk factor for poor health outcomes, including overweight/obesity and cardiovascular disease. Again, definitions of physical inactivity vary in different country settings. Often high and middle income countries report activity or inactivity in "leisure" time, a concept that may not exist in low income situations. Most available data are for leisure-time activity while little data are available for activity relating to work, transport or domestic tasks.

The WHO STEPS survey instrument measures physical activity/inactivity across three domains of life: work, leisure time and transport. It uses an activity score based on intensity of activity and time spent in activity to calculate the proportion of inactive adults.

Public health significance

Inactive living is very common for modern societies, where intensive mechanization in almost all sectors of the economy has led to a rapid decrease in energy expenditure for most occupations (20,21). Studies have shown that an estimated 70% or more of both men and women in all age groups were below an acceptable minimum level of activity that would confer significant health benefits. Thus, leads to increased risk of coronary heart disease and stroke.

The proportion of people classified as physically active in leisure time correlates with socioeconomic status and level of education. The people with higher socio-economic status and with higher education show a more favorable coronary risk profile overall: a lower prevalence of smoking and obesity, and healthier nutritional patterns. People who do physical work are obviously much less interested in leisure-time physical exercise.

Recently, leisure-time physical activity has gained in popularity. Surveys indicate a significant increase in the adult population that is physically active in leisure time. A maximum of 20% of the population, however, exercises at a level recommended for cardiovascular benefit.

Physical activity policy

There are some steps that being taken to increase the levels of physical activity in the European region. These are actions both at the level of policy and programme delivery (WHO, 2006). There are now a number of European level actions in place, aimed at promoting physical activity by educating communities and individuals about the risks associated with physical inactivity, as well as the health enhancing benefits of practicing physical activity. One of them is the European Database on Nutrition, Obesity and Physical Activity (NOPA), that compiles information for the WHO European Region Member States to monitor progress on nutrition, diet, physical activity and obesity (WHO Europe, 2011).

Some interventions aim at increasing the amount of physical activity in children attending school, mainly by providing additional information on the benefits of increased physical fitness and by providing increased opportunities and time to undertake physical activity. Additional time for physical activity is achieved by increasing both curricula and extra curricula activities.

The major strategies behind the implementation of programmes to increase the physical activity level in individuals and in the population are (9):

- The creation of supportive physical, social and cultural environments for the populations;
- Education of the public through the mass media;
- Direct education and counseling in primary care.

Risk factor reduction attributed to physical activity appears to be proportional to the degree of the individual's exercise intensity and that of exposure to and participation in the programme. So far, only limited information is available on the ability of primary care professionals to influence people's exercise behaviour and long-term compliance. Experience shows, however, that most patients could benefit from encouragement to increase their level of physical activity.

Frequency: Exercises should not be done on consecutive days in order to avoid soreness, fatigue and possible injury.

Duration: For the purpose of cardiovascular endurance, people should exercise for a total of 25-60 minutes.

Intensity: For the general population (average, non-athletic adults), the optimal intensity should be 30-50% VO₂SL during the warm-up and cool-down phases and 60-80% VO₂SL during the overload period (equivalent to 70-90% of the maximal heart rate).

Types: Types of physical exercise to be recommended might include light, moderate or vigorous activities, such as walking (more and more often and briskly), cycling (instead of using the car), climbing stairs (instead of using the lift), gardening, running or jogging, swimming, rowing, skating, cross-country skiing, team sport and dancing. The better this activities fit in with the individual's current lifestyle, the more they are to be recommended.

Primary care professionals should include counseling on physical activity in their practice:

- Discuss physical activity with patients;
- Ask patients about their leisure-time physical activities while taking their histories;
- Identify those who need to change their behavior and encourage them to increase their physical activity;
- Assist patients in developing personal plans for a physical activity programme, and advise them both on choosing the appropriate type and level of physical activity;
- Follow up patients who have been given advice, monitor their compliance with a recommended physical activity programme, and encourage and support those who return to the old pattern of inactivity;
- Refer those who have special health problems for specialist advice (9).

Exercises

Preparing food frequency questionnaire for collecting dietary data and adapted for specific country. Create and analysing tables and figures for number of calories available per person per day, percent of total energy available from fat, average amount of fruits and vegetables available per person per year.

The purpose of the exercise is students to make questionnaires for data collecting, to develop skills to work with HFA (Health for All) Data Base and HFA – MDB (Mortality Data Base): to select parameters, to make figures and tables, to export diagrams to other programs, to analyze data and make comparisons between countries.

Task 1: Prepare food frequency questionnaire for collecting dietary data and adapted for specific country.

The students work in small groups and present and discuss their questionnaires.

Task 2: Compare the number of calories available per person per day among selected European countries.

The students work individually with HFA Data Base, using computers. Several students present their figures and tables and discuss the analyses and the interpretation.

Task 3: Compare the percent of total energy available from fat among selected European countries.

The students work individually with HFA Data Base, using computers. Several students present their figures and tables and discuss the analyses and the interpretation.

Task 4: Compare the average amount of fruits and vegetables available per person per year among selected European countries.

The students work individually with HFA Data Base, using computers. Several students present their figures and tables and discuss the analyses and the interpretation.

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title	Harmful alcohol consumption
Module: 1.21	ECTS (suggested): 1.0
Author(s), degrees, institution(s)	Lidia Georgieva, MD, MPhil, PhD, Associate Professor – Faculty of Public Health, Medical University, Sofia, Bulgaria; Genç Burazeri, MD, MPH – Department of Public Health, Faculty of Medicine, University of Tirana, Albania; Kremena Lazarova – Faculty of Public health, Medical University, Sofia, Bulgaria; Gencho Genchev – Department of Social Medicine and Health Management, Sofia, Bulgaria.
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Keywords	Alcohol consumption, public health, risk factors.
Learning objectives	After completing this module students and public health professionals should: <ul style="list-style-type: none"> • Be aware of harm and benefit of alcohol consumption; • Recognise alcohol as a risk factor; • Increase knowledge on alcohol policy; • Understand public health significance of alcohol consumption; • Improve knowledge of prevention of alcohol consumption.
Abstract	<p>The description of the problem focuses on dose-response relationship between alcohol consumption and a variety of physical effects, psychological and psychiatric disorders, and social damage.</p> <p>Hazardous alcohol consumption is a level of consumption or pattern of drinking that is likely to result in harm if it persists: 350 g (35 units) or more per week for men and 210 g (21 units) or more per week for women. Alcohol consumption is harmful when it damages the psychological or physical wellbeing of the individual.</p> <p>Methodology describes the variety of definitions used for population-based data on alcohol consumption in different countries.</p> <p>Public health significance of alcohol consumption is related to a number of social, demographic, economic and cultural factors.</p> <p>The social, physical and psychological problems related to heavy drinking, although by no means comprehensive, give some idea of the scale of the problem.</p> <p>Magnitude of the problem in the countries of South Eastern Europe (SEE) is explored.</p> <p>An evidence-based alcohol policy and dissemination of information, which enhance community healthy choices, are discussed as a prerequisite for effective responses to this public health problem.</p>
Teaching methods	Lectures, exercises, individual work, interactive methods such as small group discussions, seminars.
Specific recommendations for teachers	ECTS – 1. Work under teacher supervision – 40%, individual students' work – 60%. Facilities, equipment and training materials: computers, HFA (Health For All) Data Base, WHO, Regional Office for Europe Target audience: lecturers and students in medicine, master and PhD students in public health
Assessment of students	Assessment could be based on multiple choice questionnaire (MCQ), structured essay, seminar paper, case problem presentations, oral exam, attitude test etc.

HARMFUL ALCOHOL CONSUMPTION

Lidia Georgieva, Genc Burazeri, Kremena Lazarova, Gencho Genchev

The impact of alcohol on health - description and background of the problem

Harmful drinking of alcohol and the state of being dependent on alcohol cause enormous damage to the health, well-being and personal security of individuals, families and communities. There is a dose-response relationship between alcohol consumption and a variety of physical effects, psychological and psychiatric disorders, and social damage (1).

Hazardous alcohol consumption is a level of consumption or pattern of drinking that is likely to result in harm if it persists: 350 g (35 units*) or more per week for men and 210 g (21 units) or more per week for women. Alcohol consumption is harmful when it damages the psychological or physical well-being of the individual (2).

According to the World Health Organization, in the population aged 25–59 years, often the most productive years, alcohol is the world's number one risk factor for DALYs - alcohol's impact on disability adjusted life years (DALYs) that captures both impairment due to ill-health and premature death (3).

In the European Union, amongst people aged 15–64 years, one in seven of all male deaths and one in twelve of all female deaths are due to alcohol (4).

Within the European Union, at least one quarter of the difference in life expectancy between newer and older member states is due to alcohol according to Zatonksi (5).

The volume of lifetime alcohol use, as well as the combination of frequency of drinking and amount drunk per drinking occasion increases the risk of alcohol-related harm, largely in a dose-dependent manner, according to Anderson et al (6).

In some studies, it was found a negative association between moderate alcohol consumption and risk of coronary heart disease (7). This protective effect can be achieved at low consumption levels and is not important for men under 35 years of age and premenopausal women. Above these age cut-offs, weekly intake of no more than five drinks for men or two drinks for women are associated with the lowest mortality (8). In a 22 years follow-up of the Framingham study it was reported that frequent drinkers were less likely to die of CHD than abstainers (9). This protective effect of alcohol consumption for CHD was confirmed later from many ecological, cohort and case-control studies (10-12). Despite the consistency of the findings, some have argued that the association may be due, at least partly, to the use of reference group of non-drinkers, which may include heavy drinkers who deny their alcohol intake or people who have stopped because of illness (13,14). Therefore E. Rimm et al. examined prospectively, with control for diet and other risk factors the relation of alcohol consumption to risk of CHD and provided strong evidence for hypothesis that alcohol intake is inversely associated with CHD (7). However, the latest studies shows that a large part of protective effect for ischemic heart diseases (IHD) is due to confounders, with low to moderate alcohol use being a proxy for better health and social capital (15). In any case, the protective effect totally disappears when drinkers report at least one heavy drinking occasion per month, according to Roerecke and Rehm (16).

Many studies have examined the relation between drinking and stroke. Most cohort studies suggested that drinkers have a moderately-modestly elevated risk of total stroke compared to nondrinkers. Some studies reported evidence for a U-shaped association between level of alcohol intake and total stroke with reduced risk for men reported ≤ 2 drinks per day and for women ≤ 1 drink per day (17,18). Other studies (19) found alcohol consumption to be associated with increased risk of stroke and high blood pressure. Of the studies that specifically addressed ischaemic stroke, one found an independent U-shaped association (18); others found no significant association (20-22). By contrast most of the studies on haemorrhagic stroke found evidence for a positive dose – response association with alcohol intake (18,20,22-25) and one reported no significant association (21).

As to physical harm, there are well-documented positive associations between alcohol consumption and cirrhosis and cancer of the liver, and cancer of the oral cavity, pharynx, larynx, and esophagus. The risk of cancer is multiplied in people who also smoke (26). The data are suggestive but inconclusive for an association between drinking and cancer of the stomach, large bowel and breast. Alcohol consumption is associated with increased risk of stroke, high blood pressure (19) and congestive cardiomyopathy.

Alcohol affects a wide range of structures and processes in the central nervous system influencing the personality characteristics, associated behaviour and sociocultural expectations, it is a causal factor for intentional and unintentional injuries to the drinker and to people other than the drinker, like violence, suicide,

* One unit (8-10 g) of pure alcohol is equal to a half-pint of beer, a small glass of wine or a single measure of spirits such as whisky, brandy or vodka.

crime and drink-driving fatalities (27). Alcohol is an immunosuppressant, increasing the risk of communicable diseases, including tuberculosis and community acquired pneumonia and it is a casual factor for risky sexual behaviour, sexually transmitted diseases and HIV infection (28).

The nature and scale of harm caused by alcohol is difficult to assess. In spite of a fairly large number of studies conducted in different countries, it is difficult to present a comprehensive picture – due to different definitions, age groups, and research methods. The following social, physical and psychological problems related to heavy drinking, although by no means comprehensive, give some idea of the scale of the problem (29).

1. Social problems: family problems, divorce, homelessness, work difficulties, unemployment, financial difficulties, fraud, debt, vagrancy, and habitual convictions for drunkenness.

2. Psychological problems: insomnia, depression, anxiety, attempted suicide, suicide, changes in personality, amnesia, delirium tremens, fits of withdrawal, hallucinations-hallucinoses, dementia, gambling, and misuse of other drugs.

3. Physical problems: fatty liver, hepatitis, cirrhosis, liver cancer, gastritis, pancreatitis, cancer of the mouth, larynx, esophagus, breast cancer, colon cancer, nutritional deficiencies, obesity, diabetes, cardiomyopathy, raised blood pressure, strokes, brain damage, neuropathy, myopathy, sexual dysfunction, infertility, fetal damage, hemopoietic toxicity, and reactions with other drugs.

Methods for measuring alcohol consumption

The definitions used for population-based data on alcohol consumption vary widely from country to country. Many countries do not collect this information at all because alcohol consumption is not permitted in their societies for religious reasons. Other countries collect and report the information without a standard definition for heavy consumption. The country profiles display the definitions used by the survey source with the aim of providing the most specific definition possible for high alcohol consumers. Table 1 provides examples of the variety of definitions for high alcohol consumption that are routinely reported (30). The WHO STEPS survey instrument uses 7 day recall of the number of standard drinks to quantify proportion of adults engaged in “at risk levels” of drinking.

Similarly, definitions for alcohol abstainers differ from country to country. Many studies consider only those who report ‘never drink alcohol’, while others simply report ‘abstainers’. Often, there is no way to differentiate between those who have tried alcohol but choose not to drink and those who have never had a drink. However, this distinction is unlikely to affect the overall risk profile at the population level.

According to the latest findings unhealthy alcohol use can and should be identified with the use of questions validated for this purpose (the AUDIT or CAGE questionnaires (31) or validated questions about alcohol consumption). Asking questions in a matter-of-fact way in the context of the general health history can facilitate discussion of what can be a sensitive topic (32).

Table 1. Selected examples of definitions and age groups included in surveys to collect prevalence of high alcohol consumption

Definition	Age groups	Country of origin of the source
Over 0.2 L of alcohol per day	26-62	Bosnia and Herzegovina
20+ g of alcohol daily intake	20-49	Czech Republic
Heavy alcohol consumption in the past year, more than 14 drinks per week for men and more than 7 drinks per week for women	20+	USA
The ingestion of 100 cc of absolute alcohol on one occasion-at one time (opportunity)	12-45	Paraguay
Alcohol consumption at least once per year	12-49	Mexico

Source: The SuRF report 1. Surveillance of risk factors related to non-communicable diseases: current status of global data. World Health Organization 2003.

Public health significance

Alcohol is a dependence-producing drug, similar to other substances under international control, through its reinforcing properties and neuro-adaptation in the brain (WHO 2004).

Alcohol consumption is related to a number of social, demographic, economic and cultural factors (33); drinking habits vary considerably between and within countries. More men (1 in every 3-4) than women (1 in every 10) drink alcohol, but women's consumption is growing towards male drinking patterns in some countries. In both sexes, consumption declines with age.

Both alcohol consumption and alcohol-related problems, although at a high level, are now stable or decreasing in a number of western countries of the European Region (34). In recent years, both have been increasing in the countries of Central and Eastern Europe and the former USSR. The population's average annual consumption per head is an important indicator of harmful consequences. In most countries, a considerable portion of the population consumes alcohol at levels that put individuals at risk.

Magnitude of the problem in countries of South Eastern Europe (SEE)

The explored 9 countries of the SEE have varied substantially in their pure alcohol consumption as presented in fig. 1 (35).

The lowest quantity of alcohol consumption shows Albania followed by Macedonia and the highest – Croatia and Moldova.

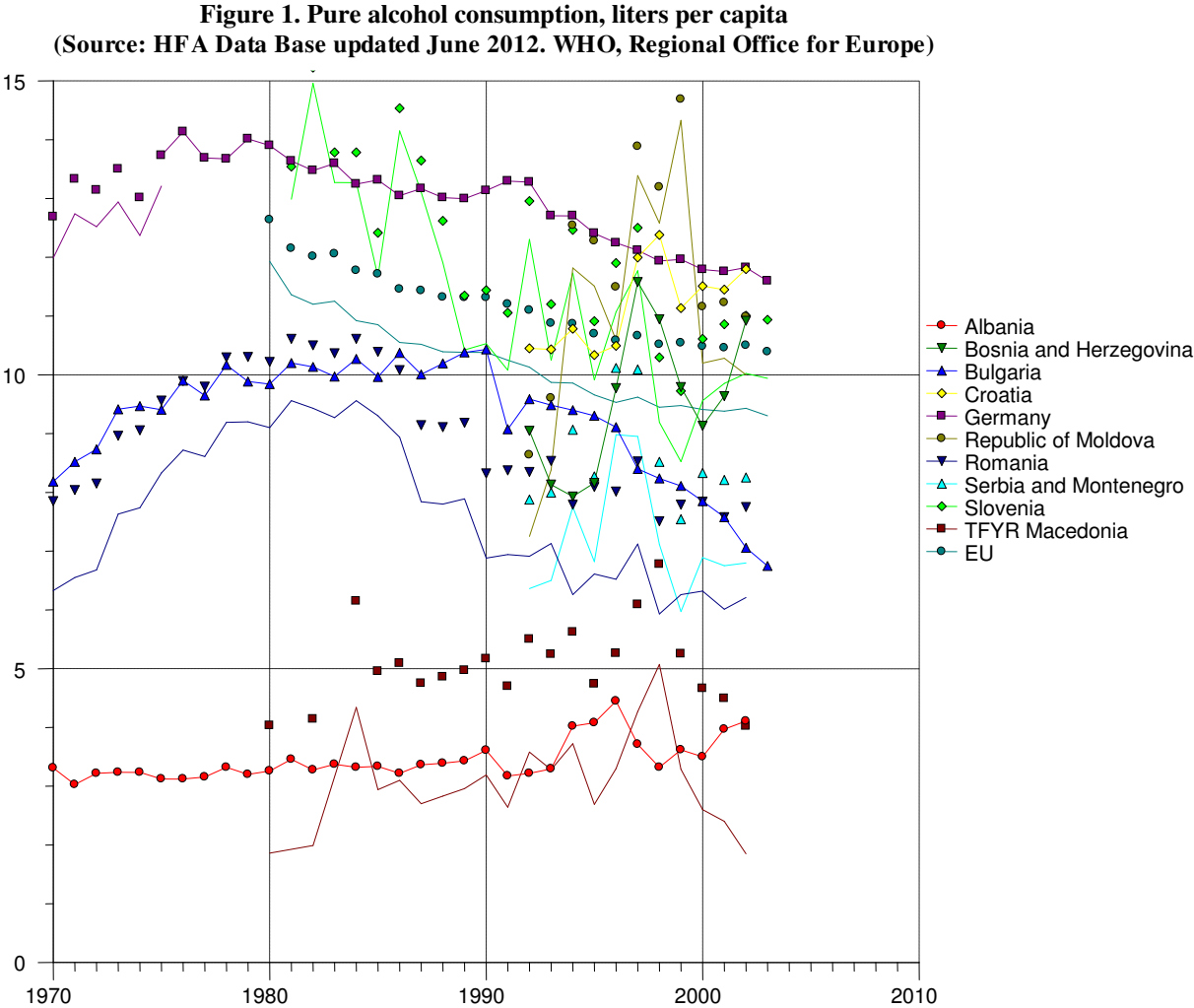
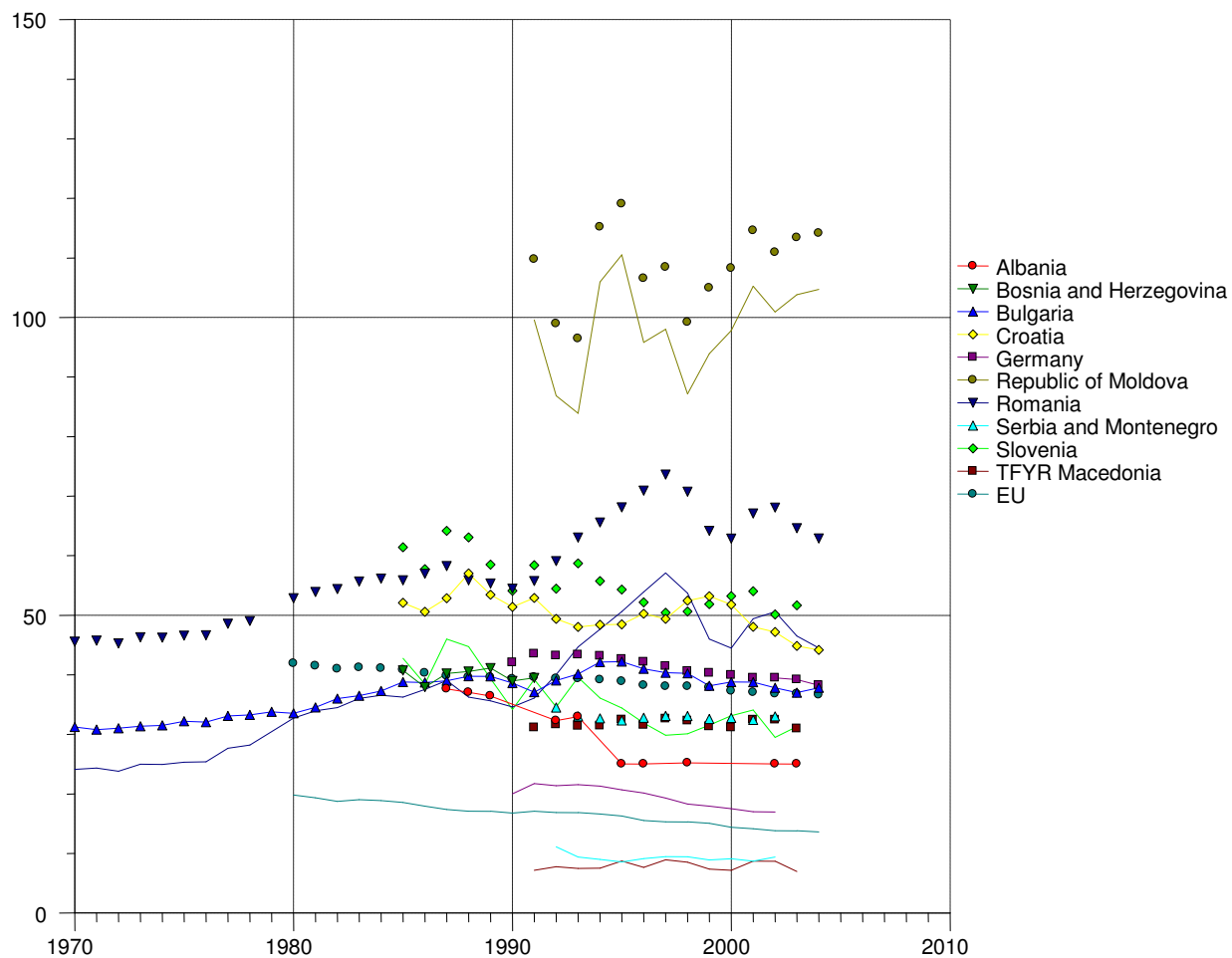


Figure 2. Mortality standardized rate of chronic liver disease and cirrhosis, all ages per 100000
 (Source: HFA Data Base updated June 2012. WHO, Regional Office for Europe)



A comparative analysis of the following figures demonstrates significant correlation of alcohol consumption with mortality standardized rate of chronic liver disease and cirrhosis (fig. 2), road traffic accidents involving alcohol (fig. 3) and mortality standardized rate of selected alcohol related causes (fig. 4).

Figure 3. Road traffic accidents involving alcohol per 100000

(Source: HFA Data Base, updated June 2012. WHO, Regional Office for Europe)

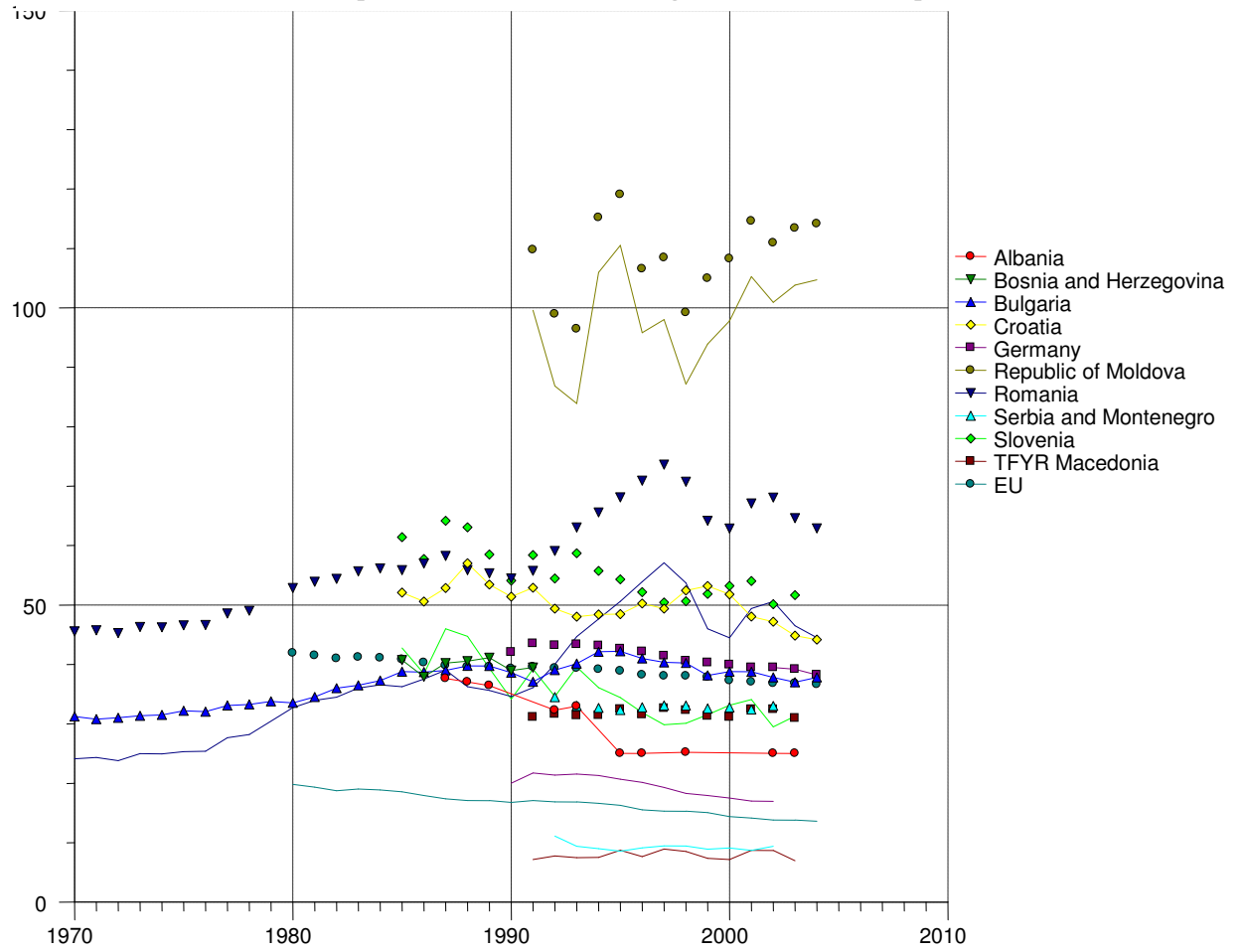
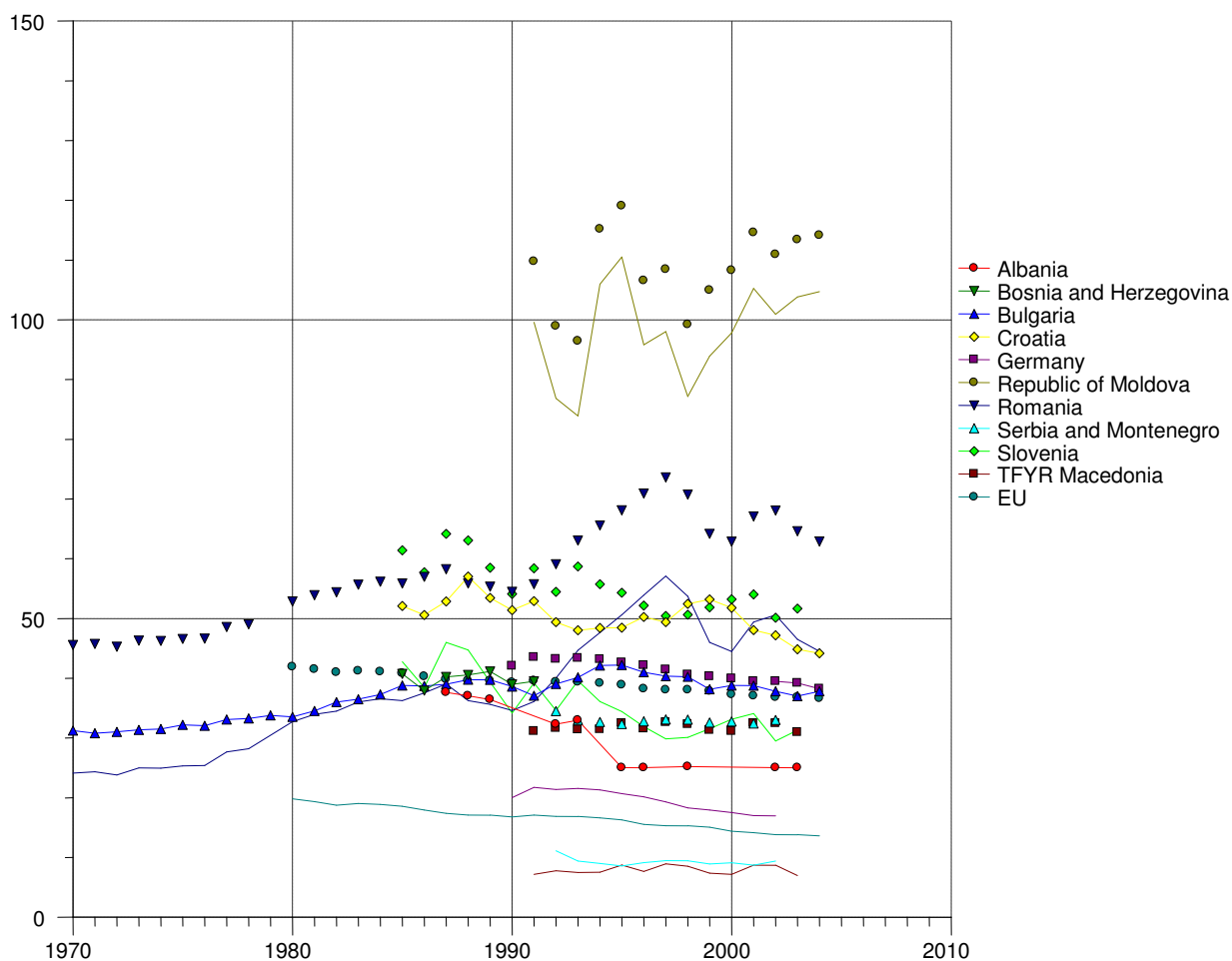


Figure 4. Mortality standardized rate, selected alcohol related causes, per 100000
 (Source: HFA Data Base, updated June 2012. WHO, Regional Office for Europe)



Alcohol policy

The main reason, and also goal, of alcohol policy is to promote public health and social well-being. The formation and implementation of alcohol policy must be accompanied by a strong and continuing commitment to disseminate the true and balanced facts on alcohol as a health issue. Alcohol policy that reduces general levels of consumption will have a net benefit for health. Given that the effect of a certain amount of alcohol varies from one society to another (36), there is good public health justification for national differences in alcohol policies.

Alcohol policy must take into account the total drinking population, in order to define the scope of public health action. It should deal with social and psychological problems, as well as physical ones. Policy must be concerned with the adverse impact of drinking on the family and, on other people, as well as on the drinker. Policy must address drunk-driving and other aspects of alcohol-related crime. Young people are especially vulnerable to alcohol-related accidents and violence, and it is vitally important that policy should be sensitive to the need to protect this age group (37).

The overall strategy for alcohol policy must be to create an environment that helps people make healthy choices. Any measure that will potentially increase the availability of alcohol within a country, whether as a result of trade agreements, a reduction in the real price of alcoholic beverages, or reductions or eliminations of restrictions on retail access, should therefore be judged in terms of public health and public safety, in addition to any other perspectives. Measures that influence people's physical access to alcohol can make a significant contribution to the prevention of alcohol problems. Such measures include: justification of a minimum legal drinking age; restrictions on hours or days of sale; and policies on number, type or location of sales outlets (38).

Taxation of alcohol is an effective environmental mechanism for reducing alcohol problems. Population's alcohol consumption is generally responsive to price, with increases in price leading to decreases in consumption and decreases in price leading to increases in consumption (38,39). The relationship between the

price of alcohol and the level of alcohol consumption depends on the particular population, income variations, the beverage type and historical time period. As a rough generalization, a 10% increase in price leads to approximately a 5% decrease in beer consumption, and a 7.5% decrease in wine and a 10% decrease in spirits consumption.

Some evidence shows that **restrictions on advertisements** lead to reduced alcohol consumption and alcohol-related harm (38). Countries which have bans on spirits advertising have about 16% lower alcohol consumption than countries with no bans, while countries with bans on beer and wine advertising have about 11% lower alcohol consumption than countries with bans only on spirits advertising. Motor vehicle fatalities are about 10% lower when spirits advertising is banned, and about 23% lower in countries with bans on beer and wine advertising, as well as that for spirits. For young people, a five minute increase in exposure to alcohol advertising can be associated with an increase in alcohol consumption of 5 g a day.

Different levels and types of problems may require different types and degrees of **interventions**, and policies cannot be based on the assumption that there is any one treatment appropriate for every drinking problem. There is evidence for the effectiveness of simple help given in general or **primary care settings** (40). Although screening for unhealthy alcohol use is routinely recommended, there are limited data that show improvements in clinical outcomes after implementation of screening. Despite good evidence to support brief intervention, some observers have questioned its effectiveness and value in practice (41). **Brief interventions** comprise an assessment of alcohol intake, information on hazardous and harmful drinking, and clear advice for the individual to reduce consumption. Information booklets and details of further available resources could accompany them locally. Data suggest that brief interventions have benefits beyond decreased consumption and are cost-effective (42-47). Implementation of brief intervention in clinical practice remains a challenge. **School and public education-based** interventions are likely to be interactive with many other environmental influences, and if they have an impact, it is likely to be in the longer term. At the **national level** it seems likely that the community's acceptance is a prerequisite for the successful application of any public health policy as well as alcohol policies.

The evidence suggests that the **alcohol industry**, both the production and retail sectors, are not engaged in any meaningful way with public health policy on alcohol. A discussion needs to take place as to how the industry can meet the needs of their shareholders, whilst producing products that result in less alcohol consumption.

It is not just alcohol policies that reduce the harm done by alcohol. There are also a variety of **other policies** which can reduce or increase alcohol-related problems. For example reducing speed limits on roads and making roads safer reduces drink driving fatalities, without any add drink driving counter measures (48). Social welfare policies and labour policies that aim to reintegrate the unemployed into the labour market reduce alcohol-related harm, irrespective of any direct alcohol policy (49).

Conclusions

A public health policy on alcohol should be integrated with all other health planning, in all policies, nationally and locally.

A prerequisite for effective responses to this public health problem is the formulation of an evidence-based policy and dissemination of information, which enhance community healthy choices.

Exercises

Creating and analysing tables and figures for alcohol consumption related diseases: stroke, ischaemic heart disease, other cardiac diseases, hypertensive disease, diabetes mellitus, liver cancer, cancer of mouth and oropharynx, breast cancer, oesophagus cancer, other neoplasms, liver cirrhosis, epilepsy, alcohol use, falls, motor vehicle accidents, drowning, homicide, other intentional injuries, self-inflicted injuries, poisonings.

The purpose of the exercise for the students is to develop skills to work with HFA (Health for All) Data Base and HFA – MDB (Mortality Data Base): to select parameters, to make figures and tables, to export diagrams to other programs, to analyze data and make comparisons between countries.

Task 1: Compare the prevalence of spirits, wine and beer consumption between selected European countries.

The students work individually with HFA Data Base, using computers. Several students present their figures and tables and discuss the analysis and the interpretation.

Task 2: Compare the mortality standardised rate of cardiovascular diseases, per 100000 among selected European countries.

Students work individually with HFA Mortality Data Base, using computers. Several students present their figures and tables and discuss the analysis and the interpretation.

Task 3: Compare the mortality standardised rate of alcohol consumption related cancers (male and female separately for available age groups) between selected European countries.

Students work individually with HFA Mortality Data Base, using computers. Several students present their figures and tables and discuss the analysis and the interpretation.

Task 4: List possible activities to be included in alcohol consumption community prevention program. The students work in small groups and present and discuss their programs.

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title	Public health significance of smoking
Module: 1.22	ECTS (suggested): 1.0
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Address for correspondence	Name: Lidia Georgieva Institution: Faculty of Public health Street: Belo more 8 City: Sofia Country: Bulgaria Tel: +359 88266431 Fax: + 359 29570184 E-mail: lidia1001@gmail.com
Keywords	Public health, risk factors, tobacco smoking.
Learning objectives	After completing this module students and public health professionals should: <ul style="list-style-type: none"> • Be aware of the magnitude of the problem of tobacco smoking; • Recognise smoking as the biggest avoidable cause of death; • Increase knowledge of smoking prevention; • Understand that tobacco smoking control is everybody’s responsibility.
Abstract	<p>There is a huge body of knowledge documenting that smoking and exposure to tobacco combustion products through passive smoking contribute considerably to illness and premature death from more than 20 different diseases. It is the cause of one and a quarter million Europeans deaths each year. Evidence based policies to reduce smoking and its harm are in place especially in the EU, but are hampered in many countries by inadequate government action, and the hostile influence of the trans-national tobacco companies. Smoking accounts for about 30% of all deaths from cancer, with lung cancer comprising about 20% of smoking-attributable excess deaths in smokers.</p> <p>It has been estimated that cigarettes are the cause of deaths of one in two of their persistent users, and that approximately half a billion people currently alive - 8% of the world's population - could eventually be killed by tobacco if current smoking patterns persist. Despite this pandemic, tobacco consumption continues and is increasing in many countries especially in Southern and Eastern Europe.</p> <p>The WHO Framework Convention for Tobacco Control has very well shown the importance of political will and intersectoral collaboration.</p> <p>The ten-point programme for successful tobacco control, derived from World Health Assembly resolutions, along with recommendations from other international and intergovernmental bodies lists some key elements that should be included in comprehensive national tobacco control programmes.</p> <p>The increased understanding of the combined effects of environmental, social, and cultural conditions on tobacco use has resulted in an emphasis on interventions that include comprehensive, community based approaches.</p>
Teaching methods	Lectures, exercises, individual work, interactive methods such as small group discussions, seminars.
Specific recommendations for teachers	Work under teacher supervision – 40%, individual students’ work – 60%. Facilities, equipment and training materials: computers, HFA (Health For All) Data Base, WHO, Regional Office for Europe; WHO Comparative Risk Target audience: lecturers and students in medicine, master and PhD students in public health.
Assessment of students	Assessment could be based on multiple choice questionnaire (MCQ), structured essay, seminar paper, case problem presentations, oral exam, attitude test.

PUBLIC HEALTH SIGNIFICANCE OF SMOKING

Lidia Georgieva, Borianka Borisova, Kremena Lazarova

Description of the problem

There is a huge body of knowledge documenting that smoking and exposure to tobacco combustion products through passive smoking contribute considerably to illness and premature death from more than 20 different diseases. It is the cause of one and a quarter million Europeans deaths each year, making 21% of all deaths (1).

Tobacco smoking is the largest single external and, therefore, avoidable cause of death from cardiovascular diseases and cancer, which are the most prevalent cause of death in the countries of South and Eastern Europe. Evidence based policies to reduce smoking and its harm are in place especially in the EU, but are hampered in many countries by inadequate government action, and the hostile influence of the trans-national tobacco companies.

Table 1: Prevalence of cigarette smoking in the WHO European Region, 2010

Highest prevalence			
Men		Women	
Greece	63%	Austria	45%
Albania	60%	Greece	41%
Russian Federation	59%	Bosnia	36%
Georgia	57%	Hungary	33%
Armenia	51%	Croatia	30%
Ukraine, Latvia, Lithuania	50%	Norway, Denmark	28%
Lowest prevalence			
Men		Women	
Uzbekistan	22%	Armenia	2%
United Kingdom	25%	Uzbekistan	3%
Iceland	27%	Moldova	5%
Netherlands	28%	Georgia	6%
Ireland	29%	Belarus, Kazakhstan	9%
Malta, Belgium	30%	Bulgaria, Ireland	13%

Source: WHO, 2011 (data July 2011) (1).

Most studies (2,3) have demonstrated a dose-response effect, with the amount smoked and duration of regular smoking contributing to the increased risk of disease. About half of tobacco related excess deaths in smokers are due to cardiovascular diseases and two thirds of these to coronary heart disease. Regular cigarette smoking doubles the calculated risk of overall cardiovascular death (4).

Reduction in the tar and nicotine levels of cigarettes may lower some risks, but this is unclear.

The combined effect of smoking with other risk factors, such as elevated blood pressure, elevated serum cholesterol level and physical inactivity, is known to increase in a multiplicative way, the risk of developing a disease.

Methodology

The definitions for tobacco use supplied by the survey sources are used in the country profiles.

No attempt has been made to standardize these definitions. The most common designations include:

- Current daily smoker (including definitions of “at least one cigarette per day”);
- Smoker;
- Regular smoker; and
- User of some form of tobacco (including multiple sources).

Most surveys specify the meaning of “smoker” and “regular smoker” but often this is not recorded. Where additional information is included about a definition, it is recorded in the NCD InfoBase and it is displayed in the risk factor definition section of the country profile.

Table 2 shows the variety of definitions used to collect tobacco use prevalence data (5). For reasons mentioned above, the preferred definition is “current daily smoker”.

Table 2: Selected examples of definitions used and age groups included in surveys to collect prevalence of tobacco use

Definition	Age groups (years)	Country of origin of the Source
Current daily smoker	various combinations	Various
Regular smoker	various combinations	Various
Smoker	various combinations	Various
Smoker, cigarettes	13-15	GYTS for various countries
Uses some form of tobacco (includes multiple sources)	18+	Afghanistan
Current daily smoker: > 10 cigarettes per day	20-89	Venezuela
Chew paan masala or tobacco	15+	India
Smoker (includes daily smoker) once a week at least and less than once a week	25-69	Bangladesh
Regular current smoking	12-45	Paraguay
Smoker, 1 to more than 15 cigarettes per day or 1 to more than 2 pipe full of tobacco per day	18+	Haiti
Smoking or chewing tobacco leaf with betel quid	18-75	Bangladesh

Source: The SuRF report 1. Surveillance of risk factors related to noncommunicable diseases: current status of global data. World Health Organization 2003.

Measured adverse outcomes of exposure: lung cancer, upper aero-digestive cancer, all other cancers, chronic obstructive pulmonary disease, other respiratory diseases, all vascular diseases (6).

Public health significance

Smoking accounts for about 30% of all deaths from cancer, with lung cancer comprising about 20% of smoking-attributable excess deaths in smokers. The strong link between cigarette smoking and the risk of lung cancer has long been demonstrated. Regular smokers have been found to have a risk of lung cancer 10 to 30 times greater than that of nonsmokers. Tobacco smoking accounts for about 90% of lung cancer cases in populations where cigarette smoking has been widespread for two generations or more. In women, the big increases in cigarette smoking in recent decades are now reflected in rising rates of lung cancer. In addition, there is strong evidence of a causal relationship between cigarette smoking and cancer at other sites, including the oral cavity and upper respiratory tract, oesophagus, pancreas, bladder and cervix. Smokeless tobacco use has been associated with a substantially increased risk of developing oral cancer (7). Prolonged cigarette smoking causes even more deaths from other diseases than from lung cancer. In developed countries, the absolute age-sex-specific lung cancer rates can be used to indicate the approximate proportions due to tobacco of deaths not only from lung cancer itself but also, indirectly, from vascular disease and from various other categories of disease.

In countries where cigarette smoking has been common for many decades, tobacco now accounts for a substantial proportion of premature deaths (8,9).

The large patterns are: in developed countries tobacco is already causing about two million deaths a year while this number is still increasing, and about half of those killed by this habit are still only in middle age, making tobacco the most important cause of premature death.

Additionally, smoking accounts for the great majority of deaths from chronic obstructive lung disease. The risk of this disease is reported to be about 5-8 times greater in smokers than in nonsmokers.

Smoking during pregnancy is associated with an increased risk of miscarriage, low birth weight, premature fetal death and retarded physical and mental development after birth. Smoking is also associated with decreased fertility in women and increased sperm abnormalities in men.

Women who smoke have an increased risk of osteoporosis and bone fractures in later life.

Finally, cigarette smoking affects both the expectancy and quality of life. Among smokers aged 35 years, women can expect to live 5 years less than nonsmokers, and men, 7 years less.

Treatment of those diseases is of limited effectiveness or too late for many of these diseases by the time symptoms are apparent. However, the risk of dying from smoking is reduced dramatically by stopping smoking; smoking cessation at age 30 may regain the full ten years on average, nine years at 40, six years at 50, and even at age 60 years an expected three years of life may be regained. Stopping smoking benefits health substantially and provides the major benefits of tobacco control, accruing decades earlier than those from reduced smoking uptake (10).

It has been estimated that cigarettes are the cause of deaths of one in two of their persistent users, and that approximately half a billion people currently alive - 8% of the world's population - could eventually be killed by tobacco if current smoking patterns persist. Despite this pandemic, tobacco consumption continues and is increasing in many countries especially in Southern and Eastern Europe (11).

Magnitude of the problem in countries of South Eastern Europe (SEE)

The countries of the SEE have very different dynamic trends of percent of regular daily smokers in the population, age 15+ years – fig. 1 (12).

For example, most of the countries like Bosnia and Herzegovina, Serbia and Montenegro and Slovenia show trend to decrease the percent of regular daily smokers and Albania and Romania – to increase this percent.

Serbia and Montenegro, Bosnia and Herzegovina, and Albania have the highest percent of regular daily smokers in the population 15+ years, but it is not possible to define the trend of these countries after 2005, as this is the last year for which data are available in WHO database.

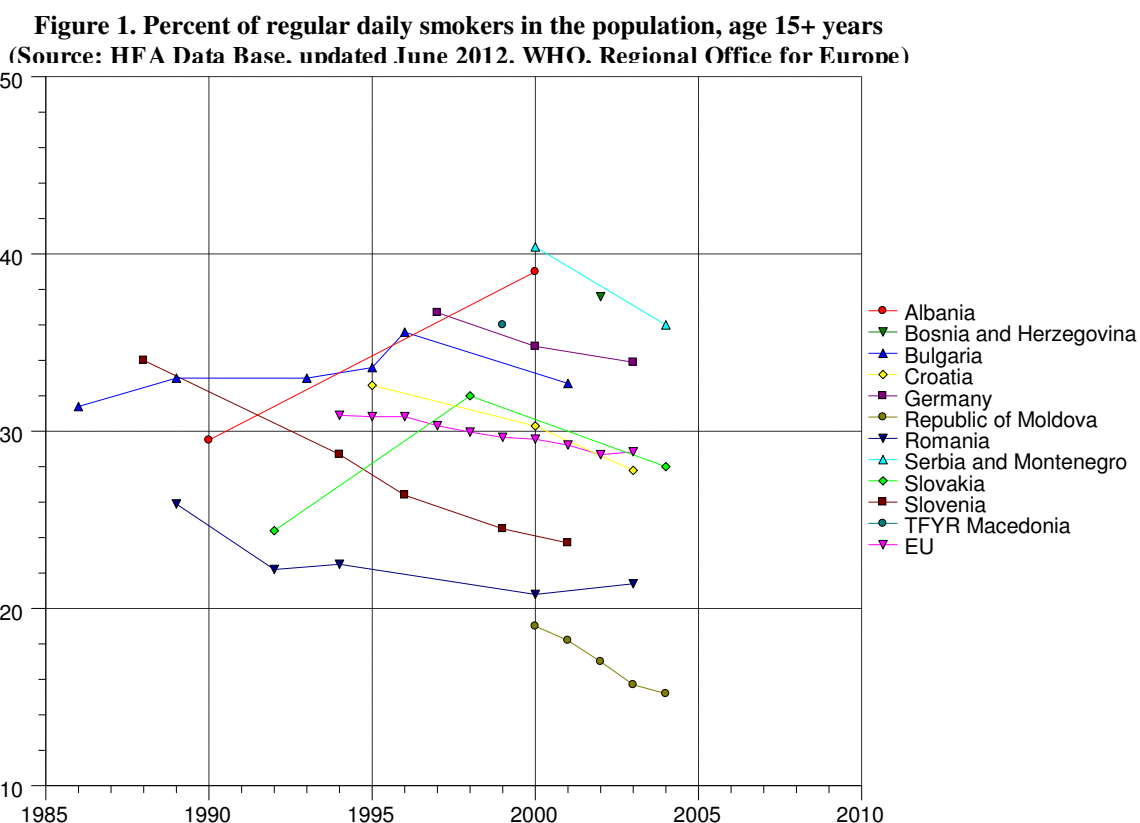


Figure 2 shows trachea, bronchus and lung cancer mortality per 100000 of the countries of the SEE, Germany and the average for EU. Most of the observed countries (especially Serbia and Montenegro, Bosnia and Herzegovina, and Albania) have trend to increase cancer mortality except Republic of Moldova, Croatia and Slovakia.

Figure 3 presents the mortality standardized rate from selected smoking related causes for the countries of the SEE, Germany and EU average. Correspondingly to the proportion of regular daily smokers in the population, there is a trend of increase in Serbia and Montenegro, and Albania. It is very high in Republic of Moldova and there is a not substantial decrease in Croatia, Slovenia, Bulgaria and Romania.

Figure 2. Mortality standardized rate from trachea, bronchus and lung cancer, all ages per 100000
 (Source: HFA Data Base, updated June 2012. WHO, Regional Office for Europe)

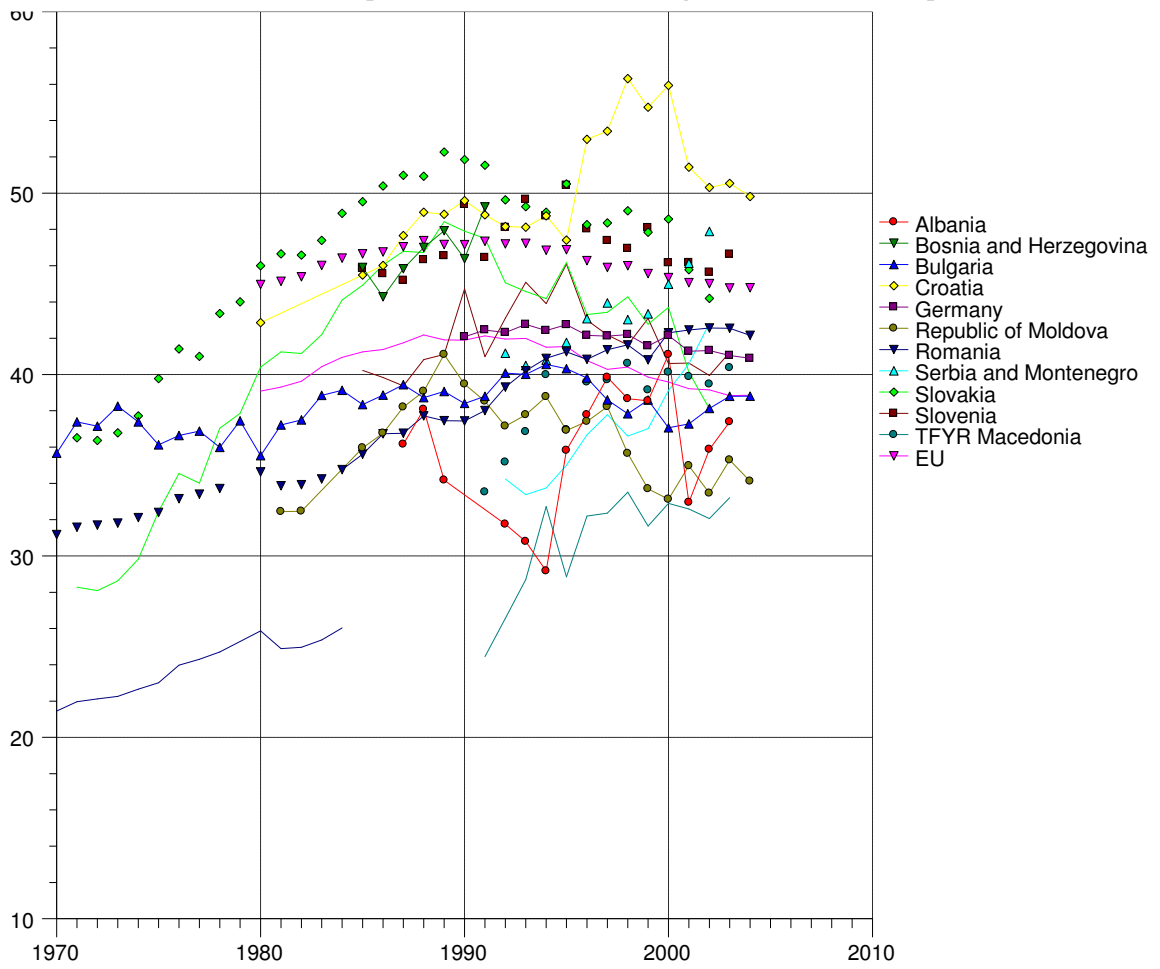
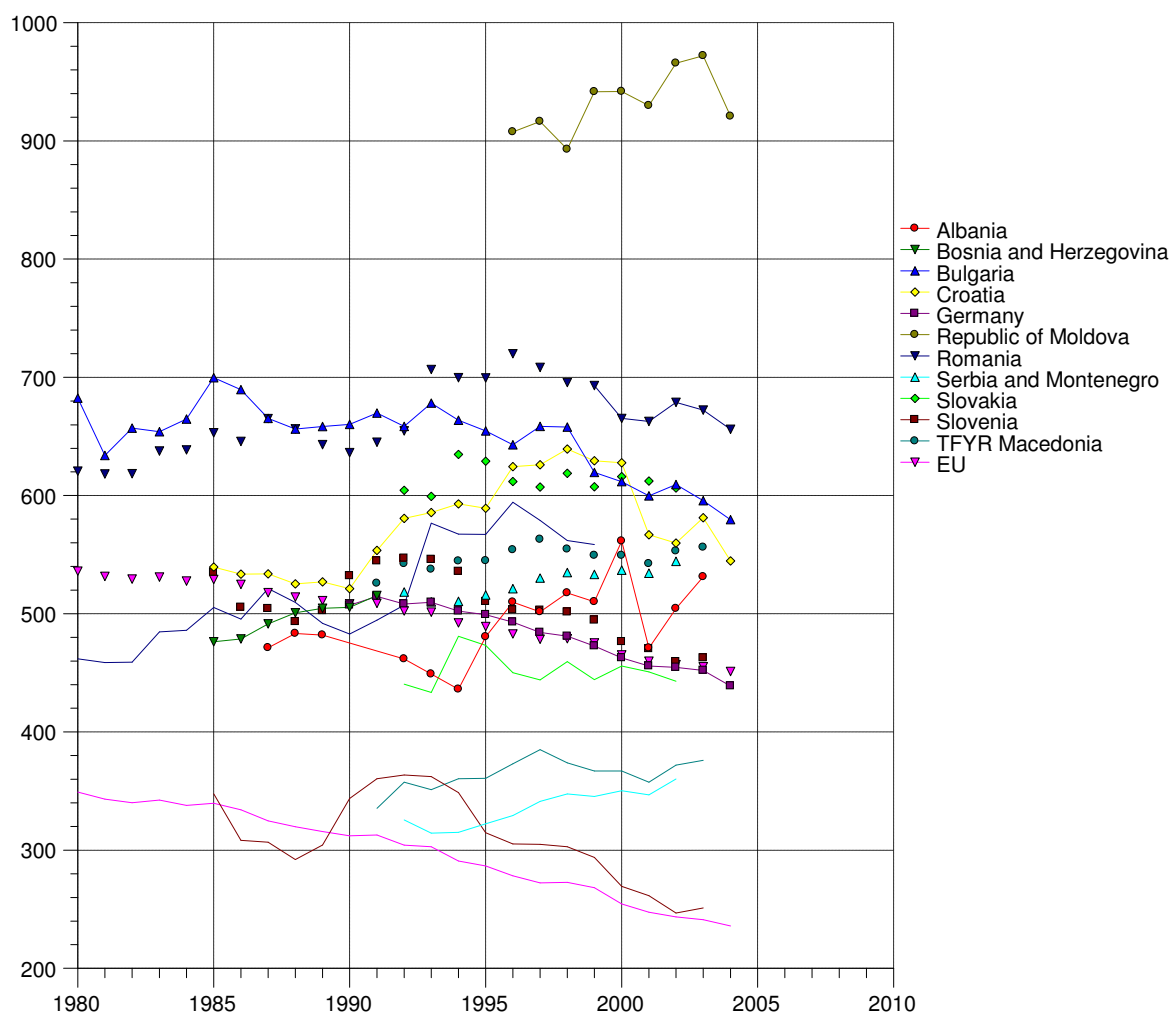


Figure 3. Mortality standardized rate from selected smoking related causes, per 100000
(Source: HFA Data Base, updated June 2012. WHO, Region)



Tobacco control - everybody's responsibility

The WHO Framework Convention for Tobacco Control has very well shown the importance of political will and intersectoral collaboration, particularly given the conflicts with the tobacco industry and with other actors in society, such as owners of restaurants and bars. Although many countries have implemented strategies for reducing tobacco use at individual and population level, no country to date has adopted a truly comprehensive control programme. In addition, the tobacco industry and the strategies it uses to counteract policies on tobacco control and thereby maintain and develop its commercial markets have both continued to evolve. All communities therefore face at least some “problems” in relation to tobacco control. This indicates that, even where legislative frameworks are in place, they are continually challenged by special interests and require a strong organizational mechanism for health to be able to beat other agendas and civil society voices to be heard.

The ten-point programme for successful tobacco control, derived from World Health Assembly resolutions, along with recommendations from other international and intergovernmental bodies lists some key elements that should be included in comprehensive national tobacco control programmes.

A ten-point programme for successful tobacco control

1. Protecting children from becoming addicted to tobacco.
2. Use of fiscal policies to discourage the use of tobacco, such as tobacco taxes that increase faster than the growth in prices and income.

3. Use a portion of the money arose from tobacco taxes to finance other tobacco control and health promotion measures.
4. Health promotion, health education and smoking cessation programmes. Health workers and institutions set an example by being smoke-free.
5. Protection from involuntary exposure to environmental tobacco smoke (ETS).
6. Elimination of socio-economic, behavioural and other incentives which maintain and promote use of tobacco.
7. Elimination of direct and indirect tobacco advertising, promotion and sponsorship.
8. Controls on tobacco products, including prominent health warnings on tobacco products and any remaining advertisements; limits on and mandatory reporting of toxic constituents in tobacco products and tobacco smoke.
9. Promotion of economic alternatives to tobacco growing and manufacturing.
10. Effective management, monitoring and evaluation of tobacco issues.

Many of these elements extend beyond the domain of the health sector; therefore, real progress in tobacco control cannot occur without the involvement of other sectors. It is not sufficient for tobacco control to be merely a top public health priority. It is, and must be seen, as a top public policy priority.

Community interventions

The increased understanding of the combined effects of environmental, social, and cultural conditions on tobacco use has resulted in an emphasis on interventions that include comprehensive, community based approaches (14). Such an approach targets multiple systems, institutions, or channels simultaneously, and employs multiple strategies. In general, community interventions have multiple components, and involve the use of community resources to influence either individual behavior and community norms or practices related to adolescent tobacco use. This includes the involvement of families, schools, community organizations, churches, businesses, the media, social service and health agencies, government, and law enforcement, with intervention strategies generally focused on making changes in both the environment and individual behavior. Although community interventions take a variety of shapes, common elements among them include a shared emphasis on altering the social environment or social context in which tobacco products are obtained or consumed, and a shared goal of creating a social environment that is supportive of non-smoking or cessation (15).

A campaign has been devised for the European Commission by a consortium of health experts and PR professionals. In June 2005, a TV advertising campaign was broadcasted in all 25 Member States. As well as promoting tobacco-free lifestyles to young people, the campaign also highlighted the dangers of passive smoking and supports the trend towards tobacco-free public places. Adolescents (15 to 18 year olds) and young adults (18 to 30 years olds) were the main target groups for this campaign.

The Tobacco Products Directive (2001/37/EC) lays down rules governing the manufacture, presentation and sale of tobacco products – cigarettes, roll-your-own tobacco, pipe tobacco, cigars, cigarillos as well as various forms of smokeless tobacco such as oral tobacco (snus), chewing tobacco and nasal snuff.

In particular, the Directive:

- sets maximum limits for tar, nicotine and carbon monoxide yields of cigarettes.
- requires the tobacco industry to report to the Member States on the ingredients used in its products.
- requires that health warnings appear on the packages of tobacco products. A library of pictures is available to the Members States to accompany warning messages, and they are being used by an increasing number of EU countries.
- bans descriptions such as "light" that suggest a product is less harmful than others.

The **Ministry of health must** be an energetic advocate of policies such as high tobacco taxes, and must encourage other departments to beware of the dangers of accepting highly attractive investment from transnational companies intending to exploit new markets. Parliaments need to hear from all ministries about the importance of tobacco control legislation. A clear lead from senior ministers can set the framework for effective intersectional action. For example, in Lithuania, in the early 1990s, the Cabinet declared itself smoke-free. Such initiatives send a clear message of the importance of tobacco control to parliament, the media, and to the general public.

National Ministries of Health, working together with **nongovernmental health organizations**, such as national heart, lung, and cancer societies, and anti-drug and anti-tobacco groups play crucial roles in tobacco control, particularly in helping to bring about healthy public policies.

Health care professionals play a key role as well, individually as well as collectively. Health professionals are leaders with regard to any issue affecting public health, and can participate effectively in public debate on tobacco issues, both as individuals and as members of medical organizations.

Individuals and institutions in the **healthcare industry** have an important exemplar role. In many countries, especially in CEE, the prevalence of smoking among doctors differs little from that in the wider community.

This considerably undermines individual practitioners' credibility in advising patients not to smoke and denies the profession as a whole the influence it might wield on public and political opinion and policy on tobacco.

Ministry of Finance could play a substantial role in tobacco control. Examples from a number of countries show that raising tobacco taxes has a proven effect on discouraging tobacco consumption, particularly in youth. For example, a 10% real price increase will typically result in a reduction in consumption of about 5%.

In many countries, the **tobacco industry** is no longer controlled by government monopolies, but by transnational tobacco companies (TTCs) overtly committed to market expansion. The TTCs will point out the economic growth and employment that are consequences of their investments in the country.

Legislation is a key component of comprehensive tobacco control programmes.

Many parties are involved in developing, implementing, administering and enforcing tobacco control legislation. Lawyers can advocate for legislative change, help in the drafting and amendment of laws, and provide vigorous defense against tobacco industry arguments and challenges to tobacco control legislation.

Education authorities could require that children receive effective education about the dangers of tobacco use and the benefits of a tobacco-free life at repeated intervals throughout their schooling. A tobacco-free policy could be set at all schools and institutions for both students and staff.

Many education projects now seek to engage **young people** in action both in school and in their communities. This often leads to young people becoming involved in tobacco control activities, and in networking and alliance building. However, it is important that the activities arise from the young people's concerns, rather than from an adult political agenda. Reducing smoking among young people is a challenge. Preventing uptake of smoking would result in the greatest population health gain. Young people who have friends and family members who smoke are more likely to start themselves, and, for many young people, smoking is a social activity, with the first cigarette being provided by friends.

The media play an important role in influencing both the smoking behavior of individuals and the actions of government policy makers. All forms of media can be valuable means of disseminating important educational messages about the hazards of tobacco use and the benefits of a smoke-free life. Mass media are also in a position to inform policy makers and citizens about the public policy that continues to promote tobacco.

Ministry of Sports and Ministry of Culture can provide support for comprehensive tobacco control policies by: using designated tobacco taxes to promote healthy lifestyles through sponsorship of sports and cultural events; insisting that events sponsored by them be smoke-free and free of tobacco promotion; protecting athletes from being used to endorse tobacco products; and from promoting prominent sports and cultural personalities as role models for healthy smoke-free lifestyles.

Business and industry can become involved as part of their obligation to protect the health and safety of workers by providing smoke-free workplaces.

Many businesses have realized the benefits of smoke-free workplaces. In many cases, these policies have been in response to employee requests. Increasingly, businesses are finding that it makes good business sense to support smoke-free policies. For example, many life insurance companies have calculated the risks of smoking, and offer much lower premiums for life insurance to non-smokers.

Pharmaceutical companies, in their efforts to market aids to smoking cessation, such as nicotine replacement products, play an increasingly important role in supporting tobacco control measures. In 1996, a major manufacturer of the nicotine patch donated a large sum of money to the American Cancer Society (ACS) in exchange for the use of their logo on the product package. The funds have been used for a public information and health awareness campaign.

Some religious groups take a strong interest in tobacco control activities, and religious leaders have made important contributions by advocating a tobacco-free life.

Exercises

Creating and analyzing figures and tables of regular daily smokers' percentage in the population and his influence on the mortality of smoking related diseases.

The purpose of the exercise is to develop skills to work with HFA (Health for All) Data Base and HFA – MDB (Mortality Data Base): to select parameters, to make figures and tables, to export diagrams to other programs, to analyze data and make comparisons between countries.

Task 1: Compare the prevalence of regular daily smokers in the population, age 15+ (male and female separately) between selected European countries.

The students work individually with HFA Data Base, using computers. Several students present their figures and tables and discuss the analysis and the interpretation.

Task 2: Compare the prevalence of standardised rate of malignant neoplasm of larynx, trachea, bronchus and lung, per 100000 (male and female separately for available age groups) between selected European countries.

The students work individually with HFA Mortality Data Base, using computers. Several students present their figures and tables and discuss the analysis and the interpretation.

Task 3: Compare the number of deaths of malignant neoplasm of larynx, trachea, bronchus and lung (male and female separately for available age groups) between selected European countries.

The students work individually with HFA Mortality Data Base, using computers. Several students present their figures and tables and discuss the analysis and the interpretation.

Task 4: Develop a Health promotion program for antismoking campaign in schools.

The students work in small groups and present and discuss their programs.

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Recommended readings

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title	Stress as a determinant of health
Module: 1.23	ECTS (suggested): 0.25
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Keywords	Adaptation, determinant, disease, health, stress, stress-related.
Learning objectives	After completing this module students and public health professionals should: <ul style="list-style-type: none"> • Be aware of the different theories for the definition of stress; • Increase their knowledge about the mechanisms of stress syndrome; • Differentiate the possible causes of stress and the vulnerable social groups; and • Identify the potential effects of stress and stress related pathology.
Abstract	It has been largely accepted that acute as well as chronic experience of stress has undesirable consequences for one's health. Stress is blamed to contribute to major economic and health problems. It also seems to cause considerable damage on productivity and competitiveness. And most of these are preventable. Four basic points should be considered when discussing stress as one of the determinants of health. The first one is the nature of stress; the second is the impact of stress on health; the third one is stress measurement or evaluation; and the fourth one - stress management and prevention. This paper discusses the first two issues, trying to figure out the main causes of stress, as well as its consequences. The most popular approaches to the definition of stress are revealed. The individual and group differences in the experience of stress are discussed, as well as the most vulnerable groups. The causes of stress, its manifestations and stress-related pathology are summarised. Common stress-related or induced problems include a wide range of physical and mental morbidity and even death. But, when individuals feel "in control", stress becomes a challenge instead of a threat. Stress in this physiological sense, i.e. adaptation, cannot be eliminated. Without it, the process of life would stop as the complete absence of stress means death.
Teaching methods	Teaching methods should include lectures and individual work (paper review), interactive methods such as small group discussions and seminars.
Specific recommendations for teachers	It is recommended that 1/3 of the module is work under teacher supervision (lectures) and 2/3 is individual students' work. No special facilities or equipment are required. Target audience – medical and public health specialists, social workers, psychologists, healthcare managers and politicians.
Assessment of students	Assessment should be based on a seminar paper (on certain defined topics) and case problem presentation of a particular example of stress concerned research.

STRESS AS A DETERMINANT OF HEALTH

Dobriana Sidjimova, Mariana Dyakova, Tzekomir Vodenicharov

Introduction

The great political changes in Central and South-Eastern European countries in the '90s revealed severe problems in their healthcare systems. The life expectancy of their population (which comprises half of the European region) is 7-8 years lower than that of the people, living in the western part of the continent. The mortality from chronic non-infectious diseases is high. A number of factors and conditions influence the health indicators there: conflict situations, living conditions, unemployment, lack of good quality foods, speculations, blackmail, considerable socio-economic problems, and lack of legal stability. They exhaust the human adaptation capacity and lead to psycho-social stress.

There is already considerable evidence that the acute as well as the chronic experience of stress has undesirable consequences for the health of individuals. This increasing concern is put forward by professional and scientific organizations. Stress is blamed to contribute to human suffering, disease and death. It damages productivity and competitiveness.

Stress and particularly work-related stress, has aroused growing interest across Europe in recent years. The workplace has changed dramatically due to globalisation of the economy, use of new information and communications technology, growing diversity in the workplace. In the 2000 European Working Conditions Survey (EWCS), work-related stress was found to be the second most common work-related health problem across the EU15. Indeed various epidemiological studies have highlighted how work-related stress is associated with an excess risk of coronary heart disease, mental health and MSDs, which are major challenges in public health.

Definitions, nature and causes of stress

According to a common dictionary, the word "stress" has derived from middle English - "stresse" (hardship, distress), from Old French - "estresse" (narrowness), from Latin - "strictus" (tight, narrow), from the past principle of "stringere" (to draw tight, to tighten). According to the biological concept of stress (1), it is "the lowest common denominator in the organism's reactions to almost every kind of exposure, challenge, and demand", in other words - the stereotypy, the general features in the organism's reaction to all kinds of stressors. The phenomenon of "stress" can be generally described by referring to Selye's "rate of wear and tear in the organism" - a kind of "revving up" or "stepping on the gas", preparing the organism for action, for muscular and other activity (2). According to the UK Health and Safety Commission, "stress is the reaction people have to excessive pressures or other types of demand placed on them" (3).

It can be assumed that stress is a pattern of "stone-age" reaction that occurs in response to different exposures and prepares the human organism for "fight or flight" (4). Since then conditions of life have changed dramatically and very few of us ever confront an aggressive wolf pack. In most everyday life contexts, we do not need our "stone age" stress reactions. They are, however, genetically determined and do not change, except over a very long perspective. This is probably why our ancient but persisting genetic programming, in combination with our modern, usually long-lasting social, occupational, environmental and other exposure, has become a threat to our health and wellbeing (4).

Today, it is assumed that stress is often maladaptive and disease-provoking. It can be defined as a pattern of emotional, cognitive, behavioural and physiological reaction to adverse and noxious aspects of everyday life. It is a state characterized by high levels of arousal and distress and often by feelings of not coping. There are essentially three different, but overlapping, approaches to the definition of stress (5).

Engineering approach

The engineering approach treats stress as an objective characteristic of the environment (situation), usually perceived as the load or level of demand placed on the individual, or some threatening or noxious element of that environment (6,7). According to this approach, stress should produce a strain reaction which although often reversible could, on occasions, prove to be irreversible and damaging (8,9). The concept of a "stress threshold" grew out of this way of thinking and individual differences in this threshold have been used to account for differences in stress resistance and vulnerability.

Physiological approach

This approach received its initial impetus from the work of Selye (10,11). He defined stress as "a state manifested by a specific syndrome which consists of all the non-specific changes within the biologic system" that occur when challenged by aversive or noxious stimuli. Stress is treated as a generalized and non-specific physiological response syndrome. For many years, the stress response was largely conceived of in terms of the

activation of two neuroendocrine systems, the anterior pituitary-adrenal cortical system and the sympathetic-adrenal medullary system (12,13).

These two models bear some criticisms. First, they do not take into consideration the entire existing data. At present, many research studies have shown that if the stress response syndrome exists it is not non-specific. There are small but important differences in the overall pattern of response. A good example is the work of Dimsdale & Moss (14). They examined 10 young physicians, engaged in public speaking, and found that although levels of both adrenaline and noradrenalin increased under these circumstances, the levels of adrenaline were far more sensitive. This sensitivity was associated with feelings of emotional arousal which accompanied the public speaking. It was suggested that noradrenalin activation was related to the physical activity, to the constraints and frustrations, while adrenaline activation was more related to feelings of effort.

The second criticism is that the engineering and physiological models of stress are set within a relatively simple stimulus-response model, and largely ignore individual differences of a psychological, perceptual and cognitive nature (6,9). They also ignore the different interactions between the person and their various environments which are an essential part of systems-based approaches to biology, behaviour and psychology.

Psychological approach

It explains stress in terms of dynamic interaction between the person and its environment. It is inferred from the existence of problematic person-environment interactions or measured in terms of the cognitive processes and emotional reactions which cause those interactions. There is now a consensus developing around this approach to the definition of stress (5).

Variants of this psychological approach dominate contemporary stress theory - among them two distinct types can be identified: the interactional and the transactional. The first focuses on the structural features of the person's interaction with their environment, while the second is more concerned with psychological mechanisms.

Interactional theories of stress

Person-environment fit (15). Two basic aspects of fit were identified:

- The degree to which a person's attitudes and abilities meet the demands of the environment;
- The extent to which the environment meets one's needs.

It has been argued that stress is likely to occur, and well-being is likely to be affected, when there is a lack of fit in either or both respects (16).

"Demand-control" model suggests that surrounding characteristics may not be linearly associated with health, and that they may combine interactively in relation to health. But this model seemed too simple and ignoring the moderating effect of social support (17).

"Demand-Control-Support" model was created by adding a third dimension - "social support" (18,19). It refers to all levels of helpful social interaction and seems to play an essential role in the management of stress. It serves as a buffer against possible adverse health affects of excessive psychological demands (20). This model fails to consider individual differences in susceptibility and coping potential.

Transactional definitions

According to them, stress results from high effort spent in combination with low reward obtained. Two sources of effort are distinguished: an extrinsic source, the demands of the environment (family, job, society), and an intrinsic source, the motivation of the individual in a demanding situation. Three dimensions of reward are important: financial gratifications, socio-emotional reward and status control. Stress can be described as a negative psychological state involving aspects of both cognition and emotion. It is an internal representation of particular and problematic transactions between the person and their environment.

Theories of appraisal and coping. They focus on the possible imbalance between demands and ability or competence. Appraisal is the evaluative process that gives these person-environment transactions their meaning (21). Coping is an important part of the overall stress process. However, it is perhaps the least well understood despite many years of research. Lazarus suggested that it has three main features (22):

- First, it is a process of what the person actually thinks and does in a stressful situation.
- Second, it is context-dependent, influenced by the particular environment or appraisal that initiates it and by the resources available to manage with that surrounding.
- Finally, coping as a process is and should be defined *'independent of outcome'*; that is, independently of whether it was successful or not.

Individual and group differences

Most contemporary theories of stress allow for individual differences in the experience of stress, and how well it is coped with. Individual difference variables have been investigated as either: components of the appraisal process, or moderators of the stress-health relationship (23). First, individuals are different in their perception of demands and pressures. Anxiety susceptibility seems to moderate the person's perception of role

conflict. Second, people vary in their ability to cope with demands, and also in their perception of those abilities. Such variation is dependent on their intelligence, their experience and education, or their self-esteem and belief in self-efficacy (24). Third, differences are found in the amount of control the person can exercise over any situation, not only as a function of that situation but also as a function of his/her assumptions about control. Fourth, individuals may have different needs for social support, skills to exploit such support, and perceptions of support. Finally, the stress-health relationship is obviously moderated by individual differences not only in secondary appraisal but also in coping behaviour and emotional and physiological response tendencies and patterns (5).

Type A behaviour. Over the last 30 years, much attention has focused on individual vulnerability to coronary heart disease and on the role of psychological and behavioural factors in reacting to and coping with stressful situations. As a result, "type A behaviour" was described as a major behavioural risk factor for cardiovascular ill health (25). There are at least three characteristics that mark out the type A - individual whose risk of coronary heart disease appears, from studies in the United States, to be at least twice that of the non-type A:

- A strong commitment to work and much involvement in everything done;
- A well-developed sense of time urgency;
- A strong sense of competition and a marked tendency to be aggressive.

Such behaviour is probably learnt, and is often valued by and maintained through particular organizational or family culture. There have been various suggestions as to its most important dimension. The two that have attracted most attention are:

Control. The type A individual always feels like fighting to maintain control over events, which are often seen to be beyond their grasp. Faced with these situations, they simply expend more time and effort trying to "get events under control" and never really feel as if they have succeeded.

Anger & Hostility. Indices of anger and hostility have been validated in prospective research as predictors of cardiovascular ill health.

Causes of stress

The major stressors can be put in the following three categories (26):

- Physical factors, such as excessive noise, heat, humidity, vibration or work with toxic or dangerous substances, etc.
- Psychological and social factors: political and economic instability, experience and exposure to suffering, sickness, injury or danger, threats of violence, etc.
- Management factors - the new hazards of our century.

Over its approximately 500 000 years of existence, the human race has experienced a rather limited number of work life transitions. The first one occurred only some 10 000 years ago when hunting and gathering nomadic tribes turned to agriculture. The next transition started only a few centuries ago with the industrial revolution. Presently, we are in the midst of a third transition, into a post-industrial era characterized by an information economy, by globalization, corporate reorganization, the introduction of new technologies (such as computerization, robotisation and biotechnology), the introduction of new management philosophies, increased workforce diversity and increased expectations in the workforce (27,28). Unprecedented in the history of mankind, these changes are also occurring at breakneck speed. It goes without saying that many of these developments carry a great potential for health, wellbeing and prosperity. It is equally obvious that some of them demand increased flexibility both in terms of number, function or skills and create side-effects in terms of ill health (5).

Work-related stress

Work-related stress is one of the biggest health and safety challenges that we face in Europe. Nearly one in four workers is affected by stress, and studies suggest that between 50% and 60% of all lost working days are related to stress (29).

Work-related stress is a pattern of reactions that occurs when workers are presented with work demands that are not matched to their knowledge, skills or abilities, and which challenge their ability to cope. Individual characteristics, such as personality, values, goals, age, gender, level of education, and family situation influence one's ability to cope (30).

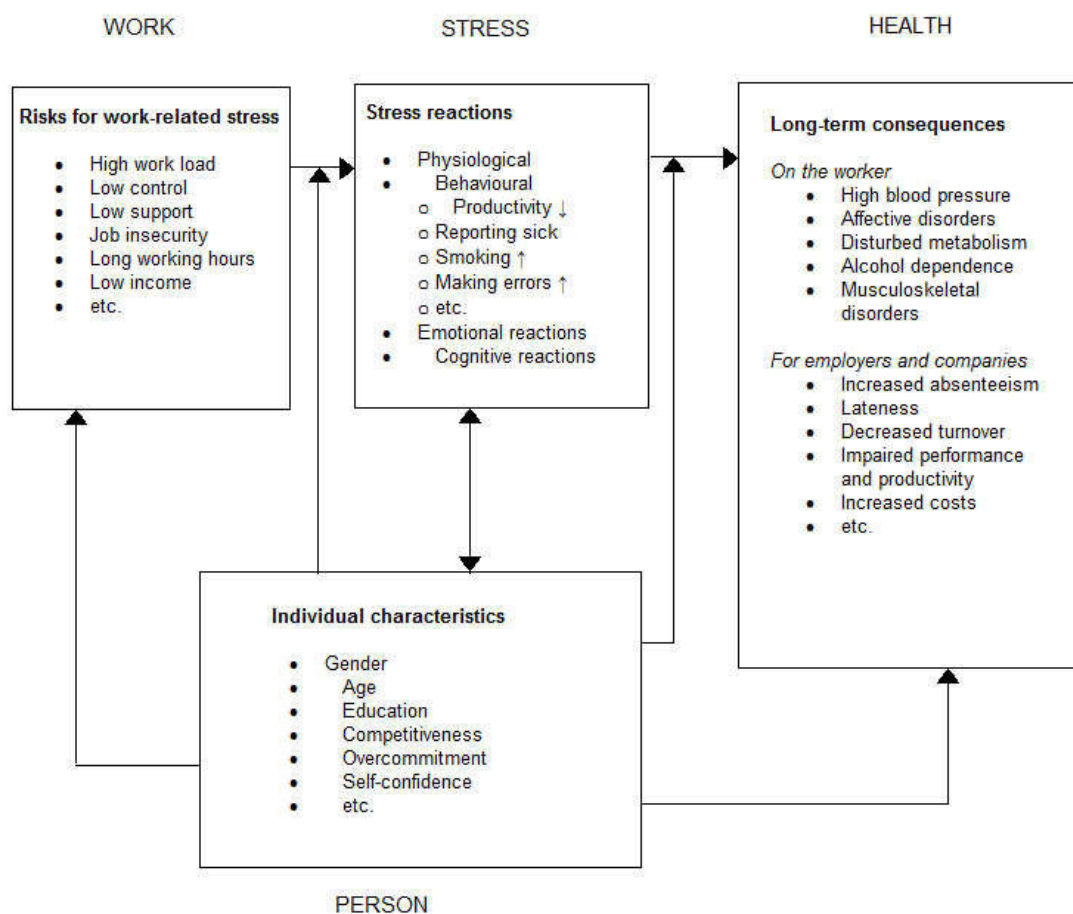
There is a wide range of studies around Europe that show the individual outcomes that can result from work-related stress. These range from minor depression and anxiety through to long-term mental health problems as well as cardiovascular diseases and MSDs. There are many reasons why it is often difficult to establish a direct link between stress and physical problems. Surveys on work are not generally linked with health-related data or do not gather information on the topic, health problems can appear over a period of time

and may not be related to the current work situation, those in frail health may have left the labour market (31), etc.

Stress at work can affect anyone at any level. It can happen in any sector and in any size of organization. Stress affects the health and safety of individuals, but also the health of organizations and national economies.

Work-related stress is preventable, and action to reduce it can be very cost-effective. “Stress management” has tended to target individuals rather than organizations. But the key to preventing work-related stress and psychosocial risks lies within the organization and work management. Preventing the consequences of work-related stress is better than reacting to them once they have occurred (29).

Figure 1. Model of causes and consequences of work-related stress
Source: Adapted from Kompier and Marcelissen, 1990 (31,32)



Reducing work-related stress and psychosocial risks is not only a moral, but also legal imperative. There's a strong business case as well. In 2002, the annual economic cost of work-related stress in the EU-15 was estimated at 20 billion Euros. Employers have an obligation to manage work-related stress, through the Framework Directive 89/391/EEC, which deals with health and safety in the EU. This Directive and the legislation it needs at Member State level, place work-related stress firmly within the legal domain of occupational safety and health. They set the strong expectation that it is approached in the same logical and systematic way as other health and safety issues by applying the risk management model, with special emphasis on preventive action. The “Framework agreement on work-related stress” and “Framework agreement on harassment and violence at work” also provide guidance to employers in the EU in dealing with workplace stress. And Member States have produced their own practical guidelines and preventive tools on stress, violence and other psychosocial risks (29).

In many European countries such as Bulgaria, Hungary, Latvia, Slovakia, Slovenia, Spain and the UK, the main work-related stress management interventions are designed and managed by government-affiliated health executive bodies or government departments. The Bulgarian labour inspectorate in March 2009 included stress in its company inspections, asking questions such as whether employees work to tight deadlines,

experienced time pressure, bullying or harassment, or lack autonomy. Employers are subject to fines if stress levels are found to be high (31).

Stressors outside work

According to Health and Safety Executive (33), a person can experience excessive pressure and demands outside work just as much as they can at work. Stress tends to build up over time because of a combination of factors that may not all be work related. Conflicting demands of work and home can cause excessive stress.

Problems outside work can affect a person's ability to perform effectively at work. Stressors at home can affect those at work and vice versa.

Many things in people's lives outside work can cause them stress, for example:

- Family;
- Death (of a loved one);
- Divorce or separation from a partner;
- Marriage;
- Pregnancy;
- Holidays;
- Changes in health of a family member or close friend;
- Trouble with in-laws;
- Family arguments;
- Children leaving home;
- Childcare;
- Remarriage of a family member;
- Caring for other dependents, such as elderly relatives;
- Family reunion;
- Relationship breakdown or having a long-distance relationship;
- Personal or social issues;
- Change in financial state, or debt or money worries;
- Changes in personal habits such as giving up smoking, going on a diet;
- Problems with weight;
- Experiencing prejudice or discrimination;
- Lack of friends or support;
- Personal injury or illness;
- Daily hassles;
- Traffic jams;
- Public transport;
- Time pressures;
- Car troubles;
- Moving house, including taking out a mortgage;
- Difficulties with neighbours;
- Living with someone with an alcohol, drug problem or other addiction;
- (If studying) a deadline for coursework, exam results or trying to balance work and study;
- Unemployment;
- Poor living environment.

Groups at risk

Every person has his or her breaking point. In addition, the nature and conditions of life are changing at whirlwind speed. This increases the risk we run, or may run. Often, those who are particularly at risk of ill health are also more exposed to noxious conditions of life and work. High vulnerability and high exposure thus tend to coincide (4).

Kasl has attempted to summarize the different criteria and factors that define vulnerability as: socio-demography (e.g. age and educational status), social status (e.g. living alone), behavioral style (e.g. type A behaviour), skills and abilities, health status and medical history, and ongoing non-work problems (34). Such factors are moderators of the hazard-stress-harm relationship and probably interact in defining the high risk or vulnerable groups. Some of them are (4):

- The young (especially at earlier age or orphans);
- Single parents (the majority are women);
- Elderly workers (increasing number in Europe with the increase of the life-expectancy);

The disabled - it is rather difficult to define, because “disability” must always be considered in relation to both the psycho-social and physical ecosystem in which the individual is expected to function and his or her compensatory potential. Among them are the blind, deaf, physically disabled, mentally retarded or ill, drug addicts, alcoholics, minority groups, migrants etc.

Increased vulnerability and exposure - often coincides with an increased exposure to stressful occupational and other environments. In these situations, various factors “sort out” those individuals who are most in need of more favourable living and working conditions. In this way, maximal vulnerability is combined with maximal exposure to environmental stressors, increasing the risk of subsequent decline in health and wellbeing (35).

Health effects of stress

At the end of the 20th Century there has been a common belief that the experience of stress necessarily has undesirable consequences for health. Nevertheless, more evidence has been found that the experience of stress does not necessarily have pathological effects. Many of the person’s reactions to that experience, both psychological and physiological, are within the body’s normal homeostatic limits and need not cause any lasting disturbance or damage. However, it is also obvious that the negative emotional experiences which are associated with the feeling of stress detract both from the general quality of life and from the person’s sense of well-being. In this way the experience of stress reduces the sense of well-being, but does not inevitably contribute to the development of physical or psychological disorder. For some, however, this experience may influence pathogenesis: stress may affect health. At the same time, a state of ill health can both act as a significant source of stress, and may also sensitize the person to other sources of stress by reducing their ability to adapt. Within this framework, the common assumption of a relationship between the experience of stress and poor health appears justified (36).

An overview of the key studies on individual outcomes of stress in selected countries (31) is provided below in Table 1.

Table 1: Key studies on individual outcomes of stress in selected countries
Source: EWCO (31)

Country	Study	Stress outcomes
AT	Working Health Monitor 2009	Employees under stress at work suffer more often from back pain, digestive problems and high blood pressure than those who are not under stress.
BE	Psychosocial job stress in relation to health (Clays et al, 2007)	Work-related stress is more likely to result in the reporting of psychological problems for women and in physical health problems for men.
BG	ISTUR survey	General fatigue, inability to switch off from work, headaches, eyesight problems, back pain, irritability, insomnia, muscle and joint pain.
DK	Copenhagen City Heart Study, 1976	This study indicates that stressed men have a 30% increased risk of premature death.
EL	Velonakis and Lambropoulos (1999)	Sleeping difficulties, anxiety, mood swings, chest tightness, pressure on back or neck or head, libido problems, overacting, fatigue, increased smoking, increased alcohol consumption
ES	Survey on Working Conditions, National Observatory of Working Conditions	Lack of sleep, continuous tiredness, headaches, lack of concentration, poor memory, irritability, lack of energy, digestive problems, vision problems
FI	Finnish Quality of Working Life Survey 2008	Sleep difficulties, fatigue, apathy, lack of energy, headaches
IT	Gilardi et al (2007)	Insomnia, anxiety and depression among call centre workers
LU	Stimulus Survey	Use of sleeping pills and of other drugs to combat stress levels
NO	Level of Living Survey: Working Conditions (2006)	Physical exhaustion on returning home from work
RO	2007 survey on health and safety at the workplace	Depression, anxiety
SE	SLOSH 2006 survey	Musculoskeletal problems, reduced sleep, exhaustion
SI	2008 SVIZ survey	Survey of teachers: lack of concentration, loss of interest in everyday activities, burnout
UK	TUC publication, Hazards at work: Organising for safe and healthy workplaces	Headaches, eczema, weight loss or gain, anxiety, depression, hostility, aggression, heart and digestive complaints, reduced immune system, long-term mental health complaints

Manifestations of stress

According to Occupational Safety and Health Administration, the experience of stress can alter the way a person feels, thinks and behaves. At the individual level symptoms include: emotional reactions (irritability, anxiety, sleep problems, depression, hypochondria, alienation, burnout, family relationship problems); cognitive reactions (difficulty in concentrating, remembering, learning new things, making decisions); behavioural reactions (abuse of drugs, alcohol, and tobacco; destructive behaviour), and physiological reactions (back problems, weakened immunity, peptic ulcers, heart problems, hypertension) (29).

A brief overview of the broad range of health and health-related effects which have been variously associated with the experience of stress is presented. They are categorized under the following four headings but are usually interfering and tightly interwoven (4).

Emotional manifestation. Here are included reactions of anxiety and depression, feelings of hopelessness and helplessness. If a stressor exposure is intense, often repeated or long-lasting, and/or if the exposed one is vulnerable to such exposures, the anxiety and/or depression grow deeper or more long-lasting and may transform into disease.

Cognitive manifestations. Under conditions of stress many people find it difficult to concentrate, recollect, learn new things, be creative, and make decisions. Again, if pronounced, such reactions may develop into a dysfunctional state.

Behavioural manifestation. Exposure to different stressors can trigger pathogenic health-related behaviours. Some use alcohol as a way to relax, or they start or increase smoking (stress smoking). Others feel comfort in overeating (increasing the risk of obesity and subsequently of cardiovascular diseases and diabetes); in drugs, or take unnecessary risks at work or in traffic. Aggressive, violent or other types of antisocial behaviour may be another outlet chosen. Many of these reactions can lead to accidents, disease and premature death. Examples of stress influenced, behaviour-related health outcomes concern the “principal killers” in the European Union, namely cardiovascular diseases, cancer, respiratory diseases and “external causes” (which include accidents and suicides). Together, they account for about 75% of all deaths. A major survey among European adults in all 15 EU Member States (37) shows that the category “lack of time”, comprising time factors such as “irregular work hours” and “busy life-style”, constitutes one of the most frequent barriers to healthy eating (EU average = 34%).

Physiological manifestations. As described above, the stress reactions include a preparation for fight or flight. The typical reactions may be increased blood pressure, accelerated blood clotting, increased or irregular heart rate, muscular tension (with subsequent pain in the neck, head and shoulder), or overproduction of acid gastric juice. Virtually every organ and organ system can be influenced. If such manifestations become chronic, health is likely to suffer (38, 39).

General effects of stress

The experience of stress can alter the way the person feels, thinks, and behaves, and can also produce changes in their physiological function (40,41). Many of these changes simply represent a modest dysfunction and possibly some associated discomfort. Many are easily reversible although still damaging to the quality of life at the time. However, under some circumstances, they might translate into psychological and social problems and into poor physical health (42). Nevertheless, the overall strength of the relationship between the experience of stress and its antecedents on one hand and health on the other is consistent but moderate (43). It is convenient to summarize the possible health and health-related effects of stress under two headings: psychological and social effects, and physiological and physical effects.

Psychological and social effects.

These effects involve changes in cognitive-perceptual function, emotion and behaviour. Some of these changes may represent attempts to cope, including changes in health-related behaviours. There is evidence that some health-promoting behaviours, such as exercise and relaxation, sleep and good dietary habits, are impaired by the experience of stress, while other health risk behaviours, such as smoking and drinking, are enhanced. Other behaviours, such as sexual behaviour, which may be health-neutral, can also be impaired and that impairment becomes a secondary cause of stress. Similarly, increases in health-risk behaviours can also become secondary causes of stress if sustained. Particular reference may be made to psychological dependency on alcohol or smoking.

Social behaviour, and interpersonal relations, may be impaired by the experience of stress, possibly reflecting more fundamental psychological changes in, for example, irritability, attention span and memory. Stress-related impairments of social relations may both create secondary problems and reduce the availability of social support. Interestingly, the literature which describes the translation from a normal psychological reaction to events to psychological illness is not well informed, except in the case of post-traumatic stress and related disorders (44,45). A variety of psychological sequel has been related to exposure to extremely threatening situations such as catastrophes and disasters, war and terrorism.

Psychological and physical effects.

Contemporary research into physiological and physical health correlates of stress began in the 1920s and 1930s with the work of Cannon (46) and Selye (47). Since then much has been published in this area. A large body of data has been accumulated concerning physiological responses in people exposed to stressors in laboratories. Adrenaline and cortisol have become known as stress hormones because, in men, levels of both hormones consistently rise in response to stress in laboratory-based investigations. If chronically repeated, elevation of adrenaline and cortisol is likely to have long-term consequences for health, especially - cardiovascular health, partly via the effects of the hormones on blood pressure and serum cholesterol levels (48).

Stress-related pathology

The evidence from laboratory animal experiments shows that four physiological systems are particularly vulnerable to stress. They are:

- Cardiovascular system (49);
- Endocrine system (50);
- Gastro-intestinal function (51) and
- Immune system (52).

Stress-related dysfunction in these systems is potentially significant for physical health. Because of this unofficial consensus, the literature on stress and physical health largely focuses on a number of particular conditions, although a large number of others are commonly cited as being, to some extent, stress-related.

Heart disease and stroke. Cardiovascular diseases (CVD) are the leading cause of death and one of the most common causes of disability in the 15 EU Member States. The combination of high psychological demand and low decision latitude (control) increases the risk for cardiovascular morbidity or mortality (53,54). With regard to stroke, the evidence is less conclusive, but the risk factors for stroke are similar to those for ischemic heart disease (smoking, hypertension, poor diet and diabetes).

A number of studies show that the Acute Myocardial Infarction (AMI) has often been preceded by a prolonged psychic state as anxiety, nervousness, aggression, depression, social isolation, etc. Some authors consider that stress (in this form) is the leading risk factor for arterial hypertension and acute myocardial infarction. Classical examples of this theory are the extremely high number of cases of AH and AMI during earthquakes, blockades, other military actions, etc. Nevertheless, there are considerable data that these diseases not always develop in abnormal situations. In this way the Cortico-visceral theory works together with the High cardio-vascular risk theory, which points out the importance of many risk factors among which the stress appears to be an additional one (55).

Cancer. One-third of all males and one-quarter of all females in EU develop cancer before the age of 75. One-fifth of them and one in ten women will die from cancer before that age (56). Stress itself surely does not cause cancer but it is known to contribute to a variety of stress-related behaviours that secondarily increase the risk for that disease.

One of the viewpoints for the way the experience of stress may influence the development of cancers is that stress-associated pathologies will not be observed (even under stress conditions), if there is no malignant process already in existence (57). So, here is discussed the role of stress in the development of existing cancers rather than in the aetiology of new cancers. Second, even if there is an existing latent pathology, the effects of stress will not be observed unless the disease is under the control of the immune system. This may account for stress effects on the development of some cancers and not others. Third, the effects of stress will only be observed if there is some functional balance between the individual's defences and the developing cancer. Where one or other is obviously dominant, any additional effects of stress may be impossible to detect. This means that the effects of stress may not be detectable in the early and terminal stages of cancer development. This model was largely developed from Riley's studies on rodents to account for cancer development but might be usefully applied to other diseases which involve the immune system activity (58).

Musculoskeletal diseases. There is supportive evidence indicating that a combination of muscular tension and multiple traumas to parts of the musculoskeletal system (caused by unsatisfactory ergonomic work arrangements), can contribute to frequent, lasting and incapacitating conditions of musculoskeletal pain, particularly in the upper extremities, the neck and in the lower back (59).

Gastrointestinal diseases. Early claims that peptic ulcer was stress-related have not been confirmed. On the other hand, it seems clear that many of its symptoms are found in frequent stress-related cases of non-ulcer dyspepsia (NUD). Similarly, the irritable bowel syndrome (IBS), with its painful spasms of the large intestine, is a rather common reaction to stress (39).

Anxiety disorders include acute stress disorder with its pattern of anxiety and dissociation occurring during or immediately after a traumatic event, lasting for at least two days and resolving within one month. In contrast, posttraumatic stress disorder (PTSD) occurs in response to an overwhelming traumatic event and leads to debilitating reactions lasting more than one 24 month. Such reactions occur in combat veterans, victims of torture and survivors of natural disasters, but also in response to a workplace trauma in law enforcement, fire

fighting, emergency rescue, retail banking (with its risk of armed robbery), workplace violence and suicide, and severe occupational accidents (60).

Depressive disorders. Sadness and grief is a normal reaction to significant separations and losses. Even in the absence of actual clinical depression, these feelings and their behavioral and/or psychophysiological concomitants, often lead to sickness, medical consultations, and various types of medical treatments. Both are characterised by suffering and dysfunction in the individuals, as well as in their families and at their workplace (61).

Accidents, suicides. In the 15 - 34 age group, accidents and suicides represent more than half of the deaths in the European Union (56). It is likely that stress is one of several factors contributing to the approximately 5 million accidents at work recorded in the EU in 1994, each resulting in more than 3 days absence, and to many of the approximately 48 000 annual suicides and 480 000 suicide attempts (62).

Other pathologies. A considerable variety of different pathologies, both psychological and physical, have been associated with the experience of stress. Those disorders usually cited as being stress-related include: bronchitis, mental illness, thyroid disorders, skin diseases, certain types of rheumatoid arthritis, obesity, tuberculosis, headaches and migraine and diabetes. There has been evidence for a long time that the experience of stress can contribute to an acceleration of the disease process in at least one particular type of rheumatoid arthritis (63).

Conclusions

It is not easy to summarise the theoretical basis about stress, its causes and its effects, having in mind the numerous, sometimes controversial data and research work. It is inevitable to ask the question: Is stress dangerous? The answer could be - yes, and no. Stress can be disease-provoking under certain conditions when they are intensive, chronic, and/or often repeated. Common stress - related or induced problems include a wide range of physical and mental morbidity and even death.

The answer is more likely to be “no” when we feel in control. Stress becomes “the spice of life”, a challenge instead of a threat. Stress in this physiological sense - adapting cannot be eliminated. Without it, the process of life would cease, for the complete absence of stress means death. But when we lack this crucial sense of control, stress can be devastating - for us, for our health and our life. To feel “under STRESS” as a part of our everyday life, affects the rate at which processes of wear and tear in our body take place. The more “gas is given”, the higher the “revolutions per minute (RPMs)” at which our body’s engine is driven, the more rapidly our engine wears out - “the kiss of death” (4).

Exercises

Task 1: Find out data on stress and stress-related diseases in your country / region and Europe and compare them.

Task 3: Write analysis of the situation in your town / region / country, related generally to:

- stress at work place (particular company or profession);
- within the family; and
- within a particular social group (disabled, minorities, socially excluded, etc.).

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title	Unemployment as a determinant of health
Module: 1.24	ECTS (suggested): 0.25
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Keywords	Germany, health, South East Europe, unemployment.
Learning objectives	After completing this module students and public health professionals should: <ul style="list-style-type: none"> - improve knowledge about social determinants of health; - distinguish factors influencing unemployment in European countries; - identify indicators of (poorer) health of the unemployed; - distinguish moderating variables of health of the unemployed; - distinguish descriptive and analytical evidence of the health of unemployed; - understand the causation hypothesis and the selection hypothesis; - know the state of the art of health promotion measures for the unemployed.
Abstract	In socio-epidemiological and psychological research there is overwhelming evidence that unemployment and long-time unemployment are severe risk factors for health. In Germany - as in many other countries - in the last decades unemployment turned out to be a resistant phenomenon. In generally, the dynamics of unemployment in industrial societies depend on several main reasons: seasonal, demographic, conjunctural, technological and structural factors. In post-industrial societies there seem to emerge new public health problems with flexible work, that means that employment and unemployment are no longer dichotomous variables. The situation in South-East European countries since 2000 is shown. Dynamics of the underlying development cannot be seen regarding only official rates at some given moments. Then the descriptive and analytical knowledge about the associations between unemployment and health is shown. Available studies show that unemployed persons suffer from a poorer state of health by means of several indicators. Due to methodological reasons, however, questions concerning the causes of this phenomenon, and in particular concerning the direction of effects between health and unemployment, can hardly be answered up to now. Therefore the knowledge about consequences for intervention programs is also limited. There are still missing or inappropriate evaluations as well as altogether limited experience in health promotion of the unemployed. Many persons long time out of work are not only in need of health promotion but of effective health management strategies combining targeted therapy, rehabilitation and health promotion measures.
Teaching methods	Lectures, seminars, individual, exercises.
Specific recommendations for teachers	All methods applicable.
Assessment of students	Assessment should be based on a seminar paper (on certain defined topics) and case problem presentation of a specific example of unemployment as a determinant of health.

UNEMPLOYMENT AS A DETERMINANT OF HEALTH

Thomas Elkeles, Wolf Kirschner

Social, ecological and behavioural determinants of health

As will be shown in the following, internationally and nationally there is overwhelming evidence that unemployment has adverse effects on health in terms of increasing risk behaviour, decreasing resources, thus increasing the risk of incident morbidity and/or progressing already prevalent diseases. Even increased mortality rates have been demonstrated. With respect to the duration of unemployment, a dose-response relationship can be shown. Though descriptive epidemiological evidence of these associations is high, there are several intervening factors aggravating or diluting negative health effects.

To summarize, unemployment and long term unemployment are affecting health dramatically. However, with this descriptive epidemiological evidence we do neither theoretically nor empirically completely understand up to now which mechanisms are involved hereby. This means that we have only limited analytical knowledge on risk or protective factors in this process, which is caused by insufficient analytic research nationally and internationally e.g. with large scaled and long-time cohort studies which would be necessary to control for some twenty moderating or confounding factors. So the potential health effects of unemployment may differ in population groups according to:

- No or only modest fortune;
- The role occupation plays in the orientation of the unemployed;
- Age and gender;
- Length of unemployment;
- Education and qualification level;
- Reasons of unemployment (self inflicted);
- Skills to find a new and adequate job;
- Social support;
- Support from the job offices;
- The overall rate of unemployment and the given probability to find a new job.

Thus, when the majority of moderating factors turn out to be negative, we can expect that unemployment will have severe effects on health. On the other side, when the factors are positive in majority, the effects will be smaller if emerging at all.

As also will be shown in the following, with these findings, interventions in the field of health promotion for the unemployed (as will be shown in the following chapter 4.3) cannot be based on confirmed analytic epidemiological data in terms of relative risks. The majority of interventions - if not all of them - in this field are so to speak logically based in the sense that effective intervention strategies should stop this process of worsening health. So in terms of intervention theories interventions can only have the character of open experiments.

Size and structure of unemployment in European countries

In market-oriented economies, unemployment expresses a disproportion between supply and demand of the workforce. The size of unemployment in a specific country first of all depends upon the economic structure given, furthermore on demography, the patterns of men and women participating in employment, migration, international and national policies of economics. In addition, seasonal, technical and structural factors etc. are influencing employment and unemployment. With respect to the official unemployment rates published we have to keep in mind, last but not least, several "statistical tricks" in the calculation of the official rates, regularly tending to underestimate the number or rates of persons out of work.

Especially in countries in transition from controlled to market economies we often have to register high unemployment rates due to the adjustment and integration of the national economy in the global economy.

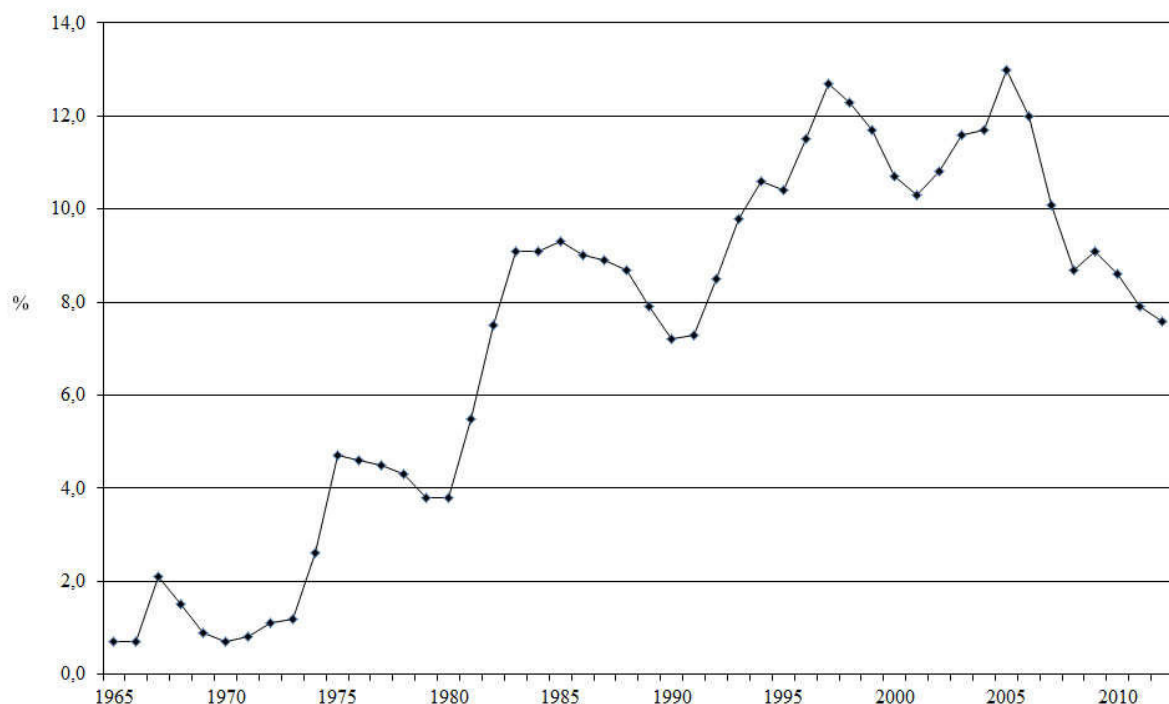
In market economies, unemployment is potentially always persistent and increasing whenever economic growth is too low. It is an accompaniment of the industrialised capitalist economy and no exceptional case. In fact, low unemployment rates and situations of full employment are rare in the history of modern capitalist societies (see below).

In post-industrial societies there seem to emerge new and additional risks with flexible work, insecure employment conditions, invalidation of qualifications and unstable job careers. Employment and unemployment therefore seem to be no longer dichotomous (1-4). This process will lead to increasing problems also in the field of public health.

In Germany (see Figure 1) (5), in the last forty years, unemployment was steadily increasing with the characteristic that the levels of unemployment were getting almost regularly higher and higher, indicating that

cyclical economic developments were and still are superposed by structural problems in the economy and in the labour markets in Germany.

Figure 1. Development of the unemployment rate in Germany, 1965-2012
Source: Federal Agency for Labour (2013)



Within Germany, unemployment rates differ strongly between men and women, north and east and – since the unification in 1989 and the following political and economic transition process in the former German Democratic Republic – between West and East.

In South-East-European countries since 2000 there are countries with increasing, decreasing and rather stable rates (Table 1) (6,7). Some countries in these years have stable differences in the level of the unemployment rates. Not always women have higher official unemployment rates than men, as it is known from Western European countries. But the dynamics of the underlying development can not be seen regarding only official rates at some given moments.

Table 1a. Unemployment rates in South-East-Europe, All, 2000-2012 (in %)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Albania ¹	16,8	16,4	15,8	15,0	14,4	14,1	13,8	13,2	12,5	13,6	13,5	13,3	-
Bulgaria ²	16,3	19,4	17,6	13,7	12,0	10,1	9,0	6,9	5,6	6,8	10,2	11,2	-
Croatia ³	16,1	15,8	14,8	14,3	13,8	12,7	11,1	9,6	8,4	9,1	11,8	13,5	-
Greece ⁴	11,2	10,4	9,9	9,3	10,2	9,6	8,8	8,3	7,7	8,7	10,8	14,8	21,8
Hungary ⁵	6,4	5,7	5,8	5,9	6,1	7,2	7,5	7,4	7,8	10,0	11,2	10,9	-
Macedonia ⁶	-	30,5	31,9	36,7	37,2	37,3	36,0	34,9	33,8	32,2	32,0	32,1	-
Moldavia ⁷	8,5	7,3	6,8	7,9	8,1	7,3	7,4	5,1	4,0	6,4	7,4	6,7	-
Romania ⁸	7,1	6,6	8,4	7,0	8,0	7,2	7,3	6,4	5,8	6,9	7,3	7,4	-
Russian Federation ⁹	9,8	8,9	7,9	8,0	7,8	7,2	7,2	6,1	6,3	-	-	-	-
Serbia ¹⁰	12,1	12,2	13,3	14,6	18,5	20,8	20,9	18,1	13,6	16,1	19,2	23,0	-
Montenegro ¹¹	-	-	-	-	-	30,3	29,6	19,4	16,8	19,1	19,7	19,7	-
Slovenia ¹²	7,1	6,2	6,3	6,7	6,3	6,5	6,0	4,9	4,4	5,9	7,3	8,2	9,0
Slovakia ¹²	19,1	19,5	18,8	17,7	18,4	16,4	13,5	11,2	9,6	12,1	14,5	13,6	14,0
Turkey ¹³	6,5	8,4	10,3	10,5	10,3	10,3	9,9	10,3	11,0	12,8	10,9	9,0	-
Ukraine ¹⁴	11,6	10,9	9,6	9,1	8,6	7,2	6,8	6,4	6,4	8,8	8,1	7,9	-
EU 15 ¹⁵	8,5	7,3	7,7	8,1	8,3	8,3	7,8	7,1	7,2	9,2	9,6	9,7	10,6
EU 27 ¹⁵	9,4	8,6	8,9	9,1	9,3	9,0	8,3	7,2	7,1	9,0	9,7	9,6	10,5

Table 1b. Unemployment rates in South-East-Europe, Males, 2000-2012 (in %)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Albania ¹	14,9	14,2	13,6	12,9	12,4	12,1	11,8	11,2	10,4	11,5	11,2	12,4	-
Bulgaria ²	16,7	20,2	18,3	14,1	12,5	10,3	8,6	6,5	5,5	7,0	10,9	12,3	-
Croatia ³	15,0	14,2	13,4	13,1	12,0	11,7	9,8	8,3	7,0	8,0	11,4	13,7	-
Greece ⁴	7,4	6,9	6,4	6,0	6,3	5,8	5,6	5,2	5,1	6,3	8,1	12,0	18,7
Hungary ⁵	7,0	6,3	6,1	6,1	6,1	7,0	7,2	7,1	7,6	10,3	11,6	11,0	-
Macedonia ⁶	-	29,5	31,7	37,0	36,7	36,5	35,3	34,5	33,5	31,8	31,9	32,6	-
Moldavia ⁷	9,7	8,7	8,1	9,6	10,0	8,7	8,9	6,3	4,6	7,8	9,1	7,7	-
Romania ⁸	7,7	7,1	8,9	7,5	9,0	7,7	8,2	7,2	6,7	7,7	7,9	7,9	-
Russian Federation ⁹	10,2	9,3	7,9	8,3	7,6	7,3	7,5	6,4	6,6	-	-	-	-
Serbia ¹⁰	10,1	10,5	11,8	13,8	15,1	16,8	17,9	15,8	11,9	14,8	18,4	22,4	-
Montenegro ¹¹	-	-	-	-	-	26,2	29,1	18,1	15,9	18,0	18,9	19,5	-
Slovenia ¹²	6,9	5,7	5,9	6,3	5,9	6,1	4,9	4,0	4,0	5,9	7,5	8,2	8,5
Slovakia ¹²	19,5	19,9	18,8	17,5	17,5	15,6	12,4	10,0	8,4	11,5	14,3	13,6	13,6
Turkey ¹³	6,6	8,7	10,7	10,7	10,5	10,3	9,7	10,0	10,7	12,8	10,6	8,4	-
Ukraine ¹⁴	11,6	11,0	9,8	9,4	8,9	7,5	7	6,7	6,6	10,3	9,3	8,8	-
EU 15 ¹²	7,3	6,5	6,9	7,4	7,6	7,7	7,2	6,5	6,8	9,2	9,6	9,6	10,6
EU 27 ¹²	8,3	7,7	8,2	8,5	8,6	8,4	7,6	6,6	6,6	9,1	9,7	9,6	10,4

Table 1c. Unemployment rates in South-East-Europe, Females, 2000-2012 (in %)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Albania ¹	19,3	19,9	19,1	18,2	17,5	17,2	16,8	16,3	15,9	16,7	16,7	14,3	-
Bulgaria ²	15,9	18,4	16,9	13,2	11,5	9,8	9,3	7,3	5,8	6,6	9,5	10,0	-
Croatia ³	17,3	17,9	16,6	15,7	15,7	14,0	12,7	11,1	10,0	10,3	12,2	13,2	-
Greece ⁴	17,0	15,9	15,2	14,3	15,9	15,2	13,4	12,8	11,4	12,4	14,5	18,6	25,7
Hungary ⁵	5,6	5,0	5,4	5,6	6,1	7,5	7,8	7,6	8,1	9,7	10,7	10,9	-
Macedonia ⁶	-	32,0	32,3	36,3	37,8	38,4	37,2	35,5	34,2	32,8	32,2	31,4	-
Moldavia ⁷	7,2	5,9	5,5	6,4	6,3	6,0	5,7	3,9	3,4	4,9	5,7	5,6	-
Romania ⁸	6,4	5,9	7,7	6,4	6,9	6,4	6,1	5,4	4,7	5,8	6,5	6,8	-
Russian Federation ⁹	9,4	8,5	7,9	7,8	8,0	7,0	6,8	5,8	6,1	-	-	-	-
Serbia ¹⁰	14,6	14,5	15,2	15,8	22,9	26,2	24,7	21,0	15,8	17,8	20,2	23,7	-
Montenegro ¹¹	-	-	-	-	-	35,5	30,1	20,9	17,9	20,4	20,7	20,0	-
Slovenia ¹²	7,2	6,8	6,8	7,1	6,9	7,1	7,2	5,9	4,8	5,8	7,1	8,2	9,6
Slovakia ¹²	18,6	18,9	18,9	17,9	19,3	17,4	14,8	12,8	11,0	12,9	14,7	13,6	14,5
Turkey ¹³	6,3	7,5	9,4	10,1	9,7	10,3	10,3	11,0	11,6	12,9	11,7	10,3	-
Ukraine ¹⁴	11,6	10,8	9,5	8,7	8,3	6,8	6,6	6	6,1	7,3	6,8	6,8	-
EU 15 ¹⁵	10,0	8,5	8,7	9,0	9,2	9,1	8,7	7,9	7,8	9,1	9,6	9,8	10,7
EU 27 ¹⁵	10,7	9,6	9,8	9,9	10,1	9,8	9,0	7,9	7,6	8,9	9,6	9,8	10,5

Source tables 1a-c:

- [1] data 2000-2011: Albanian Institute of Statistics (2013). URL (04.03.2013) <http://www.instat.gov.al/en/themes/labour-market.aspx>
- [2] data 2000-2002: International Labour Organisation (2013): URL (04.03.2013) <http://laborsta.ilo.org/>
data 2003-2011: National Statistical Institute of Bulgaria (2013): URL (04.03.2013) <http://www.nsi.bg/otrasalen.php?otr=51>
- [3] data 2000-2008: International Labour Organisation (2013): URL (04.03.2013) <http://laborsta.ilo.org/>
data 2009-2012: Varga, Snjezana/ Muntić, Marina/ Brkić, Jadranka/ Lisičić, Martina (2012): Employment. In: Croatian Bureau of Statistic (ed.): Statistical Yearbook of the Republic of Croatia. Croatian Bureau of Statistic: Zagreb. p. 127-156; URL (04.03.2013) http://www.dzs.hr/default_e.htm (Statistical yearbook 2012)
- [4] data 2000-2008: International Labour Organisation (2013): URL (04.03.2013) <http://laborsta.ilo.org/>
data 2009-2012: Hellenic Statistical Authority (2012): Press Release. Labour Force Survey: January 2012. URL (04.03.2013) http://www.statistics.gr/portal/page/portal/ESYE/BUCKET/A0101/PressReleases/A0101_SJO02_DT_MM_01_2012_01_F_EN.pdf
- [5] data 2000-2011: Hungarian Central Statistical Office (2013): URL (04.03.2013) <http://www.ksh.hu/engstadat>
- [6] data 2001-2008: International Labour Organisation (2013): URL (04.03.2013) <http://laborsta.ilo.org/>
data 2009-2011: State Statistical Office Republic of Macedonia (2012): Labour source survey 2011. URL (04.03.2013) http://www.stat.gov.mk/PrikaziPoslednaPublikacija_en.aspx?id=3 (p. 82)
- [7] data 2000-2011: National Bureau of Statistics of the Republic of Moldova (2013): URL (04.03.2013) <http://statbank.statistica.md/pxweb/Databse/EN/03%20MUN/MUN06/MUN06.asp>
- [8] data 2000-2007: International Labour Organisation (2013): URL (04.03.2013) <http://laborsta.ilo.org/>
data 2008-2011: National Institute of Statistics Romania (2012): Romania in Figures 2012. URL (04.03.2013) http://www.insse.ro/cms/files/publicatii/Romania%20in%20figures_2012.pdf (p. 22)
- [9] data 2000-2008: International Labour Organisation (2013): URL (04.03.2013) <http://laborsta.ilo.org/>
- [10] data 2000-2011: Statistical Office of the Republic of Serbia (2013): URL (04.03.2013) <http://webzrs.stat.gov.rs/WebSite/Public/PageView.aspx?pKey=24>
- [11] data 2005-2011: Statistical Office of Montenegro (2013): URL (04.03.2013) <http://www.monstat.org/eng/page.php?id=22&pageid=22>
- [12] data 2000-2012: Statistical Office of the European Communities (Eurostat) (2013): URL (04.03.2013) http://epp.eurostat.ec.europa.eu/portal/page/portal/employment_unemployment_ifs/data/database
- [13] data 2000-2008: International Labour Organisation (2013): URL (04.03.2013) <http://laborsta.ilo.org/>
data 2009-2011: Statistical Office of the European Communities (Eurostat) (2013): URL (04.03.2013)
- [14] data 2000-2003: International Labour Organisation (2013): URL (04.03.2013) <http://laborsta.ilo.org/>
data 2004-2011: State Statistic Service of Ukraine (2013): URL (04.03.2013); http://www.ukrstat.gov.ua/operativ2006/rp/ean_e/arh_rbrn_e.htm
- [15] data 2001-2012: Statistical Office of the European Communities (Eurostat) (2013): URL (04.03.2013)

In Germany, as in many other countries, persons without school or vocational education are in particular affected by unemployment regardless of age. The well-known risk groups in the labour market are: low qualified, young people, older people, women, migrants and the disabled.

Associations between unemployment and health

Numerous studies about the relationship between health and unemployment used an aggregate data approach. Aggregate data analysis, also called macro-analytical approaches, in general use aggregate economic data from official sources (e.g. unemployment rates) as indicators for economic change and instability of a country, as well as aggregate indicators of the state of health of the respective population (especially mortality rates). Econometric time-series models are commonly used to test for relations between the variables.

Aggregate analysis are especially connected with the name of M. Harvey Brenner (8-10) who in numerous studies examined the hypothesis that in industrialised countries a rise in unemployment leads to a lagged rise or a slower decline of mortality rates. Statistically significant positive relations are observed between unemployment and mortality in general, mortality from cardiac diseases, suicide, infant mortality, and mortality due to traffic accidents. The aggregate approach, which is also used by other authors (for an overview: see 11,12), claims to be able to avoid the selection problems that occur in samples with individual level data. However, a number of criticisms have been raised concerning the black-box character of the underlying theoretical assumptions (11), the indicator problems (12) methodological problems of modelling (11), as well as the general problem of the 'ecological fallacy' (13), that is, the question to what extent an association on the aggregate level gives an indication of the health of unemployed persons. A number of the other macro-level studies found only weak, or no evidence for the hypothesis of a relationship between unemployment and mortality (for an overview: see 12 for findings which differ from Brenner's: see 14 for Germany and 15 for Denmark). Furthermore, the relation between the development of unemployment and suicide rates differed from country to country within Europe (16,17).

Studies with individual data analyze psychosocial or health outcomes of specific individuals in relation to their employment status by means of cross-sectional, or longitudinal comparisons. They differ with respect to their research design (e.g. case studies, follow-up-studies, intervention studies, cf. 18), sample selection, and the health indicators employed.

Descriptive evidence

There is a large body of data and studies that shows a poorer health situation of the unemployed, if compared with employed persons. Internationally and nationally, there is overwhelming evidence that unemployment has adverse effects on health in terms of increasing risk behaviour, decreasing resources, thus increasing the risk of incident morbidity and/or progressing already prevalent diseases (19-24). Even increased mortality rates have been demonstrated also with individual data (25-27).

In Germany, persons getting out of work have to visit their local job centres initially and regularly to receive unemployment support and/or to be counselled for further employment possibilities. In these visits the employees of the job centres are officially and unofficially documenting the health status and the overall appearance of the unemployed, focusing in the documentation of any "health restrictions" which can reduce the possibilities of reemployment. The overall rate of these documented health restrictions is about 25% in Germany. Considering for example Saxony, we see this rate steadily increasing with the duration of unemployment from 14% to 25 % in persons who are out of work for longer than two years. In several model projects in the context of the ongoing reorganisation of the job centres (called MOZART) (28) this "health restriction rate" was rising up to 60% in persons with low education, higher age and long term unemployment. This indicates, that long term and older unemployed persons are to a high degree not only suffering from several complaints but are severely and often chronically ill (29,30).

Table 2 (31) shows several health effects of (long term) unemployment: While employed persons are rating their overall health status only by 11% as not good or bad, this proportion rises to 16% in short term unemployed and to 33% in long term unemployed.

There are similar effects demonstrating that (long-term) unemployment increases stress and affects especially mental health (32).

To summarise, unemployment and long term unemployment are affecting health dramatically. With this descriptive epidemiological evidence we however do neither theoretically nor empirically completely understand up to now which mechanisms are involved hereby.

Table 2. Self reported health status of employed and unemployed persons in Germany

	Unemployed		Employed	a/b
	>12 month	<12 month %		
n	122	131	35.392	
Reported health status				
Very good/good	33,2	43,5	50,5	
Satisfactorily	32,8	40,5	38,9	
Not good/bad	32,8	16,0	10,7	***/*
Handicaps by health status dealing with daily targets				
Not at all	50,0	54,2	68,1	
Moderate	22,1	32,1	25,9	
Severe	27,9	13,7	6,0	
At least one day in the last 4 weeks				
Bed-ridden	12,4	15,3	7,8	***/n.s.
Hospital stay last 12 months	11,5	10,8	8,3	***/n.s.
Average satisfaction with ^c				
Health	4,5	4,9	5,1	***/*
Life situation	4,8	5,2	5,6	***/*
Average age	44,5	40,4	42,2	

Note. *p < 0,05; ** p < 0,01; *** p < 0,001 (Chi-Square-Test)

a: column 1 + 2 vs. column 3; b: column 1 vs. column 2; c: Average of a 7-point scale

Data source: Cumulative data of the National Health Survey (West) 1984 to 1991, German Cardiovascular Prevention Study (GCP) (N=55.308)

Source: Elkeles (1999)

Analytical evidence

Earlier findings, according to which a stabilisation of mental health could be expected to occur after approximately six months of unemployment, were modified by longitudinal studies with representative data (33-35), which showed that especially with respect to indicators of mental health, the state of health of unemployed persons is poorer but improves accordingly after re-employment. But country-specific conditions along the general climate of economic uncertainty, which affects employed as well as unemployed persons, have to be taken in account.

In an own longitudinal study we looked for effects in German (36) and foreign unemployed in Germany (37). We used the representative data of the German Socio-economic Panel (1984-1988 resp. 1984-1992). All health indicators (health satisfaction, chronic illness, handicaps in fulfilling daily life tasks, disability) showed poorer outcomes for the unemployed persons, even after controlling for the possible confounding effects of socio-demographic variables. Unemployed persons also consulted a physician more frequently and were hospitalised more often. But longitudinal analysis (of becoming unemployed and of re-employment) did not lend much support of causal effects from entry in unemployment and re-entry in employment. In a later study, Gallo et al. (38) found quite similar results examining the new variable general health state in the German Socio-economic Panel.

German and migrant workers (37) did not differ with respect to their health-satisfaction, but unemployed foreign workers were quite less satisfied with their health than unemployed Germans. This corresponded with a high percentage of foreign unemployed (30-50%) that felt chronically ill. The longitudinal results were interpreted in the way that the unemployed migrant's poorer health could be explained with (health) selection processes in the labour market. Immigrants are still concentrated in branches and jobs, which are characterised by a high intensity of work in a stressful environment.

In summary, it can be noted that available studies on the relationship between health and unemployment by means of several indicators show that unemployed persons suffer from a poorer state of health. Due to methodological reasons, however, questions concerning the causes of this phenomenon, and in particular concerning the direction of effects between health and unemployment, can hardly be answered up to now.

Paul/Moser (32) analysed meta-analytic work including cross-sectional and longitudinal studies and the strength of effects. According to their results there is evidence for both possible hypotheses:

- i. The causation hypothesis (that means that the health and psychic impairments of the unemployed are caused by unemployment itself).

- ii. The selection hypothesis (that means that persons in poorer health are more likely to lose their jobs and persons in better health are more likely to be re-employed);
Being the causation of psychic complaints due to unemployment the most important factor.

Theoretical background

Jahoda et al. (39) as well as Zawadski/Lazarsfeld (40) analysed mechanisms of such causation in the thirties and in the eighties there was made an “adaptation” of the underlying psychosocial process.

“It should be recalled that five aspects of the experience of unemployment in the thirties have been singled out: the experience of time, the reduction of social contacts, the lack of participation in collective purposes, the absence of an acceptable status and its consequences for the personal identity, and the absence of regular activity. In all these aspects the unemployed felt psychologically deprived.” (41, p.39)

Because the five categories of experience „follow necessarily from the structural forms of modern employment (41, p. 59), *“current psychological responses to unemployment can with somewhat greater confidence than in the past be attributed to the absence of a job not just to restricted finances.”* (41, p. 58)

This means that the loss of non-material, latent functions of work, which also are potentially health promoting, can be attributed as reasons for the causation of health impairments by unemployment.

On the other hand, selection processes in the labour market can be explained by social structural mechanisms in the society generally, by labour market policies particularly.

Further on, we have seen that long term and older unemployed persons are to a high degree not only suffering from several complaints, but are severely and often chronically ill. This to point out that many persons long time out of work are not only in need of health promotion, but of effective health management strategies combining targeted therapy, rehabilitation and health promotion measures. This means that in the whole field of public health interventions for the unemployed actually there is to be done a conceptional work as well.

Politically-based interventions towards unemployment and the negative health effects of unemployment

Though unemployment must be regarded as an integral part of the industrialised capitalistic economy - because of the given cyclical economic development - high and even increasing unemployment rates can endanger the political cohesion of a society potentially leading to political disavowals. So, in Germany in the twenties and thirties of the past Century, the rise of the national socialist party can be attributed at least in part to the prevailing mass unemployment affecting not only lower social class but even middle-class populations. And also historically, reducing the risk of unemployment was one of the first actions for socialist or social democratic movements leading often to an insurance system for unemployment.

Internationally, there are remarkable differences in the social protection of the unemployed with respect to time and amount of subsistence. This also stands for health care of the unemployed. In the United States of America, many persons getting unemployed loose their normal health insurance and must contract a new one, if they are able to do so. In Germany unemployment does not affect the given health insurance. Being out of work does not affect the scope and form of medical attendance.

Besides these precautions of social policy in providing minimal subsistence to avoid people from falling immediately through the cracks, there are however additional political interventions dealing with unemployment and the risk of unemployment:

- Economic and labour market interventions;
- Education and qualification;
- Health promotion for the unemployed.

While economic and labour market policies, as well as interventions concerning education and qualification have a long tradition in many European countries, health interventions must be characterised to be a new tool, which is still in a phase of development and testing.

Economic and labour market interventions

Rational economic policy tries to realise four macroeconomic objectives simultaneously: growth of the economy, monetary stability, a balanced export/import relationship and sufficient employment. There are several possibilities to achieve these objectives by monetary or fiscal policy measures, but in times of excessive national debts in many European countries and with an intensive control of national budgets by the European Central Bank monetary since 1999, stability has become a superior objective. This policy is supplemented by an intensified control of persons out of work forcing them to search successfully for new jobs even under poor wage conditions. This policy of “demanding and encouraging” (Fordern und Fördern) is based on profiling instruments. Whether this policy is successful and which effects it will involve must however be waited for.

Education and qualification

Since the first relevant rise of the unemployment rates in Federal Germany in the sixties, qualification of persons out of work was a predominant instrument of active labour market policy. The rationale of this policy was the fact that persons without vocational education were and are still affected by unemployment primarily. Thus basic and additional educational or qualificational measures were offered to the unemployed. For over twenty years a huge and prospering consulting field was established at the periphery of the German federal agency of labour and the local job centres. Thus, for years costly interventions in qualification processes were carried out by the job centres, but they were downsized dramatically since 2002 with the objective to lower expenses. This decision was facilitated by the fact that these interventions were not sufficiently – if at all ever – evaluated, thus not demonstrating any evidence on their effectiveness and efficiency.

Health interventions (Health Promotion)

In Germany “Unemployment and Health” is still a rather scientific topic, which has up to now only marginally reached the political debate. In the process of the still ongoing reorganisation of the job centres, Germany has adopted from other countries counselling and profiling strategies with the overall objective to better match skills and qualifications of the unemployed to the needs of the enterprises. In these profiling processes health status and health restrictions are not yet completely and thoroughly addressed. In reviewing the MOZART projects (projects to test the new profiling instruments) we found in only 3 from over 30 projects that health was part of the profiling process and only in one case there were regulations and recommendations, what should be done, if certain health problems or health restrictions would be detected.

Health Promotion – besides ethical considerations – is also regarded to be a tool in lowering costs in the health system by preventing disease. So, in many countries respective health promotion interventions and trials were established, which often attracted high public and political attention. With respect to the financial budget this form of health intervention was however provided only marginally. The majority of respective projects were also addressed mainly on individual health promotion measures in form of training courses. And in fact, they were attended especially by members of middle and higher social classes.

Health promotion for the unemployed is in fact a development which is part of activities to match health promotion measures better to the social needs of the population or certain population groups thus narrowing social inequalities in health. Target groups thus may be e.g.: poor children and adolescents, welfare recipients, single female parents and persons out of work.

In Germany, primary prevention and health promotion is a service of the health insurance agencies for their members and also the complete population. Giving health insurance companies the responsibility for health promotion is internationally not very frequent. Besides Germany, only in Switzerland this field of action is financed by the health insurance agencies.

The state of the art of health promotion interventions targeted to the unemployed

The following results are part of a six-month expertise for the Federal Association of Company Health Insurance Funds (Bundesverband der Betriebskrankenkassen) to evaluate the state of the art of these interventions with unemployed carried out in 2003 (42). In our search we found totally 51 interventions. From these 14 were only marginally documented or described. From the remaining 36 projects two were only in a conceptual phase. The remaining 34 projects will now be described according to:

- 1) Prevailing intervention objectives (health and/or employment);
- 2) Target populations;
- 3) Objectives and methods;
- 4) Institutional and financial framework;
- 5) Documentation and evaluation;
- 6) Number of participants/selection/access and accessibility;
- 7) Effectiveness and efficiency.

Prevailing intervention objectives (health and/or employment)

Health promotion projects for the unemployed can have uni- or bivariate objectives in promoting health or promoting re-employment or both. When we classify the projects according to the objectives described we find that with 18% only a minority of projects are focussing only on health, while with 47% nearly half of the projects is oriented on re-employment while the rest aims at both objectives. So the total majority of projects (82%) are intending to improve re-employment chances.

Target populations

Thirty percent of projects are dealing with long term unemployed and 12% are directed explicitly on persons out of work with existing health problems (42). The projects are covering all age-groups, men and

women and some few projects are also oriented on short term unemployed with definite objective to improve re-employment.

Objectives and methods

When looking at the objectives stated (Table 3) (42) we find with 41% improvements in the psychosocial situation to be the most frequent objective, while 26% are addressing health improvements as primary objective and 33% will primarily improve the labour market chances.

Table 3. Objectives in % [Source: Elkeles & Kirschner (2004), p. 212]

Improving employment chances		
Improving re-employment chances	12	22
Improving job seeking skills	2	4
Improving competences	4	7
Total		33
Psychological improvements		
Reducing stress and psychosocial complaints	8	15
Psychosocial stabilisation	8	15
Networking	3	6
Motivation for self-helping activities	2	4
Coping strategies	1	2
Total		41
Health		
Health promotion (undefined)	7	13
Improving health	4	7
Additional health services	1	2
Improving health consciousness	1	2
Health counselling	1	2
Total		26
Total (multiple nominations)	54	100

When looking at the methods (Table 4) (42) applied we find that with 79% the traditional concepts and fields of individual health promotion are in focus, while the rest used additional psychotherapeutic techniques. Altogether we find a broad range of objectives and methods with a strong emphasis on stress and the psychosocial situation supplemented by traditional forms of health promotion activities.

Table 4. Methods [Source: Elkeles & Kirschner (2004), p. 212]

Stress reduction	12	34
Physical activity	8	23
Reduce consumption of (any) drugs	4	11
Nutritional improvements	3	9
Traditional health promotion objectives		77
Constructive thinking	1	3
To enjoy	1	3
Self- and time-management	1	3
Personality development	1	3
Cognitive behavioural therapy	1	3
Social pedagogic measures	1	3
Not clearly stated	2	6
Therapeutic measures		23
Total	35	100

Institutional and financial framework

Both are extremely heterogeneous ranging with respect to institutions from University departments to private companies, health promotion institutes, self-help groups, welfare offices, job centres and health insurance companies. The same stands for the financial framework with budgets ranging from some Euros up to millions of Euros.

Documentation and evaluation

With respect to the heterogeneous institutional and financial framework, the standards of both important tools will also vary extremely. Based on 22 projects completed or in finalisation we found (Table 5) (42) just two reports on evaluation and further 4 indications that an evaluation is planned or in the works. Naturally, these results may not be overestimated but by the experience made by us in gathering respective information, we have to conclude that the standards of documentation and evaluation are (very) low.

Table 5. Standards of documentation and evaluation [Source: Elkeles & Kirschner (2004), p. 214]

No documentation available ^a	8
Evaluation report	2
External evaluation	1
Internal evaluation	3
Preliminary analyses	1
Publications available	7
Total	22
^a in the framework of the expertise (6 months)	

Number of participants/selection/access and accessibility

Altogether the number of participants is – with some exceptions – low or very low. This arises questions with respect to the acceptance of these interventions by the unemployed. With respect to the overall stipulated proof of evidence of health promotion interventions by sufficient evaluation methods, it is astonishing that when participants of the projects are described, there is no reasoning if and to what extent the given participants are biased compared to social, motivational or health variables.

Getting access to persons out of work is one of the most practical problems in these intervention strategies compared to institutionalised populations at schools, hospitals or companies. At job centres and social-welfare offices this population may be easily contactable with the disadvantage however that interventions in these settings are not very popular in the opinion of the clientele. There is additionally the danger that taking part in these interventions could become obligatory and refusing to take part could lead to a reduction in subsistence benefits, a well known instrument by the unemployed in Germany.

Effectiveness and efficiency

Evidence on both outcome measures is low. When analysing six mental health projects with reported respective analysis at least on effectiveness, we find 50% reporting positive results while the other half failed to reach the given objectives (Table 6) (42). Additionally, evaluative designs are often weak which may indicate that the evaluative budgets were too small in total. Furthermore, we find in majority the practise of self-evaluations implying often insufficient experience in evaluation methods.

Table 6. Results on effectiveness of projects aiming at mental health improvements [Source: Elkeles & Kirschner (2004), p. 215]

	Results on effectiveness	
	Positive	Negative
Aktiva Dresden (43)		X
EVA Siegen (44)		X
MPRC Michigan (45,46)	X	
Työhön (47)		X
Proudfoot et al. (48)	X	
Muller (49)	X	

Summary

Years after a comparable study by Gepkens and Gunning-Schepers (50) - however oriented on interventions in social disadvantaged totally and not specifically on unemployed we have - unfortunately - to confirm some of their results and to conclude that:

- intervention experience in terms of the number of respective projects is still very limited;
- interventions are focused on improvement in health as well as re-employment with focus on the latter;
- objectives and methods mirror the common practises in health promotion interventions supplemented by some additional psychotherapeutic measures;
- institutional and financial framework is highly heterogeneous;

- standards of evaluation and even documentation are only poor;
- numbers of participants are – with some exceptions – only small;
- structure of participants with respect to health and social status or motivation to participate is often unknown;
- evidence with respect to effectiveness is limited, while efficiency was rarely under observation at all;
- the only few positive effects detected in mental health oriented interventions often suffer from methodological problems e.g. selection bias in the intervention group which was addressed upon only as an exception.

Altogether we have to conclude that the practice of health promotion interventions in the unemployed suffers from deficits in a) the theoretical foundation of interventions e.g. with respect to the question why a certain intervention should yield whatsoever effect; b) program implementation and evaluation.

Conclusions and recommendations for further project and accompanying research

In fact, most projects described are by intervention theory no interventions but mere offers or services. The main differences between these two strategies are that offers and services go without any assessment of needs because they will be demanded by self-selective usage. On the contrary, real interventions are based on a thorough assessment of needs, because participants without needs may already affect effectiveness and efficiency. Interventions must try to optimise and maximise the participation rates of persons with defined needs to realise a program-coverage which secures efficiency.

But even when we modestly confine ourselves on services and offers we have to clarify the structure, effects and consequences of self-selective usage. Without this clarification, any so called “evaluation” is useless, because it may at best show positive results from study groups which are not sufficiently characterised. In Germany - probably as well in other countries – we know a little on the usage of health promotion services (51) but very little on the motivation to do so. There are however some indications that users of respective services are in majority just those who are at least in need for them.

Finally, we have to remember that many persons out of work – especially those of older age and long term unemployment – are often severely ill. For that mere health promotion is a drop in the ocean. They are in need of integrative health management strategies combining therapeutic, rehabilitative and preventive measures, which have to be developed.

In the future, respective programs should be developed more sophisticatedly, implementation has to be better controlled and all phases of evaluation have to be improved, which require additional funding. Also documentation and publication have to be improved.

In our point of view, many of the practical and research questions which have to be solved could be realised by carrying out a representative survey with unemployed, thus clarifying:

- needs;
- acceptance and potential usage of services, offers or interventions;
- and building up a data base for the further development of strategies.

Last but not least, as an additional advantage, this data base could be used as a control sample for all study- or project groups which would resolve the crucial problem of widely unknown participants and giving the possibility of controlling bias.

Conclusions

Many industrialised countries have to register since many years high unemployment rates, which are only marginally reduced in times of economic growth. In Europe, we find high unemployment rates in some transition countries as well as in developed highly industrialised countries.

An international comparison of unemployment rates is difficult to undertake due to different legal or statistical definitions regarding which person shall be deemed to be out of work. In general, the actual total number of the unemployed will be much higher than the number officially stated.

The threat of unemployment is a severe risk factor for health, unless a majority of moderating factors acts in the opposite direction thus potentially diluting the respective negative health effects. Prolonged unemployment is a special risk factor for health in individuals, which will eventually also affect health and well being of other family members.

High and increasing unemployment may affect the social and political cohesion of a society. So, minimal social protective measures were established in developed countries granting certain financial subsistence for a defined period of time. The scope of these social protective measures differs extremely between European and other countries. In all developed countries there are job centres or other institutions counselling the unemployed in getting new jobs.

To combat unemployment there are tools principally in economic policy, as well as active labour market policy. Today however leading economists don't believe that deficit spending would work, if this policy could be carried out at all with respect to the given excessive national debts.

With a view to the millions of persons out of work, it may be naïve to believe that with health promotion the problem of unemployment can be really solved. This will not be the case. But what can at best be done, is the prevention of negative health effects. And this can and has to be done by a rationale healthy policy, which has the task of minimising health risks in the population.

In the last years in Germany, the number of projects aiming to improve the health of persons out of work was steadily rising although the actual number of those interventions cannot be determined or even estimated. Some of these projects were evaluated by us using a pre-post comparative design with self-administered questionnaires and professional social medical assessments (52). From 10 interventions covering more than 1.800 participants we can conclude that the health status can be significantly improved by more than 50% of participants and that the chances of reintegration in the labor market are also facilitated. Integrative effects are, however and not surprisingly, highly dependent on the actual regional employment situation. Further evaluations have now to be focused on the question why interventions to a not inconsiderable extent are failing to improve health.

Exercises

- Task 1:** Select two European countries and find out in which way “people out of work” are officially defined. Then compare the unemployment rates.
- Task 2:** Discuss possible causes and mechanisms of deteriorating health in the unemployed. Specify five moderating variables which can interfere or dilute the negative health outcomes.
- Task 3:** Explain the causation hypothesis and the selection hypothesis.
- Task 4:** Many studies show that women are mentally less affected by unemployment than men. Discuss these findings with respect to different occupational orientations of men and women.
- Task 5:** Give a summary of the state of the art of health promotion measures for the unemployed.

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Recommended readings

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES	
A Handbook for Teachers, Researchers and Health Professionals	
Title	Weather and climate: concept and assessment
Module: 1.25	ECTS (suggested): 0.25
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Keywords	Climate change, environmental health, excess mortality, impact assessment, weather.
Learning objectives	After completing this module, students and public health professionals should have an increased understanding of: <ul style="list-style-type: none"> • The influence of weather variables on health; • The climate change and health; • The methods for assessing the susceptibility from weather variables; and, • Systematic literature review.
Abstract	This module gives a short overview of the relationship between weather variables and climate change with ill-health. Climate and weather have always had a powerful impact on human health and well-being. But, like the other large natural systems, the global climate system comes under pressure from human activities. Global climate change is, therefore, a newer challenge to ongoing efforts to protect human health. Interactions between weather and climate with health are location-specific; therefore, the use of epidemiological evidence-based data at local level (if available) is important. The evidence of an association between weather and health outcomes may not imply an increased burden from climate changes. Assessments should include current vulnerability to climate variability to inform understanding of what could occur with climate change. The preferred epidemiological methods for estimating the impact of temperature on mortality are the time-series studies of daily mortality. These methods are considered sufficiently rigorous to assess short-term (day-to-day or week to-week) associations between the environmental exposure and mortality if adjustment is made for longer-term patterns in the data series. During the winter months, mortality in continental climates reaches higher levels than during the summer months. A measure of this increase is provided, on an annual basis, in the form of the excess winter mortality figure. A thorough review of the relevant literature is required to provide a solid basis for health impact assessment. Such a review identifies the existing knowledge and key gaps. One approach is to convene an expert panel to conduct the review. It is important that the most appropriate experts be identified and that they represent a range of skills and subject areas that are required for the assessment. With respect to climate change, having academic experts in the various diseases of concern, as well as a climatologist, would be important.
Teaching methods	After an introductory lecture, students should work in small groups, in order to discuss the efficiency as a prerequisite for an appropriate environmental health assessment regarding the weather, climate change and health. Basic skills like risk estimation and assessment have to be trained. To do so, some statistical exercises have to be conducted. Students should be taught how to review the relevant literature in this field.
Specific recommendation for teachers	Stress the importance of specific skills that a public health expert needs to possess in order to contribute to the quality improvement in environmental risk assessment. The topic allows a good combination of theoretical knowledge with practical skills. It is recommended that the module be allocated 0, 25 ECTS credits, out of which two thirds should be under teachers' supervision, and the rest should consist of individual data processing and presentation work.
Assessment of students	A multiple choice questionnaire and a written report.

WEATHER AND CLIMATE: CONCEPT AND ASSESSMENT

Vladimir Kendrovski

Introduction

Weather comprises all the various phenomena that occur in the atmosphere of a planet. On Earth the regular events include wind, storms, rain, and snow, which occur in the troposphere or the lower part of the atmosphere. Weather is driven by energy from the sun, with key factors being temperature, humidity, atmospheric pressure, cloud cover, wind speed, and elevation. Climate in a narrow sense is usually defined as the “average weather”, or more rigorously, as the statistical description in terms of the mean and variability of relevant quantities over a period of time ranging from months to thousands or millions of years. The terms weather and climate often are used interchangeably, but they actually represent different parts of the same spectrum. According to the definition from International Panel for Climate Change (IPCC), the weather is the day to day changing atmospheric condition and climate is the average state of the atmosphere and the underlying land or water in the particular region over a particular time-scale (1).

These quantities are most often surface variables such as temperature, precipitation, and wind. Climate in a wider sense is the state, including a statistical description, of the climate system. Climate change is a statistically significant variation in either the mean state of the climate or in its variability, persisting over an extended period (typically decades or longer). "Climate change" means a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods. "Adverse effects of climate change" means changes in the physical environment or biota resulting from climate change which have significant deleterious effects on the composition, resilience or productivity of natural and managed ecosystems or on the operation of socio-economic systems or on human health and welfare (2).

There is a strong scientific consensus that the global climate is changing and that human activity contributes significantly. This consensus is attested to by a joint statement signed in 2005 by 11 of the world's leading national science academies representing Brazil, Canada, China, France, Germany, Italy, India, Japan, Russia, the United Kingdom and the United States. Their statement confirmed the likelihood of human-induced climate change (3).

The first 12 years of the 21st Century have seen record temperatures, Arctic ice melt, exceptional heat waves in Western Europe (2003) and Russia (2010), the most costly ever Atlantic hurricane (Katrina in 2005), and major floods in many parts of the world, including Pakistan in 2010, which affected more than twenty million people. Many other extremes were also experienced elsewhere in the world (4).

People in Europe are exposed to climate change both, directly, through changing weather patterns like more intense and frequent extreme events and indirectly through changes in air, water, agriculture, food quantity and quality, ecosystems, livelihoods and infrastructure. The Climate change health effects in Europe will progressively increase in all countries and regions in accordance with the projections that have been carried out.

Many countries experienced major heat-waves, floods and droughts in the WHO European Region, that have led to deaths and human suffering, social disruption and a substantial burden to health systems. For instance, over 70 000 excess deaths were observed in 12 European countries in the heat-wave during the summer of 2003. The frequency of flooding in the European Region has been observed to be increasing overall and it is the most common natural disaster in the European Region (5,6).

Changes in the spatial distribution of some infectious disease vectors and changes in pollen seasonality in some European countries have been observed. Higher temperatures have implications for food safety, too. Several studies have confirmed and quantified the effects of high temperatures on common forms of food poisoning an approximately linear increase in salmonella reported cases with each degree increase in weekly or monthly temperature (5-10% higher salmonellosis notifications for each degree increase in weekly temperature for ambient temperatures above 5°C) (7,8).

Intergovernmental Panel on Climate Change published that the evidence for Europe Region so far indicates that (9):

- Climate change is affecting the seasonality of some allergenic species (earlier onset and extension of season for allergenic pollen) as well as the seasonal activity and distribution of some disease vectors (movement of tick vectors northwards, and possibly to high altitudes);
- Climate plays an important role in the seasonal pattern or temporal distribution of Visceral Leishmaniasis among humans;
- Heat waves and flooding can have severe and long-lasting effects.

The elderly, disabled, children, women, ethnic minorities and those on low incomes are more vulnerable and need special consideration. These health effects will be unevenly experienced between and within different countries in the WHO European Region. Whether and how they will be experienced will depend on the adaptive capacity and actions of health systems and access different populations have to these services.

Projections for European region for the cumulative increase in annual mean temperature from the 1980–1999 period to the 2080–2099 period vary from 2.3°C to more than 6°C, depending on the underlying assumptions and scenarios. Further increase in temperature is expected, as well as changes in precipitation patterns and sea level rise. These changes will affect ecosystems, water, agriculture, food production, socioeconomic development and settlements.

The biggest risks appear to be expected from an increase in the frequency of extreme weather events and the geographical distribution of infectious diseases. Furthermore, the changes in environmental determinants of health are expected. It is expected that European summer temperatures as high as those experienced in 2003 will be the norm by the middle of the century, leading to almost 107 000 net extra heat-related deaths per year in 2071–2100 in the 25 EU Member States, as compared with 1961–1990 (10-12).

Hot days, hot nights and heat-waves will become more frequent and cold days, cold nights and frost will become less frequent with some reduced mortality from decreased cold exposure (virtually certain). Very likely is expected increased risk of heat-related mortality, especially for the elderly, chronically ill, very young and socially isolated, as well as increased risk of injuries, infectious, deaths, respiratory and skin diseases, and mental health problems. Increased risk of food and water shortages, water- and foodborne diseases and malnutrition, as well as increased risk of injuries and deaths from negative migration and drowning of -related health effects is likely to occur.

Intergovernmental Panel on Climate Change published that the following changes are expected (13):

- In northern Europe, winter minimum temperatures are expected to increase, annual precipitation is projected to increase as well as the frequency of extreme precipitation events.
- In southern and central Europe, higher-than-average summer temperatures are expected, annual precipitation is expected to decrease, although extreme precipitation events will not reduce; the risk of drought events will increase as well as the risk of water stress.
- In the Arctic, warming well above the global mean is anticipated. Some projections have the Arctic late summer sea ice disappearing almost entirely towards the end of the 21st century and anticipate further rapid thawing of the frozen ground.

Also, a decrease in precipitation of up to 20% is expected in the southern part of Europe and central Asia (e.g. in semi-arid areas). It is anticipated that the increased water demand for human consumption in the Mediterranean by 2025 will compete with the water demand for irrigation in agriculture and for the industrial sector.

There is evidence of a possible reduction of mortality and morbidity through strengthening and implementing early warning systems, strengthening the preparedness and the response of the health services, as well as appropriate urban planning and housing. Adaptation is required to reduce the current vulnerability from climate change, which is already a reality, and further adaptation will be needed in order to respond to the health risks that are foreseen to happen during the next decades. The capacities for climate change adaptation need to be improved in all sectors at all levels (14).

Climate impact assessment on health

Depending on the outcome of interest, approaches to assessing the potential effects of climate variability and change on human health can vary. A variety of qualitative (literature reviews, interviews, on – line research, focus group, action research) and quantitative (time series analysis, Poisson regression, etc) methodologies, are used to assess the health impacts of climate change, as well as: spatial analogue studies, predictive modelling (biological models or empirical-statistical models) and expert judgement (15).

It is important to distinguish between health impact assessment methods and epidemiological methods. Health impact assessment methods address the application of epidemiological functions to a population to estimate the burden of disease. Current epidemiological research methods are best able to deal with the health impacts of short-term (daily, weekly, monthly) variability, which require only a few years of continuous health data (16). Some formal methods of reporting uncertainty in assessments has been developed (17).

The effects of environmental temperature have been studied in the context of single episodes of sustained extreme temperatures (by definition, heat waves and cold-waves) and as population responses to the range of ambient temperatures (ecological time-series studies). A time–series methods have been developed to estimate the proportion of disease in a population that is attributable to weather: for example, the day-to-day or week-to-week variation in exposure to weather like temperature and daily mortality or temperature and air pollution (18).

In climate change assessment, although the degree of change may vary spatially, the whole population is assumed to be exposed to changes in climate. Groups within a population may differ in sensitivity (exposure–response relationships). For example, mortality among elderly people is much more sensitive to higher temperatures than is mortality in younger adults. In accordance with the Intergovernmental Panel on Climate Change (IPCC), the evidence for the current sensitivity of population health to weather and climate is based on five main types of empirical studies (9):

- i. Health impacts of individual extreme events (e.g., heat waves, floods, storms, droughts, extreme cold);
- ii. Spatial studies where climate is an explanatory variable in the distribution of the disease or the disease vector;
- iii. Temporal studies assessing the health effects of interannual climate variability, of short-term (daily, weekly) changes in temperature or rainfall, and of longer-term (decadal) changes in the context of detecting early effects of climate change; experimental laboratory and field studies of vector, pathogen, or plant (allergen) biology;
- iv. Intervention studies that investigate the effectiveness of public-health measures to protect people from climate hazards.

In addition to considering present and likely future impacts, it is essential that the assessments also address (a) current national and subnational capacities for preparedness and response to climate change in the health sector; (b) co-benefits and risks to health and the environment of climate mitigation and adaptation measures, technologies and policies in other sectors; (c) costs of health impacts, adaptation and mitigation; (d) adaptation and mitigation effectiveness over decades to come, and (e) additional national, subregional and local measures needed to protect population health, vulnerable groups and the environment

Quantitative approaches to estimating the environmental burden of disease at both the global and the national levels has been developed (19).

Health impact assessment should aim:

- To evaluate the impact of climate variability and change in a range of areas and populations, especially among vulnerable populations and, when possible, to determine the attributable burden of weather and climate, including extreme events, to climate-sensitive diseases;
- To evaluate possible threshold effects;
- To evaluate the effects of multiple stresses, including changes in socioeconomic systems;
- To evaluate uncertainty and its implications for risk management;
- To evaluate the effects of reducing emissions, such as by comparing impact under scenarios with business-as-usual and stabilization of emissions; and
- To measure coping capacity, especially under different socioeconomic futures and in the context of sustainable development.

The attributable burden of climate change

Projecting mortality or morbidity into the future is difficult. An important task for public health is to know the current and future burdens of disease to facilitate health policy decisions. Projecting the potential health impact of climate change requires different methods because the objective is to estimate the impact of different types of (future) climate exposure on different (future) disease patterns at specific times in the future. At the simplest level, the burden of disease attributable to climate change can be calculated as:

Attributable burden = (estimated burden of disease under climate change scenario) – (estimated burden of disease under a baseline climate, such as that in 1981–2010)
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Using this scenario-based approach, nothing changes in the future world except the climate. Although this is unlikely to be realistic, for many reasons, it is a useful approach as it separates out the contribution of climate from other factors that determine the burden of disease, such as population growth, ageing and socioeconomic development.

Scenarios provide an important tool for estimating the potential impact of climate change on specific health outcomes. Scenarios do not predict future worlds or future climates. There are many ways of applying scenarios, which have been variously defined as:

- Plausible and often simplified descriptions of how the future may develop based on a coherent and internally consistent set of assumptions about driving forces and key relationships;
- Hypothetical sequences of events constructed for the purpose of focusing attention on causal processes and decision points; and

- Archetypal descriptions of alternative images of the future, created from mental maps or models that reflect different perspectives on past, present and future developments.

Quantifying temperature-related mortality requires daily counts of deaths, ideally grouped by underlying cause of death, and temperature measured at a similar temporal and geographical resolution. Mortality data are available from national or regional registries in some places. However, the data may not be available in digital format. Coding of the cause of death also varies between countries and may be incomplete. Attention should be paid to the accuracy with which the date of death is recorded. The impact of individual heat-wave events can be estimated using episode analysis. This method cannot be applied to estimate future populations at risk from climate change. Studies of heat-wave events can be used to inform the adaptation assessment. Daily meteorological variables can be obtained for stations near the population under study. In cities, this is not usually a problem. In rural areas, however, finding a station nearby may be difficult.

As a general rule, if daily data are used, temperatures are homogeneous within about a 300-km radius if no local landscape features affect climate, such as mountains, watercourses or coastal regions. For monthly data, temperatures are similar up to 1200 km in radius. Precipitation is more localized in time and space. Such data should therefore not be used beyond a 50-km radius (daily values) or 400-km radius (monthly). For these reasons, care should be taken when aggregating variables such as precipitation and humidity over large areas. Other historical climate data sets are available when data from stations that are missing have been interpolated or supplemented with modelled data.

The step of estimating the effect of the thermal environment on mortality: The example of the Skopje Study

Europe has experienced warmer summers in the past two decades and there is a need to describe the determinants of heat-related mortality better to inform public health activities during hot weather. The most striking anomaly in Balkan Peninsula was in 2007. During the summer in the Republic of Macedonia the daily temperatures have reached 43°C and caused more than 1000 excess deaths (compared to the averages of 1994–2008). In Skopje, the capital, the July temperatures were 3.4°C above the monthly average and deaths were 16.5% higher than the average between 1994–2008, respectively (20).

The effect of high temperatures on daily mortality in 2007 for Skopje was investigated. The investigation included all days during the period May–September 2007. The daily distribution of number of deaths for all causes, both males and females, as well as daily distribution of maximum temperature and values of pollutants PM₁₀ and ozone were collected, as follows.

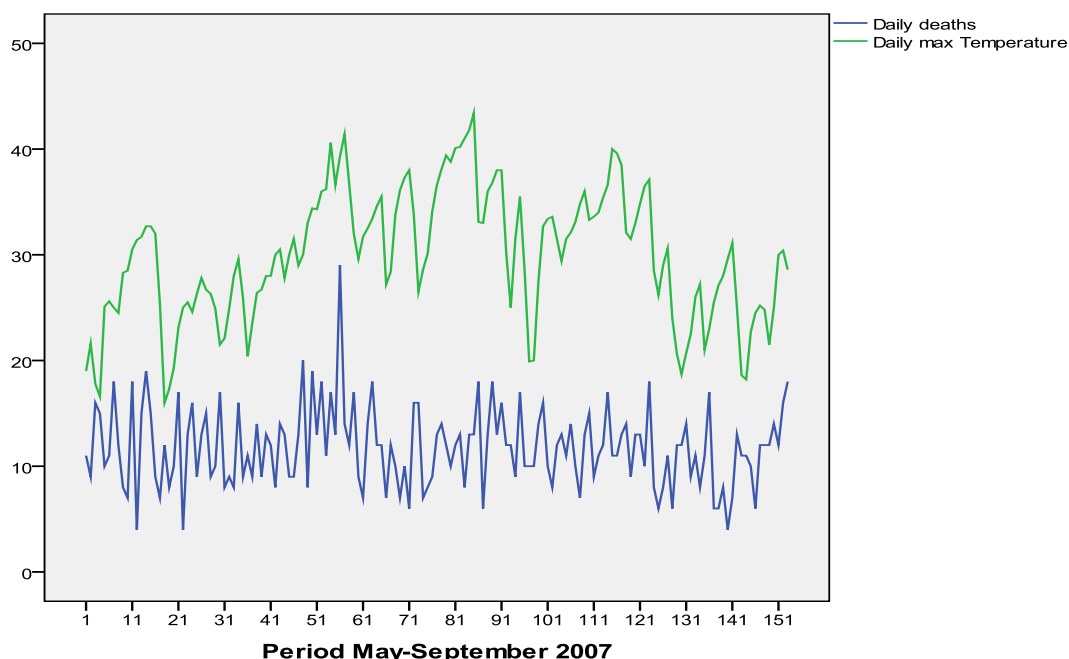
Table 1. Descriptive statistics of the relationship between the maximum temperature and daily mortality for the period May–September (2007) in Skopje

2007 (Skopje) N=153	Minimum	Maximum	Mean	Std. Deviation
Total Mortality	4	29	11.8	3.80275
Females	1	15	6.5	2.68798
Males	1	14	5.2	2.43948
Maximum Temperature (°C)	16.0	43.4	29.8	6.11758
PM10(µg/m³)	24.7	179.4	94.4359	27.33240
O3(µg/m³)	22.6	211.6	64.6647	30.62878

Series of daily mean temperature (°C) were generated. Air pollution may confound the effects of high temperature on mortality, and so daily ambient levels of PM₁₀ (µg/m³) and ozone (µg/m³) were also obtained. The daily mortality series was examined in relation to daily temperature using Poisson generalized linear models allowing for over-dispersion, following methods used in previous analyses for England and Wales. Daily levels of PM₁₀ and ozone were incorporated into a regression model as possible confounding variables, regardless of statistical significance. Indicator variables for day of week and public holidays were included. To establish the general relationship between mortality and temperature, natural cubic splines of the temperature series (df = 3) were regressed against model residuals after controlling for the confounding factors noted above. With logistic regression the relationship between the days when there were heat-waves was determined. All days during the period May–September 2007 were marked "1" or "0" for heat-waves for all months separately. Thus, the heat effect is the log-linear increase in risk above a heat cut-point defined as the 95th percentile of daily mean temperature.

The time series distribution was as follows:

Figure 1. Time series distribution for daily deaths and daily maximum temperature for Skopje, May-September, 2007



The heat cut-point used in this analysis was 30.8°C (95th percentile daily mean temperature). Observed mean daily values for PM₁₀ and ozone were 94.43 (90.06–98.8) µg/m³ and 64.66 (59.77–69.55) for eight-hour ozone concentration µg/m³ 95%CI, respectively. Odds ratio for the variable maximum temperatures in terms of deaths of people during the heat-wave in Skopje for the summer 2007 is 1.048. This means that under conditions of heat-wave, an increase of temperature of 1°C above the heat cut-point (30.8°C) leads to an increase in mortality of 4.8% (21).

Estimation of the excess winter mortality: The example of the Skopje Study

Excess winter mortality has been reported in medical journals for about 150 years, and most countries suffer from 5% to 30% excess winter mortality. However, there still remains much debate with regard to why certain countries experience dramatically higher rates of seasonal mortality than others. Cold strain from both indoors and outdoors has been implicated on several occasions, however other potential factors (other than cold strain) have rarely been analysed. Besides factors associated with biological and genetic considerations that have been linked with reduced health status, the health of a population is influenced by a large number of factors. During the winter months, mortality in continental climates reaches higher levels than during the summer months. A measure of this increase is provided, on an annual basis, in the form of the excess winter mortality figure. This figure is a simple way to assess mortality levels over the winter as a whole.

Excess winter mortality is calculated as winter deaths (deaths occurring in December to March) minus the average of non-winter deaths (April to July of the current year and August to November of the previous year).

The coefficient of seasonal variation in mortality is calculated using the following formula, which acts as a lower bound estimate of seasonal mortality (22):

$$SVM = \frac{[f_{\text{deaths}}(\text{Dec+Jan+Feb+Mar})] - [f_{\text{deaths}}(\text{Apr+May+Jun+Jul}) + f_{\text{deaths}}(\text{Aug+Sep+Oct+Nov})/2]}{[f_{\text{deaths}}(\text{Apr+May+Jun+Jul}) + f_{\text{deaths}}(\text{Aug+Sep+Oct+Nov})/2]}$$

In order to assess the impact of using the current year's data, the percentage of deaths in each month which had not been registered by the following September was examined. This was done using mortality data for 1994 to 2007 and looked at month of death and year and month of registration. The table below shows the results of this analysis.

Table 2. The distribution of winter mortality in R. Macedonia during the 1994-2007

Winters	Total	Males	Females
1994/1995	499	225	274
1995/1996	862	454	408
1996/1997	967	516	451
1997/1998	591	272.5	318.5
1998/1999	1352	717	635
1999/2000	1358.5	721	637.5
2000/2001*	304.5	56	248.5
2001/2002	710	336	374
2002/2003	1105.1	499.5	512
2003/2004	698	279.5	418.5
2004/2005	950	457.5	492.5
2005/2006	555	209	346
2006/2007	1011	509	502
Mean	843.3	404	432.1

*The difference for the winter of 2000/2001 may be a consequence of the armed conflict until June 2001.

The results demonstrate that climatic variables such as mean winter ambient temperature are found to be positively associated with levels of relative excess winter mortality in the Republic of Macedonia. A highly significant regression coefficient of 0.27 is found ($p < 0.001$) with regard to environmental temperature for total deaths, i.e. 0.23 ($p = 0.02$) for males and 0.54 ($p < 0.001$) for females. This result indicates that the typical inverse relationship normally found between cold exposure and rates of (all year) mortality does not hold for excess winter mortality. Hot weather has a stronger impact on human mortality than cold weather. Although daily winter mortality is generally 10% higher than that in summer, much of this is due to transmitted illnesses, such as influenza, that are related to indoor confinement. Summer mortality is characterized by sharp daily increases during stressful conditions, a situation not found in winter.

Systematic literature review

Thorough review of the relevant literature is required to provide a solid basis for health impact assessment. Such a review identifies existing knowledge and key gaps. One approach is to convene an expert panel to conduct the review. It is important that the most appropriate experts be identified and that they represent a range of skills and subject areas that are required for the assessment. With respect to climate change, having academic experts in the various diseases of concern as well as a climatologist would be important.

Clearly defining a search strategy is important. This would include specifying the search terms (such as exposure and outcome) and the databases that will be searched.

The types of literature to be included should be decided at the beginning of the review. The assessment may include unpublished data from official sources (such as health statistics). An experienced literature searcher familiar with the relevant public health subject area should ideally be hired to perform these activities. Comprehensive literature review requires time and money. Gaining access to literature in countries with less well developed library and Internet access systems or few literature or journal subscriptions may be difficult.

Exercises

Environmental vulnerability health impact assessment regarding the climate change and health

The purpose of the exercise is to provide students with basic information about the environmental health risk assessment and in particular with vulnerability health impact assessment regarding the climate change and health.

Task: Estimating the effect of the thermal environment on mortality

Students read the two files containing the mortality reported data and meteorological reported data by daily account for at least 3 years. After that, they should:

- Descriptive statistic for mortality and meteorological reported data.
- Estimation of the relationship between ambient temperature (or, humidity) and mortality using time series analyses.

Estimation of the excess winter mortality

The purpose of the exercise is to provide students with basic information about the environmental risk assessment.

Task: Estimation of the excess winter mortality

Students read files containing the mortality reported data by monthly account for at least 10 years (males, females and total distribution). After that, they should:

- Descriptive statistic for mortality and calculation of Seasonal Index
- Estimation of the excess winter mortality using the above mentioned formula and comment the differences (between females and males, and years).

Systematic literature review

The purpose of the exercise is to provide students with basic information about relevant literature as a solid basis for health impact assessment.

Students will be divided in three groups and will prepare essays in accordance to Task 1-3. Each of the group will oppose or accept the findings from others.

Task 1: Determine the scope of the literature review

- Scope
- Inclusion criteria
- Exclusion criteria
- Types of literature
- Inclusion criteria
- Exclusion criteria (such as excluding newspaper articles or non-peer reviewed material)

Task 2: Determine the sources of relevant literature

Primary sources (such as original peer-reviewed articles)

Secondary and tertiary sources (also called grey literature) such as review articles, reports, citations in journal articles, books, literature directories, Internet databases, newspapers, personal communications and unpublished data

Task 3: Review and evaluate literature

- Develop evaluation criteria
- Evaluate each paper in relation to:
- Methods used;
- Relevance to local area;
- Validity of findings.

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title:	Air pollution and health effects
Module: 1.26	ECTS (suggested): 0.25
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Keywords	Air quality, emission, environmental health, indoor pollution, outdoor pollution.
Learning objectives	At the end of the module, students should be able to: <ul style="list-style-type: none"> • Define the outdoor and indoor air pollution; • Identify the main air pollutants, their sources of emission, and their effects in humans, animals and plants; • Describe the air quality standards and guidelines.
Abstract	<p>Air pollution is the result of emissions of hazardous substances at rates that exceed the capacity of natural processes in the atmosphere to alter, deposit, or dilute them. Air pollution is a global problem with negative effects on humans, animals, and plants. Air pollutants consist of gases and particles which are dissolved or suspended in air. The most common health effects of air pollution concern the respiratory system, the eyes, the cardiovascular system, and the central nervous system. Effective control of air pollution requires both, the identification and measurement of the most problematic pollutants, and reduction or prevention of their emission. An important precondition for a successful policy in the control of air pollution is the degree of authority that can be exerted by government agencies that hold this responsibility. Emissions’ standards require periodic inspection and regular monitoring in order to be effective. Also, administrative mechanisms must be set up, including trained inspectors capable to operate the complex equipment needed for monitoring the standards of air quality.</p> <p>Before 1990s, SEE countries did not engage in effective international policies to control air quality. After 1990s, the decline in industrial production brought a slight improvement in air quality, which was nevertheless canceled out by the increasing number of motor vehicles. Environmental policies in SEE are slow in controlling traffic-related air pollution. Consequently, respiratory diseases are a serious environmental health problem in these countries.</p>
Teaching methods	<p>Introductory lectures:</p> <ul style="list-style-type: none"> • Overview of air pollution; • Main air pollutants: sources of emission, and effects in humans, animals and plants; • Standards and guidelines of air quality; <p>Case studies:</p> <ul style="list-style-type: none"> • Air quality in SEE countries; • Standards and guidelines of air quality in SEE vis-à-vis EU countries; • Common health problems related to air pollution in SEE countries.
Specific recommendations for teachers	This module should be assigned 0.25 ECTS.
Assessment of Students	Take-home assignment: case study – air quality monitoring in students’ own countries.

AIR POLLUTION AND HEALTH EFFECTS

Gentiana Qirjako, Jolanda Hyska, Genc Burazeri, Enver Roshi, Lidia Georgieva

Overview of air pollution

According to WHO, air pollution is contamination of the indoor or outdoor environment by any chemical, physical or biological agent that modifies the natural characteristics of the atmosphere. Household combustion devices, motor vehicles, industrial facilities and forest fires are common sources of air pollution. Pollutants of major public health concern include particulate matter, carbon monoxide, ozone, nitrogen dioxide and sulfur dioxide. Outdoor and indoor air pollution cause respiratory and other diseases, which can be fatal. High-concentration, short-term exposure to air pollutants (particulates, nitrogen dioxide, and sulfur dioxide) may increase mortality in the population, particularly among those that are susceptible to these effects. Susceptible subpopulations include individuals with chronic obstructive pulmonary diseases, as well as with ischemic heart diseases, congestive heart failure, heart rhythm disorders, asthma, and diabetes (1).

There is now no doubt that air pollution, and especially fine particulate matter (PM_{2.5}), has many serious consequences for health and leads to avoidable premature deaths. A large body of evidence exists for short-term and long-term effects on cardiovascular diseases and respiratory diseases—including chronic obstructive pulmonary disease, asthma, and lung cancer. Newly emerging evidence suggests possible effects on premature births, lung-function development in children, and accelerated progression of atherosclerosis and cognitive impairment (2).

Health effects of outdoor air pollution

Air pollution is a major environmental risk to health and it continues to pose a significant threat to health worldwide. According to a WHO assessment of the burden of disease due to air pollution, more than 2 million premature deaths each year can be attributed to the effects of urban outdoor air pollution and indoor air pollution (caused by the burning of solid fuels) [3]. More than half of this disease burden is borne by the populations of developing countries (4).

It is important to remember that air pollutants are transboundary, i.e. they know no borders and travel easily from their sources towards other locations spreading pollution throughout the world (5).

Air pollution can affect our health in many ways with both short-term and long-term effects. Different groups of individuals are affected by air pollution in different ways. Some individuals are much more sensitive to pollutants than are others. Young children and elderly people often suffer more from the effects of air pollution. People with health problems such as asthma, heart and lung disease may also suffer more when the air is polluted. The extent to which an individual is harmed by air pollution usually depends on the **total exposure** to the damaging chemicals, i.e., the duration of exposure and the concentration of the chemicals must be taken into account.

Examples of **short-term effects** include irritation to the eyes, nose and throat, and upper respiratory infections such as bronchitis and pneumonia. Other symptoms can include headaches, nausea, and allergic reactions. Short-term air pollution can aggravate the medical conditions of individuals with asthma and emphysema. In the great "Smog Disaster" in London in 1952, four thousand people died in a few days due to the high concentrations of pollution.

Long-term health effects can include chronic respiratory disease, lung cancer, heart disease, and even damage to the brain, nerves, liver, or kidneys. Continual exposure to air pollution affects the lungs of growing children and may aggravate or complicate medical conditions in the elderly.

Determinants related to exposure and adverse health effects from air pollution

The broad array of health effects associated with air pollution is partly explained by differential susceptibilities to pollutants, depending on both host and environmental factors (6). Identifying the contribution of susceptibility to the occurrence of health effects from air pollution is key in determining who is most likely to develop adverse effects. Host factors include age, health status, diet and genetics. Environmental factors include exposure characteristics as well as the individual's housing and neighborhood conditions (7).

Young children are among the most susceptible to effects of air pollution (6,8,9). Children have higher breathing rates than adults and therefore a higher intake of air pollutants per unit of body weight. They also spend more time outdoors than adults, thereby adding to their exposure potential (9,10). The developing lung may have a limited metabolic capacity to address toxic insults. Since 80% of alveoli are formed postnatally, and changes in the lung continue throughout adolescence, exposure to air pollutants poses a serious risk to this population group (10,11).

- People with pre-existing cardiac or respiratory diseases are also more susceptible. Studies have shown that those with pre-existing disease are at higher risk of seeking medical attention or of using more medication to control their condition. For instance, increases in the use of asthma medication in children have been associated with ambient levels of air pollution (12).
- When exposed to air pollution, the elderly experience more hospital admissions for asthma and chronic obstructive pulmonary disease (COPD) and higher COPD mortality than others (13).

The pattern of exposure is influenced by many individual factors that are often interrelated. These include differences in time–activity patterns or habits, the micro-environmental concentrations of the area of residence, and housing characteristics (6).

Another determinant of susceptibility seems to be socioeconomic status. There is a small but growing body of literature suggesting that economically disadvantaged population groups may experience a disproportionately higher health burden caused by air pollution (14). An inadequate nutritional status, limited access to health care and higher exposures may be some reasons for the higher burden. Educational attainment, another indicator of socioeconomic status, has been reported to modify the effect of air pollution on respiratory and cardiovascular mortality. Those with higher educational levels had the lowest mortality risks (15,16).

Understanding of the biological mechanisms through which air pollution exerts its effects has evolved quite rapidly over the last decade, and several mechanisms are being proposed. Current evidence suggests that the effects of PM may be manifested through several, probably interrelated, pathways involving oxidative stress and inflammation. Oxidative stress has been hypothesized to be a common factor in a range of adverse effects of air pollution on the respiratory and cardiovascular systems (17). Inhalation of PM can trigger inflammation in the smaller airways, leading to the exacerbation of asthma and chronic bronchitis, airway obstruction and decreased gas exchange (18,19). PM can also interfere with the clearance and inactivation of bacteria in lung tissue, epithelial permeability and macrophage function, and may act as an immunosuppressor by undermining normal pulmonary antimicrobial defense mechanisms (20,21).

The inflammatory response in the airways can also lead to effects on the cardiovascular system. The inflammation may induce transient hypercoagulability, progression of atherosclerosis and increased vulnerability to plaque rupture, especially in people with coronary atheroma (22,23). More recently, the first evidence was presented that long-term exposure to air pollution may have a more proximate role in the atherogenesis process (24). Evidence is also accumulating in support of an effect of air pollution on cardiac autonomic control, leading to changes in heart rate variability and arrhythmia in susceptible individuals (22,25-29).

The mechanisms of effect of other pollutants have not been as thoroughly studied, but some gaseous pollutants, such as ozone and oxides of nitrogen, also share the property of being potent oxidants (30). As for other health effects, such as adverse pregnancy outcomes, the biological mechanisms remain unclear

Table 1 presents the effects of the main air pollutants on human health, environment and climate (31).

Mortality rate due to outdoor air pollution in South East Europe

During the last decade, air pollution has been considered a public health concern in South East European countries. According to the data from WHO, the mortality rate due to outdoor air pollution varies by country (32). Figure 1 shows the mortality rate (per 100,000 capita) in SEE countries during 2004 and 2008. It indicates that in Bosnia and Herzegovina, the mortality rate due to outdoor pollution has increased significantly from 14 deaths /100,000 capita in 2004 to 52 deaths /100,000 in 2008. Similarly, mortality rate was increased also in Macedonia, from 18 deaths /100,000 inhabitants in 2004, to 30 deaths /100,000 inhabitants in 2008. On the other hand, in Romania, Slovenia and Croatia the mortality rate is decreased during 2004-2008.

Figure 1. Outdoor air pollution attributable deaths per 100,000 capita in SEE countries

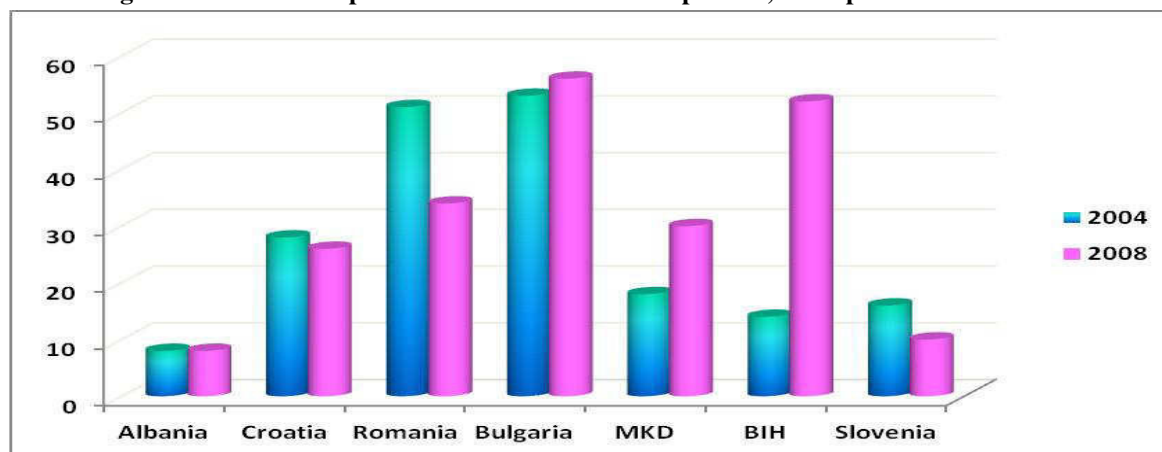


Table 1: Effects of air pollutants on human health, environment and climate (WHO, 2012)

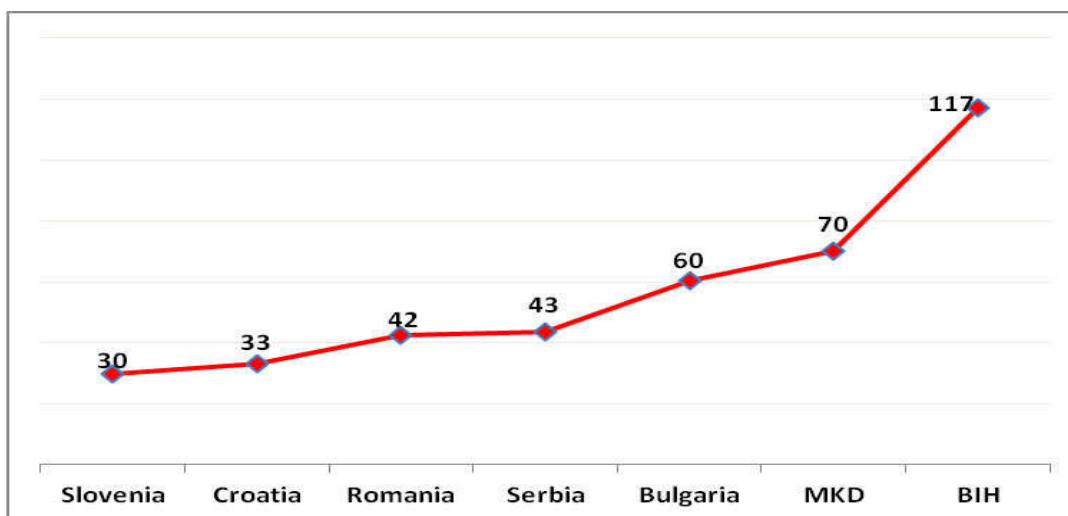
Pollutant	Health effects	Environmental effects	Climate effects
Particulate matter (PM)	Can cause or aggravate cardiovascular and lung diseases, heart attacks and arrhythmias, affect the central nervous system, the reproductive system and cause cancer. The outcome can be premature death.	Can affect animals in the same way as humans. Affects plant growth and ecosystem processes. Can cause damage to buildings. Reduced visibility.	Climate effect varies depending on particle size and composition: some lead to net cooling, while others lead to warming. Can lead to changed rainfall patterns. Deposition can lead to changes in surface albedo.
Ozone (O₃)	Can decrease lung function; aggravate asthma and other lung diseases. Can lead to premature mortality.	Damages vegetation, impairing plant reproduction and growth, and decreasing crop yields. Can alter ecosystem structure, reduce biodiversity and decrease plant uptake of CO ₂ .	Ozone is a greenhouse gas contributing to warming of the atmosphere.
Nitrogen oxides (NO_x)	NO ₂ can affect the liver, lung, spleen and blood. Can aggravate lung diseases leading to respiratory symptoms and increased susceptibility to respiratory infection.	Contributes to the acidification and eutrophication of soil and water, leading to changes in species diversity. Acts as a precursor of O ₃ and PM, with associated environmental effects. Can lead to damage in buildings.	Contributes to the formation of O ₃ and PM, with associated climate effects.
Sulphur oxides (SO_x)	Aggravates asthma and can reduce lung function and inflame the respiratory tract. Can cause headache, general discomfort and anxiety.	Contributes to the acidification of soil and surface water. Causes injury to vegetation and local species losses in aquatic and terrestrial systems. Contributes to the formation of PM with associated environmental effects. Damages buildings.	Contributes to the formation of sulphate particles, cooling the atmosphere.
Carbon monoxide (CO)	Can lead to heart disease and damage to the nervous system and cause headaches, dizziness and fatigue.	May affect animals in the same way as humans.	Contributes to the formation of greenhouse gases such as CO ₂ and O ₃ .
Arsenic (As)	Inorganic As is a human carcinogen. It can lead to damage in the blood, heart, liver and kidney. May also damage the peripheral nervous system.	Highly toxic to aquatic life, birds and land animals. Soil with high As content, reduces plant growth and crop yields. Organic As compounds are persistent in the environment and subject to bioaccumulation.	No specific effects.
Cadmium (Cd)	Cadmium, especially cadmium oxide is likely to be a carcinogen. It may cause damage to the reproductive and respiratory systems.	Toxic to aquatic life. Cadmium is highly persistent in the environment and bioaccumulates.	No specific effects
Lead (Pb)	Can affect almost every organ and system, especially the nervous system. Can cause premature birth, impaired mental development and reduced growth.	Bioaccumulates and adversely impacts both terrestrial and aquatic systems. Effects on animal life include reproductive problems and changes in appearance or behaviour.	No specific effects.
Mercury (Hg)	Can damage the liver, the kidneys and the digestive and respiratory systems. It can also cause brain and neurological damage and impair growth.	Bioaccumulates and adversely impacts both terrestrial and aquatic systems. Can affect animals in the same way as humans. Very toxic to aquatic life.	No specific effects.
Nickel (Ni)	Several Ni compounds are classified as human carcinogens. It may cause allergic skin reactions, affect the respiratory, immune and defense systems.	Nickel and its compounds can have highly acute and chronic toxicity to aquatic life. Can affect animals in the same way as humans.	No specific effects.
Benzene (C₆H₆)	A human carcinogen, which can cause leukemia and birth defects. Can affect the central nervous system and normal blood production, and can harm the immune system.	Has an acute toxic effect on aquatic life. It bioaccumulates, especially in invertebrates. Leads to reproductive problems and changes in appearance or behaviour. It can damage leaves of agricultural crops and cause death in plants.	Benzene is a greenhouse gas contributing to the warming of the atmosphere. It also contributes to the formation of O ₃ and secondary organic aerosols, which can act as climate forcers.
Benzo-a-pyrene (BaP)	Carcinogenic. Other effects may be irritation of the eyes, nose, throat and bronchial tubes.	Is toxic to aquatic life and birds. Bioaccumulates, especially in invertebrates.	No specific effects.

Particulate matters in South East European countries

The majority of particulate matter comes from fuel combustion, both from mobile sources such as vehicles and from stationary sources such as power plants, industry, households or biomass burning. The presence of fine particulate matter is associated with a broad spectrum of acute and chronic illness, such as lung cancer and cardiopulmonary disease (33). Particulate matter pollution is an environmental health problem that affects people worldwide, but middle-income countries disproportionately experience this burden.

Figure 2 provides the annual mean PM10 by selected South East European countries (for which data were available) in year 2008 (34):

Figure 2. Annual mean PM10 (2008), ug/m3
(Source: European Environment Agency; May, 2011)



As indicated in figure 2, the annual mean of PM10 in 2008 for SEE countries has exceeded the annual WHO Air Quality Guidelines (which is 20 $\mu\text{g}/\text{m}^3$). Particularly higher the annual mean of PM10 were in Bosnia and Herzegovina, The former Republic of Macedonia (MKD) and Bulgaria.

Air quality standards and guidelines

Industrial and urban air pollution is a rather complicated issue and requires the implementation of a whole array of administrative mechanisms. Effective control of indoor air pollution requires both, the identification and measurement of the most problematic pollutants, and reduction or prevention of their emission. To improve the air quality in a community, it is necessary to control all the potential sources of emission. Setting air quality standards means to protect the public health and is an important component of national risk management and environmental policies.

To set targets for the control of air pollution, it is necessary to set standards and guidelines. Standard implies a set of laws or regulations that limit permissible emissions or that do not allow degradation of air quality beyond a certain limit (35). Standards are defined as: a) concentration standards (air quality standards) which are levels of certain pollutants that are not allowed (by the responsible jurisdiction) to be exceeded, or b) emission standards, which set the amount of pollution that is acceptable to be discharged from a given source.

Guideline implies a set of recommended levels which allow comparison of air quality between regions and/or within regions over time (35). Guidelines are usually defined for concentration levels only (air quality).

Table 2 provides the air quality guidelines for Europe recommended by WHO in 2006 for classical air pollutants (3).

Control of air pollution

The key issue in the control of air pollution is the control of emissions at each source. From this point of view, the most important prerequisite for a successful policy in the control of air pollution is the degree of authority that can be exerted by government agencies that hold this responsibility (liability).

Emission standards (regulations about the amount of pollution that is allowed to be discharged from a given source) require periodic inspection and regular monitoring in order to be effective.

To effectively manage air quality in urban areas, administrative mechanisms must be set up, including trained inspectors and technical staff capable to operate the complex equipment needed for monitoring the standards of air quality.

Due to growing public concern, many countries initiated air quality monitoring in the 1960s. In 1973, WHO set up a global program to assist countries in monitoring air quality (36). However, before 1990s countries of Eastern Europe, whose economies were mostly based on the principle of “self-reliance”, did not engage in effective international policies to control air quality. After 1990s, the decline in industrial production brought a slight improvement in air quality (37). Nonetheless, the intensity of vehicular traffic has practically nullified this

improvement. Furthermore, the increasing number of motor vehicles is coupled with the use of leaded petrol and a lack of catalytic converters (38). Regrettably, environmental policies in East Europe are slow in controlling traffic-related air pollution. As the economies in these countries try to develop rapidly, resources are rarely invested in air quality control. For this reason, many experts consider respiratory damage as the most serious environmental health problem in countries of Eastern Europe (39).

Table 2. WHO air quality guidelines for Europe (Source: WHO, 2006)

Pollutant	Guideline value ($\mu\text{g}/\text{m}^3$)	Average Time
Particulate matter $\text{PM}_{2.5}$	10	Annual mean
	25	24 hour mean
Particulate matter PM_{10}	20	Annual mean
	50	24 hour mean
Ozone O_3	100	8 hour mean
Nitrogen dioxide (NO_2)	40	Annual mean
	200	1 hour mean
Sulfur dioxide (SO_2)	20	24 hour mean
	500	10 minute mean
Carbon Monoxide (CO)	10	8-hour average
	30	Hourly

Indoor air pollution

Indoor air pollution has been identified as a global environmental problem (40). According to WHO, indoor air pollution is estimated to cause approximately 2 million premature deaths mostly in developing countries. Almost half of these deaths are due to pneumonia in children under 5 years of age. Indoor pollution probably exposes more people worldwide than outdoor pollution (40). The most important sources which contribute to a substantial discharge of indoor pollutants include the smoky fuels which are used for cooking and heating. Furthermore, smoking is another important contributor which interacts in a multiplicative scale with other indoor pollutants (35, 40). This is particularly the case of many countries of South East Europe, where smoking rates are increasing rapidly. Beside tobacco smoke, the most important indoor pollutants include radon decay products, formaldehyde, asbestos fibers, combustion products (such as NO_x , SO_x , CO , CO_2 , and polycyclic aromatic hydrocarbons), as well as other chemicals used in households (35,40).

Indoor air pollution contributes to acute respiratory infections in young children, exacerbation of asthma, and chronic lung disease and lung cancer in adults (35,40).

Epidemiological studies suggest that exposure to environmental tobacco smoke leads to very serious health effects, especially on the respiratory system. Passive smoking can be a risk factor for the appearance of respiratory symptoms and illness in women that causes absence from work (41). Another study, suggests a possible role of indoor air pollution from solid fuel use in head and neck carcinogenesis in the high risk area of central and Eastern Europe (42).

The substances such as benzene, carbon monoxide, formaldehyde, naphthalene, nitrogen dioxide, polycyclic aromatic hydrocarbons (especially benzo[a]pyrene), radon, trichloroethylene and tetrachloroethylene) have been added to the WHO guidelines considering information on the existence of indoor sources, on the availability of toxicological and epidemiological data and on exposure levels causing health concerns.

Problems of indoor air quality are recognized as important risk factors for human health in both low- and middle- and high-income countries. Indoor air is also important because people spend a substantial proportion of their time in buildings (43).

Exercises

Task 1: Students are required to describe the situation of air quality in their own countries, with a particular focus on the main air pollutants, their sources of emission, and the current evidence of their effects on human health.

Task 2: Control measures of air quality are employed at three levels: at the source of emission, along the path, and at the level of the person. Students are required to describe the control measures at each level which are used in their own countries to improve air quality.

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title	Public health aspects of non-ionizing radiation
Module: 1.27	ECTS (suggested): 0.25
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Keywords	Adverse health effects, cautionary policies, electromagnetic fields, environmental and occupational risk assessment, extremely-low frequency fields, infrared rays, light, non-ionizing radiation, radio waves, static electric and magnetic fields, ultraviolet rays.
Learning objectives	After completing this module students and public health professionals should: <ul style="list-style-type: none"> • Increase knowledge for sources and possible adverse health effects from non-ionizing radiation; • Recognise and describe the risk from environmental and occupational exposure; • Define the public health priorities; • Increase the level of public awareness; and • Propose appropriate evidence based intervention strategy.
Abstract	<p>Non-ionizing radiations (NIR) is a term for the part of the electro-magnetic spectrum which the waves and their electric and magnetic fields have not enough energies to break atomic bonds and to produce the ionisation of the matters. It includes static electric and magnetic fields, extremely low frequency (ELF) fields, radio frequency and microwave fields, infrared radiation, visible light and ultraviolet (UV) radiation.</p> <p>The main human-made sources of electromagnetic fields are all appliances using electricity, television and radio transmitters, mobile phones and their base stations, radars, lasers... Electromagnetic waves produce biological effects that may lead to adverse health effects. Over the past decades, the public health concern was focused on the possible long-term adverse health effects caused by exposure to low levels of electromagnetic fields. Despite extensive research and more than 25,000 published articles, there is no evidence to conclude that exposure to low level electromagnetic fields is harmful to human health.</p> <p>To date, scientific evidence does not support a link between headaches, anxiety, suicide and depression, nausea, fatigue and loss of libido and exposure to electromagnetic fields. An exposure to fields at typical environmental levels does not increase the risk of any adverse reproductive outcome such as spontaneous abortions, malformations, low birth weight, and congenital diseases. The results contain many inconsistencies, but no large increases in risk have been found for any cancer in children or adults. Using criteria established by the International Agency for Research on Cancer (IARC), that ELF fields and radiofrequency radiation should be considered as a “possible” while UV-radiation as a “probably” human carcinogen.</p>
Teaching methods	After introductory lecture, students will work in small groups. They will discuss about environmental and occupational risk assessment regarding non-ionizing radiation, possible adverse health effects and cautionary policies. Basic skills like hazard identification and risk assessment have to be trained. Students will learn how to judge the review of the relevant literature.
Specific recommendations for teachers	The module will be organized within 0,25 ECTS credits, out of which two third will be under teacher supervision, and the rest is individual data processing and presentation preparing. It is very important to improve theoretical knowledge and practical skills of public health experts. They have to be able to prepare an environmental and occupational risk assessment, and to be the part of evidence based decision making process.
Assessment of students	The final assessment will be based on multiple choice questionnaire (MCQ) and seminar paper or case problem presentations.

PUBLIC HEALTH ASPECTS OF NON-IONIZING RADIATION

Elisaveta Stikova

Introduction

Exposure to electromagnetic fields is not a new phenomenon. However, during the 20th Century, numerous man-made electromagnetic field sources used for individual, industrial and commercial purposes and in medicine have become the focus of the public health interest. All those new and advancing technologies, including power lines, microwave ovens, computers and TV screens, security devices, radars, mobile cellular phones and their base stations, have made our life richer and easier. At the same time, they have brought with them concerns about possible health risks associated with their use, such as cancer, reduced fertility, memory loss, changes in the behaviour and development of children, etc.

In response to growing public health concerns over possible health effects from exposure to the electromagnetic field sources, in 1996 the World Health Organization (WHO) launched a large, multidisciplinary International Electromagnetic Field (EMF) Project. This project brings together current knowledge and available resources of key international and national agencies and scientific institutions (1). The International Commission on Non-Ionizing Radiation Protection (ICNIRP) and the Scientific Steering Committee of the European Commission, which is a neutral and independent scientific body worked together for a years on the scientific evidence of the acute and long-term health effects of exposure to electro-magnetic fields - EMFs (2).

The available literature does not provide sufficient evidence to conclude that long-term non-thermal effects occur as a consequence of EMF exposure. Therefore any recommendation for exposure limits regarding non-thermal long-term effects cannot be made at this stage on a scientific basis. The assessment of acute thermal effects from 0 Hz - 300 GHz electromagnetic fields provides the appropriate basis to develop exposure limits against this risk.

In order to increase awareness of the risks, to provide a high level of health protection against exposure to electromagnetic fields and to avoid acute health effects, basic restrictions and reference level were developed following a thorough review of all published scientific literature. Basic restrictions and reference levels are recommended by European Council Recommendation of 12 July 1999, on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz) with suggestion to member states to adopt the proposals and limits in their national legislation (3). In order to protect the safety and health of the workers two other directives are in force (4,5).

The conflict between concerns about possible health effects from exposure to EMF and the development of electricity supply and telecommunications facilities has led to considerable economic consequences. But, the lack of knowledge about the health consequences of technological advances may not be the sole reason for social opposition to innovations and further progress.

Main characteristics of the electromagnetic waves

Electromagnetic waves can be characterized by two interrelated parameters:

- frequency,
- wavelength.

The frequency simply describes the number of wave oscillations or cycles per second, while the term wavelength describes the distance between two peaks of the wave. Wavelength and frequency determine the energy of electromagnetic waves.

According to their frequency (measured in Hertz, Hz) and the ability to ionize an atom or molecule in biological tissues, the electromagnetic (EM) waves are classified in two categories:

- non-ionizing radiation and
- ionizing radiation

The term radiation refers to the electromagnetic energy transmitted by the waves.

The non-ionizing radiation (NIR) is a general term for those electromagnetic waves, which do not have sufficient energy to break down the bonds between molecules and to produce ions (positive and negative electrically charged atoms or parts of molecules). Even though NIR does not ionize a matter, it has been shown that it produces other biological effects, which may sometimes, but not always, lead to adverse health effects (6).

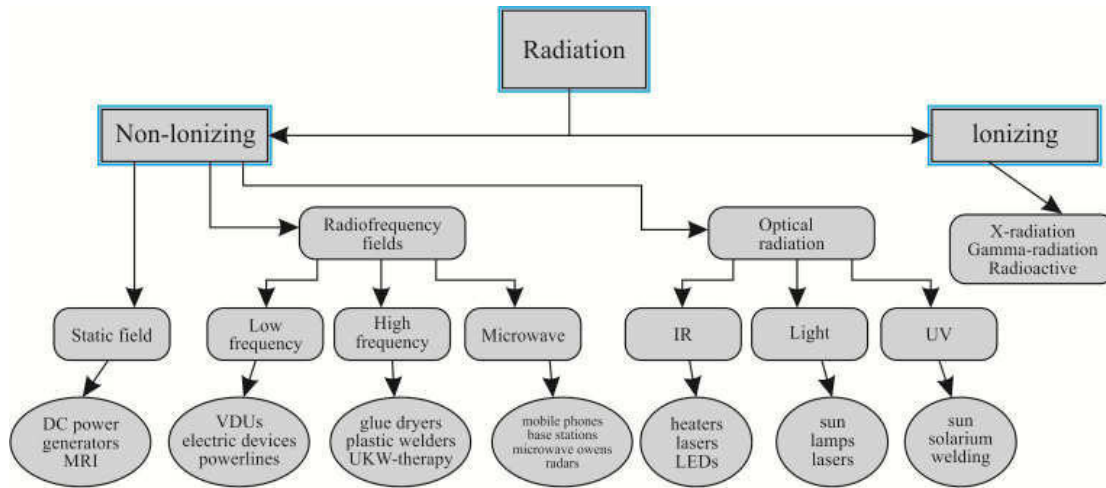
Non-ionizing radiation covers two main regions in the non-ionizing part of the electromagnetic spectrum:

- electromagnetic fields (EMFs) - static electric and magnetic fields, extremely low frequency fields (ELF), radiofrequency fields (with low and high frequency) and microwave,

- optical radiation - infrared radiation (IR), visible light, ultraviolet (UV) radiation.

Figure 1 illustrates the range of frequencies for different EM subclasses and main application of different electromagnetic fields.

Figure 1. Electromagnetic Spectrum and main application of different electromagnetic fields



The ionizing radiation refers to X-rays and gamma rays, which have the ability to produce ionization of the biological tissues and cell damage.

This chapter is only concerned with non-ionizing radiation and its effects.

The next figure and the following table on the right gives information about the sources of waves in the whole electromagnetic spectrum and their physical properties (2,7).

Figure 2. The sources of waves in electromagnetic spectrum


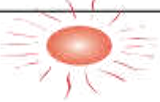



Source	
 X-rays, about 1 billion billion Hz, can penetrate the body and damage internal organs and tissues by damaging important molecules such as DNA. This process is called "ionization."	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="margin-right: 10px;">↕</div> <div style="text-align: center;">Gamma rays</div> <div style="margin-left: 10px;">↕</div> </div> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="margin-right: 10px;">↕</div> <div style="text-align: center;">X-rays</div> <div style="margin-left: 10px;">↕</div> </div> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="margin-right: 10px;">↕</div> <div style="text-align: center;">Ultraviolet radiation</div> <div style="margin-left: 10px;">↕</div> </div> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="margin-right: 10px;">↕</div> <div style="text-align: center;">Visible light</div> <div style="margin-left: 10px;">↕</div> </div> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="margin-right: 10px;">↕</div> <div style="text-align: center;">Infrared radiation</div> <div style="margin-left: 10px;">↕</div> </div> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="margin-right: 10px;">↕</div> <div style="text-align: center;">Microwaves</div> <div style="margin-left: 10px;">↕</div> </div> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="margin-right: 10px;">↕</div> <div style="text-align: center;">Radiowaves (10 MHz - 300 GHz)</div> <div style="margin-left: 10px;">↕</div> </div> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="margin-right: 10px;">↕</div> <div style="text-align: center;">Very low and intermediate frequency (VLF and IF) (300 Hz - 10 MHz)</div> <div style="margin-left: 10px;">↕</div> </div> <div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="margin-right: 10px;">↕</div> <div style="text-align: center;">Extremely low frequency (ELF) (0 - 300Hz)</div> <div style="margin-left: 10px;">↕</div> </div> <div style="display: flex; align-items: center;"> <div style="margin-right: 10px;">↕</div> <div style="text-align: center;">Direct current (0 Hz)</div> <div style="margin-left: 10px;">↕</div> </div> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-weight: bold; margin-top: 20px;">Ionizing radiation</div> </div>
 Microwaves, several billion Hz, can have "thermal" or heating effects on body tissues. Cell phone 800-900 MHz & 1800-1900 MHz  Computer 15-30 kHz & 50-90 Hz  Power-frequency EMF 50 or 60 Hz, carries very little energy, has no ionizing effects and usually no thermal effects. It can, however, cause very weak electric currents to flow in the body. 	

Table 1. Sources and physical properties of waves in the electromagnetic spectrum

Region	Wavelength (centimetres)	Energy (eV)
Radio	> 10	$< 10^{-5}$
Microwave	$10 - 0.01$	$10^{-5} - 0.01$
Infrared	$0.01 - 7 \times 10^{-5}$	$0.01 - 2$
Visible	$7 \times 10^{-5} - 4 \times 10^{-5}$	$2 - 3$
Ultraviolet	$4 \times 10^{-5} - 10^{-7}$	$3 - 10^3$
X-Rays	$10^{-7} - 10^{-9}$	$10^3 - 10^5$
Gamma Rays	$< 10^{-9}$	$> 10^5$

Electromagnetic waves and electromagnetic fields

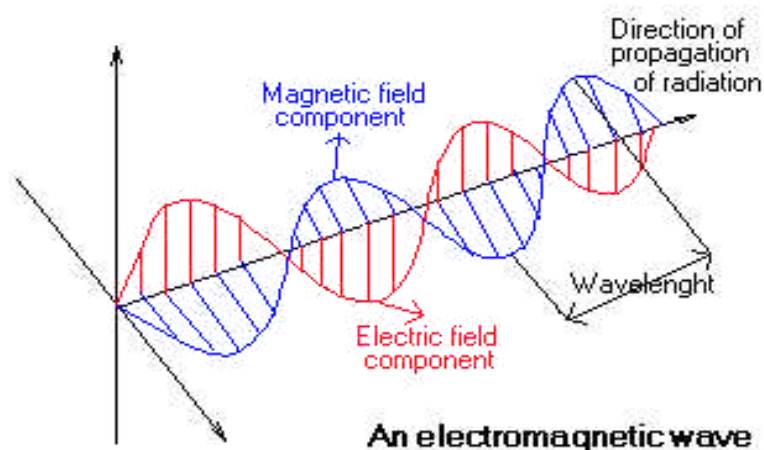
The electromagnetic waves generate electromagnetic energy in the form of:

- electric (E) field and
- magnetic (H) field.

Electric and magnetic fields (EMFs) travel together at the speed of light. Electromagnetic waves with higher frequency (shorter wavelength) carry more energy than lower frequency (longer wavelength) waves.

The adverse and health effects of the non-ionizing radiation are produced by the energy of the electric and magnetic fields.

Figure 3. Electric and magnetic fields and their propagation

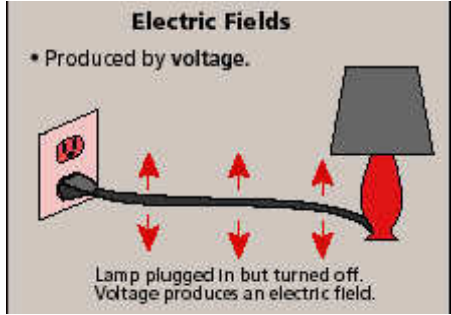
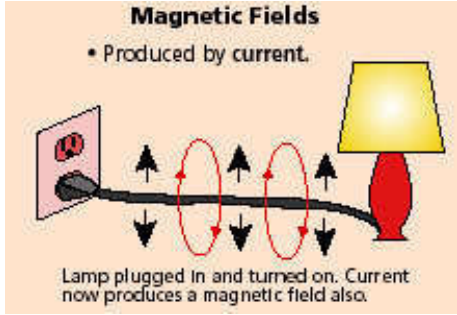


Electric fields arise from electric charges. They are created by differences in voltage. Any device connected to an electrical outlet, even if the device is not switched on, will have an associated electric field. Electric fields are strongest close to the device and diminish with distance. Common materials, such as wood and metal, shield against them. The strength of electric fields is measured in units of volts per meter (V/m).

Magnetic fields arise from the motion of electric charges, i.e. only when electric current flows. Any device connected to an electrical outlet, when the device is switched on and current is flowing, will have an associated magnetic field.

Magnetic fields are also strongest close to the device and diminish with distance, but they are not shielded by most common materials, and pass easily through them (1). Their strength is measured in units of ampere per meter (A/m) but is usually expressed in terms of the corresponding magnetic induction measured in units of tesla (T), militesla (mT) or microtesla (μ T).

Table 2. The differences between electric and magnetic fields

Electric fields	Magnetic fields
<p>Electric fields arise from voltage. Their strength is measured in Volts per meter (V/m) An electric field can be present even when a device is switched off. Field strength decreases with distance from the source. Most building materials shield electric fields to some extent.</p>	<p>Magnetic fields arise from current flow. Their strength is measured in Amperes per meter (A/m). Commonly, EMF investigators use a related measure, flux density - in microtesla (μT) or militesla (mT) instead. Magnetic fields exist as soon as a device is switched on and current flows. Field strength decreases with distance from the source. Most materials do not attenuate magnetic fields.</p>
 <p>Electric Fields • Produced by voltage. Lamp plugged in but turned off. Voltage produces an electric field.</p>	 <p>Magnetic Fields • Produced by current. Lamp plugged in and turned on. Current now produces a magnetic field also.</p>

Sources: WHO-What are electromagnetic fields: Definition and sources. Pictures: adaptation from NIEHS –NIH, 2002.

Classification of the electromagnetic fields

Regarding their physical properties, the electromagnetic fields are divided in two main groups:

- static electric and magnetic fields
- time varying electric and magnetic fields.

The static fields are time-independent fields and they do not vary over time.

In any battery-powered appliance the current flows in one direction only, from the battery to the appliance. The static fields have constant strength.

Time-varying fields are produced by alternating currents (AC). Alternating currents reverse their direction at regular intervals. In most European countries the electric field changes direction with a frequency of 50 cycles per second or 50 Hertz. Equally, the associated electromagnetic field changes its orientation 50 times every second. North American electricity has a frequency of 60 Hz.

In order to arrive at a scientifically sound recommendation for health assessment of exposure, the International EMF Project of the World Health Organization (1) classifies the electromagnetic fields from the non-ionising part of the electromagnetic spectrum as follows:

- static electric and magnetic field (0 Hz)
- electric and magnetic fields with extremely low frequency (ELF 0 - 300 Hz)
- electric and magnetic field with intermediate frequencies (IF 300 Hz - 10 MHz)
- radio-frequency and microwave fields (RF 10 MHz - 300 GHz).

The main characteristic of the classification above is the frequency of the waves. Waves in different frequency ranges have different physical properties, come from different sources and have different possible adverse and health effects (4-6).

Electromagnetic fields from the non-ionizing part of the electromagnetic spectrum

Static and oscillating electromagnetic fields with extremely low and intermediate frequency

Electromagnetic waves are present everywhere in our environment, but are invisible to the human eye. There are natural and human-made sources of electromagnetic fields.

The natural electric fields are produced by local build-up of electric charges in the atmosphere associated with thunderstorms. The natural magnetic field is the earth's magnetic field, which causes a compass needle to orient in the north-south direction, and is used by birds and fish for navigation.

Besides natural sources, human-made sources can be found in (7, 8):

- Community: power generation, high voltage distribution lines, transformers, radars, security systems, electric trains and trams, TV and radio antennas, mobile phones and their base stations etc.;
- Home: electric appliances in the household, TV sets and computer screens, microwaves ovens, portable telephones etc., and;
- Workplace: melting, refining, aluminium production, electrolytic processes, nuclear magnetic resonance, induction heating, visual display units, medical applications, etc.

Tables 3 and 4 list the main sources of static and extremely low frequency fields.

Table 3. Typical sources of exposure to static fields

Typical electric fields		Typical magnetic fields	
Atmosphere (naturally occurring)	12-150 V/m	Geomagnetic field	0.03-0.07 mT
Near TV sets, Visual Display Units (VDUs)	20 kV/m	Industrial DC equipment	50 mT
Under 500 kV transmission line	30 kV/m	Magnetic levitation train	50 mT
		Magnetic resonance imaging	1.5-9 T

Table 4. Typical sources of exposure to ELF fields

Typical electric fields		Typical magnetic fields	
Naturally-occurring (50-60Hz)	0.1 mV/m	Naturally-occurring (50-60Hz)	0.01 nT
Underneath AC transmission line	12 kV/m	Underneath AC transmission lines	10-30 μ T
Around electricity generating stations	16 kV/m	Around electricity generating stations	40-120 μ T
Around appliances	0.5 kV/m	Around appliances	50-150 μ T
		Industrial processes	130 mT
		Average 50-60 Hz fields in residence	0.1-0.3 μ T

Mechanism of biological response and interaction

For producing adverse health effects, the electric or magnetic fields must interact with the biological molecules or structures and then induce a change by transferring energy. In turn, this must generate a signal that can be sensed and amplified by cells to produce a subsequent response of the organism. It may sometimes, but not always, lead to adverse health effects (9).

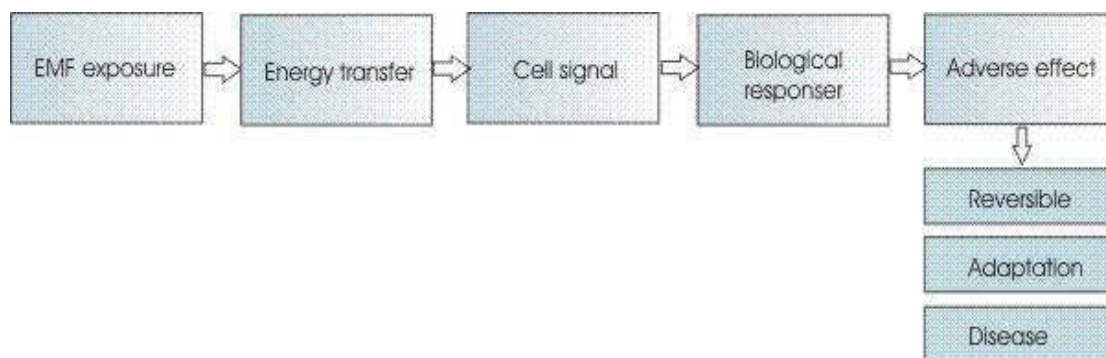
A biological response occurs when exposure to electromagnetic waves causes some noticeable or detectable physiological change in a biological system.

An adverse health effect occurs when the biological effect is outside the normal range for the body to compensate, and thus leads to some detrimental health condition.

Static electric fields do not penetrate the body, but induce an electric charge on the surface of exposed humans. For example, when touching a metal object, a charged person can experience an electric shock or spark. This spark is a result of a static electric field.

Static magnetic fields can freely penetrate in the biological tissues and have virtually the same strength inside the body as outside it. They can interact directly with moving charges (ions, proteins, etc.) and magnetic materials found in tissues through several physical mechanisms.

Figure 4. Biological response on the EMF exposure



Magnetic fields have the ability to induce electric fields in matter. Therefore, although external static electric fields cannot penetrate a body, external magnetic fields can induce an electric field within the body.

Theoretically, very intense static magnetic fields could retard blood flow and produce a rise in blood pressure or change normal nerve impulses. However, there is insufficient information about the effects of long-term exposure to static magnetic field at levels found in the working environment such as increased risk of mortality and cancer, irritability, fatigue, headache, loss of appetite, altered EEG, itching, numbness, etc. (10,11).

An oscillating ELF electric field will induce a charge on the body's surface that varies continuously and regularly in time.

An oscillating ELF magnetic field can also introduce time-varying electrical fields and currents inside the body, but mostly in the superficial tissues. These effects are also dependent on the frequency and are small for the ELF.

The biological effects related to the exposure to ELF electromagnetic field are classified as follows:

- Acute health effects
- Chronic health effects

Acute health effects. The primary mechanism of the acute biological effects of EMF with frequency ranges up to 100 KHz is the interaction with tissues resulting from energy absorption. These may invoke the formation of electric dipoles or their reorientation (12). Changes in oxidant to antioxidant ratios may also occur. From animal studies it can be concluded, that the permeability of membranes (as identified by Ca⁺⁺ homeostasis) is modified by ELF.

The primary mechanism of the biological effect of electromagnetic fields with frequency ranges above 100 KHz is absorption resulting in thermal effects. Acute thermal health effects have been well established for the high frequency class of EMF. There is a consensus view that local temperature increase of up to 1°C is not of concern. Such temperature changes may arise from up to 30 minutes exposure to EMF which produces a whole body specific energy absorption rate (SAR) between 1 - 4 W/kg. Exposure to more intense fields can produce harmful levels of tissue heating because they exceed the thermoregulatory capacity of the body.

Chronic health effects. The chronic health effects related to the long term exposure to the electromagnetic fields are usually connected to carcinogenicity and geno-toxicity, change in the secretion of melatonin, reproductive outcomes and hypersensitivity of the exposed population.

- Carcinogenicity and geno-toxicity. There is insufficient evidence to suggest that electromagnetic fields are mutagenic or can change the structure of DNA and directly interact with DNA (13,14).

Carcinogenicity studies in laboratory animals do not yet allow a final conclusion with respect to the carcinogenicity of EMF. There is a little evidence from laboratory studies to support the hypothesis that EMFs have a tumour promoting effect.

Regarding extremely low-frequency (ELF) magnetic fields there is little evidence for any increased cancer risk, except the observation of an increased risk of childhood leukemia at exposure levels of 0.3-0.4T or higher (15).

The findings from epidemiology studies designed to investigate a possible increase in leukaemia incidence in children living nearby power lines are inconclusive, and the relative increase would be less than 10⁻⁶ (16).

In June 2001, an expert scientific working group of the International Agency for Research on Cancer - IARC reviewed studies related to the carcinogenicity of static and ELF electric and magnetic fields. Using the standard IARC classification, based on epidemiological studies of childhood leukaemia, ELF magnetic fields were classified as a possibly carcinogenic to humans- Group 2B. The classification is based on the strength of scientific evidence, not on the strength of carcinogenicity or risk of cancer from the agent (17).

Over the last few years, the increasing concern was demonstrated regarding the potential carcinogenic hazards from exposure to radiofrequency electromagnetic fields, such as those emitted by wireless communication devices.

Based on extensive evaluation of the available literature about exposure data, the studies of cancer in humans and the studies of cancer in experimental animals, International Agency for Research on Cancer (IARC) assess the potential carcinogenic hazards from exposure to radiofrequency electromagnetic fields. The data from the studies related to occupational exposures to radar and to microwaves, environmental exposures associated with transmission of signals for radio, television and wireless telecommunication and personal exposures associated with the use of wireless telephones, identified an increased risk for glioma, a malignant type of brain cancer (18).

This has relevance for public health, particularly for users of mobile phones, as the number of users is large and growing, particularly among young adults and children. The number of mobile phone subscriptions is estimated at 5 billion globally (19).

The evidence was reviewed critically, and overall evaluated as being limited among users of wireless telephones for glioma and acoustic neuroma, and inadequate to draw conclusions for other types of cancers.

Based on this comprehensive evaluation IARC in 2011 classifies the radiofrequency fields as a possibly carcinogenic to humans - Group 2 (20).

This category is used for agents for which there is a limited evidence of carcinogenicity in humans and less than sufficient evidence of carcinogenicity in experimental animals. It may also be used when there is inadequate evidence of carcinogenicity in humans, but there is sufficient evidence of carcinogenicity in experimental animals.

- Melatonin. Some investigators have reported that ELF field exposure may suppress secretion of melatonin, a hormone connected with our day-night rhythms. It has been suggested that melatonin might be protective against breast cancer so that such suppression might contribute to an increased incidence of breast cancer, already initiated by other factors (21).

- Reproductive effects. Many epidemiological studies have focused on reproductive outcomes. There is no consistent evidence for adverse effects on reproduction in women working with video display units (VDUs), and no excess risk of spontaneous abortion, malformation, low birth weight, and congenital diseases (22,23).

- Hypersensitivity. Individual hypersensitivity attributed to EMF exposure can be explained by the case reports of a range of adverse health reactions (headaches, dizziness, fatigue and faintness, tingling and pricking sensations in the extremities, shortness of breath, heart palpitations, profuse sweating, depression, memory difficulties, sleep disturbances, difficulty concentrating, emotional instability, fine tremor of the hands and unconsciousness). But, the absence of clear diagnostic criteria does not allow for a conclusive judgement on the existence and nature of such hypersensitivity.

- Other possible effects. Some studies reported increasing number of Alzheimer's diseases among exposed workers, but more research is needed for proof of association. There is little scientific evidence for "electromagnetic hypersensitivity".

Cataracts, other eye diseases, skin rashes and itching have been studied, but they could not be linked to ELF from VDUs.

There is, however, a connection between ELF fields' exposition and changes in heart frequency, modification of brain waves and modulation of CNS activities, direct nerve and muscle stimulation, change in retinal function (production of the retinal phosphenes) and changes in time perception.

Electric or magnetic fields may interfere with implanted medical devices as unipolar cardiac pacemakers and cause malfunction of the device (24,25).

Radiofrequency fields and microwaves

Radiofrequency (RF) electromagnetic energy and microwave radiation is used in a variety of applications in industry, commerce, medicine and research, as well as at home.

Common sources of RF fields include: monitors and video display units (VDUs), AM and FM radio, industrial induction heaters, RF heat sealers, medical diathermy, mobile telephones, television broadcast, microwave ovens, radars, satellite links etc.

RF fields are used in conjunction with static magnetic fields in magnetic resonance imaging - MRI (11).

Measurements reported in the literature show that in many cases, electric and magnetic leakage fields are very high near these RF devices. The leakage fields are often extensive in some occupational situations, resulting in whole-body exposure of operators and very high absorption of RF energy.

Microwaves have wavelengths that can be measured in centimetres. The longer microwaves are used to heat the food in a microwave oven. Microwaves are also good for transmitting information like telephone calls and computer data from one place to another because microwave energy can penetrate haze, light rain and snow, clouds, and smoke. Shorter microwaves are used in remote sensing. These microwaves are used for radar like the doppler radar used in weather forecasts.

Biological and adverse health effects of radiofrequency and microwave fields. RF fields above 10 GHz are absorbed at the skin surface, with very little of the energy penetrating into the underlying tissues (26).

RF fields between 1 MHz and 10 GHz penetrate exposed tissues and produce heating due to energy absorption in these tissues. A SAR of at least 4 W/kg is needed to produce adverse health effects in people exposed to RF fields in this frequency range.

Induced heating in body tissues higher than 1 degree Celsius may provoke various physiological and thermoregulatory responses, including a decreased ability to perform mental or physical tasks (27).

Induced heating may affect the development of a foetus. Birth defects would occur only if the temperature of the foetus is raised by 2-3 degrees Celsius for hours. Induced heating can also affect male fertility and lead to the induction of eye opacities (cataracts).

RF fields below 1 MHz do not produce significant heating. Rather, they induce electric currents and fields in the tissues (11).

Human assessment and epidemiological studies in Europe report that the following specific problems may arise from RF exposition:

- RF burns or burns from contact with thermally hot surfaces,
- numbness (i.e. paresthesia) in hands and fingers; disturbed or altered tactile sensitivity,
- eye irritation, and
- significant warming and discomfort of the legs of operators (perhaps due to current flow through legs to ground).

Dosimetry

The basic dosimetric quantity for RF fields above 10 GHz is the intensity of the field measured as power density in watts per square meter (W/m^2).

The basic dosimetric quantity for RF fields between 1 MHz and 10 GHz is the specific absorption rate - SAR. SAR is the quantity of the RF field's energy absorbed by a given tissue mass.

Current density is the basic dosimetric quantity for RF fields with frequencies below 1 MHz.

Electromagnetic fields and public health

Public perception of EMF risk

The general public is concerned that exposure to EMF from such sources as high voltage power lines, radars, mobile telephones and their base stations could lead to adverse health consequences, especially in children.

In trying to understand people's perception of risk, it is important to distinguish between a health hazard and a health risk.

A hazard can be an object or a set of circumstances that can potentially harm a person's health.

A risk is the likelihood (or probability) that a person will be harmed by a particular hazard.

A number of factors influence a person's decision to take a risk or reject it. People usually perceive risks as negligible, acceptable, tolerable, or unacceptable, and compare them with the benefits. These perceptions can depend on people's age, sex, and cultural and educational backgrounds.

Communities feel they have a right to know what is proposed and planned with respect to construction of EMF facilities that might affect their health. They want to have the right information for the sources of EMF in their homes, environment and at work, to have some control and be a part of the decision-making process.

Unless an effective system of public information and communications among scientists, governments, the industry and the public is established, new EMF technologies will be mistrusted and feared.

Mobile Phones

Mobile telephones, sometimes called cellular phones or handiest, are now an integral part of modern telecommunications. Their use is rapidly increasing. Base stations are low-powered radio antennae that communicate with users' handsets. In early 2000 there were about 20,000 base stations in operation in the United Kingdom and about 82,000 cell sites in the United States.

However, the exposure to the public from these stations is low. Base station antennae are typically about 20-30 cm in width and a meter in length, mounted on buildings or towers at a height of 15 to 50 meters above the ground. These antennae emit RF beams that are typically very narrow in the vertical direction but quite broad in the horizontal direction. Because of the narrow vertical spread of the beam, the RF field intensity at the ground directly below the antenna is low. The RF field intensity increases slightly as one moves away from the base station and then decreases at greater distances from the antenna.

The handsets are small, low power radio transmitters that are held in close proximity to the head when in use. Mobile phone handsets and base stations present quite different exposure situations. RF exposure to a

user of a mobile phone is far higher than to a person living near a cellular base station. However, the handset transmits RF energy only while a call is being made, whereas base stations are continuously transmitting signals.

The recent reviews have concluded that exposure to the RF fields from mobile phones or their base stations is connected to the increasing risk for glioma, a malignant type of brain cancer. Because of this RF fields were classified as a possibly carcinogenic agent from Group 2B. Other effects such as changes in brain activity, reaction times, and sleep patterns are small and have no apparent health significance.

On the other hand, research has clearly shown an increased risk of traffic accidents when mobile phones (either handheld or with a "hands-free" kit) are used while driving.

Public health awareness has to be raised regarding electromagnetic interference. When mobile phones are used close to some medical devices (including pacemakers, implantable defibrillators, and certain hearing aids) there is the possibility of causing interference. There is also the potential of interference between mobile phones and aircraft electronics.

International guidelines have been developed to protect everyone in the population: mobile phone users, those who work near or live around base stations, as well as people who do not use mobile phones. RF-absorbing covers or other "absorbing devices" on mobile phones cannot be justified on health grounds (19).

Video display units (VDUs)

A VDU is essentially a television-type monitor that displays information received from a computer (computer screen) or from a broadcast signal for television. There are different types of computer screens – with cathode-ray tube, or liquid crystal display (LCD). The large increase in computer use at the workplace and at home leads to an increased number of VDUs. It is estimated that in the year 2000 there were more than 150 million units in service worldwide.

Almost the entire electromagnetic spectrum is included in the electric and magnetic fields and optical radiation produced by VDUs, including static electric fields.

When first introduced into the workplace, VDUs were suggested as the cause of many health complaints, for example, headaches, dizziness, tiredness, cataracts, adverse pregnancy outcomes and skin rashes. Many scientific studies were conducted to determine if electromagnetic fields (EMF) could have any health consequence. At some time other work environment conditions such as indoor air quality, job-related stress and ergonomic issues - such as posture and seating were the subject of many epidemiological and animal studies (28).

The most interesting and maybe most controversial are the studies about adverse pregnancy outcomes, dated from the late 1970s. The suggestion was that working with VDUs led to unusually high occurrence of spontaneous abortions and congenital malformations. But, all these studies have failed to demonstrate any effect on reproductive processes due to EMF emitted from VDUs.

Cataracts and other eye diseases were not found to have any link with VDU work. Symptoms such as skin rashes or itching could not be linked to EMF emissions from VDUs.

Some individuals have experienced headaches or dizziness, and musculo-skeletal discomfort. Researchers have studied various factors related to the indoor work environment and they found the connection between those symptoms and an improper illumination and ergonomically improper workstations (29,30).

Radars and Human Health

Radar is an acronym for "RADio Detection And Ranging". Radar was developed to detect objects and determine their range (or position) by transmitting short bursts of microwaves. The strength and origin of "echoes" received from objects that were hit by the microwaves is then recorded.

Radar systems detect the presence, direction or range of aircraft, ships or other, usually moving objects. Many types of radar have antennae, which are continuously rotating or varying their elevation by a nodding motion, thus constantly changing the direction of the beam. There are a few different types of radars: air traffic control radars, weather radars, military radars and speed control radars.

People who live or routinely work around radars have expressed concerns about long-term adverse effects of these systems on health, including cancer, reproductive malfunction, cataracts and changes in the behaviour or development of children. A recent example has been the alleged increase in testicular cancer in police using speed control hand-held radar "guns".

The very low RF environmental field levels from radar systems cannot cause any significant temperature rise. Heating effects could be expected if time is spent directly in front of some radar antennas, but they are not possible at the environmental levels of RF fields.

Cautionary policies

Public exposure to EMF is regulated by a variety of voluntary and legal limits. The most important of these are the international guidelines drafted by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) together with various national safety standards. Guidelines are designed to avoid all

identified hazards, from short and long term exposure, with a large margin of safety incorporated into the limit values. Actual exposure levels are nearly always far below recommended limits (31).

Current standards. Many countries set their own national standards for exposure to electromagnetic fields. The majority of these national standards draw on the guidelines set by the International Commission on Non-Ionizing Radiation Protection (ICNIRP). This non-governmental organization, formally recognized by WHO, evaluates scientific results from all over the world. Based on an in-depth review of the literature, ICNIRP produces guidelines and recommending limits of exposure. These guidelines are reviewed periodically and updated if necessary.

The table below is a summary of the exposure guidelines for the three areas that have become the focus of public concern: electricity at home, mobile phone base stations and microwave ovens.

These guidelines were last updated in April 1998.

Table 5. Summary of the ICNIRP exposure guidelines

	European power frequency		Mobile phone base station frequency		Microwave oven frequency
Frequency	50 Hz	50 Hz	900 MHz	1.8 GHz	2.45 GHz
	Electric field (V/m)	Magnetic field (μT)	Power density (W/m ²)	Power density (W/m ²)	Power density (W/m ²)
Public exposure limits	5 000	100	4.5	9	10
Occupational exposure limits	10 000	500	22.5	45	

Source: ICNIRP, EMF guidelines, Health Physics 74, 494-522 (1998)

Maximum exposure levels in everyday life are typically far below guideline limits.

Due to a large safety factor, exposure above the guideline limits is not necessarily harmful to health. Furthermore, time averaging for high frequency fields and the assumption of maximum coupling for low frequency fields introduce an additional safety margin.

Typical exposure levels of electromagnetic fields at home. Electromagnetic fields at home arise from electricity transmission and distribution facilities, electric appliances in the household such as television sets and computer screens, microwave ovens, portable telephones, etc. The tables below contain the data for typical electric and magnetic field strengths measured near household appliances.

Electrical appliances differ greatly in the strength of fields they generate. Both electric and magnetic field levels decrease rapidly with distance from the appliances. In any event, fields surrounding household appliances usually are far below guideline limits (32,33).

Uncertainties about electromagnetic fields

Assessment of potential health risks of EMFs includes numerous uncertainties. In particular, a number of epidemiological studies suggest the existence of weak links between exposure to EMF and human disease (34).

Several different policies promoting caution have been developed to address concerns about public, occupational and environmental health issues in the face of scientific uncertainty. These include:

- Precautionary Principle
- Prudent Avoidance
- ALARA (As Low As Reasonably Achievable)

The precautionary principle is a risk management policy applied in circumstances with a high degree of scientific uncertainty, reflecting the need to take action for a potentially serious risk without awaiting the results of scientific research.

Prudent avoidance was initially developed as a risk management strategy for power frequency EMF by Drs. Morgan, Florig and Nair at Carnegie Mellon University. These authors in their 1989 report defined prudent avoidance as "taking steps to keep people out of fields by rerouting facilities and redesigning electrical systems and appliances". Prudence was defined as "undertaking those avoidance activities that carry modest costs".

Since 1989 prudent avoidance has evolved to mean taking simple, easily achievable, low cost measures to reduce EMF exposure, even in the absence of a demonstrable risk. The terms "simple", "easily achievable", and "low cost", however, lack precise meaning. Generally, government agencies have applied the policy only to new facilities, where minor and low cost modifications in design can reduce levels of public exposure. It has not been applied to require modification of existing facilities, which is generally very expensive.

ALARA is an acronym for As Low As Reasonably Achievable. It is a policy used to minimize known risks, by keeping exposures as low as reasonably possible, taking into consideration costs, technology, benefits to public health and safety and other societal and economic concerns. ALARA today is mainly used in the context of ionizing radiation protection, where limits are not set on the basis of a threshold, but rather on the basis of "acceptable risk".

Prudent avoidance and other cautionary policies regarding EMF exposure have gained popularity among many citizens, who feel that they offer extra protection against scientifically unproven risks. However, such approaches are very problematic in their application.

Table 6. Typical electric field strengths measured near household appliances (at a distance of 30 cm)		Table 7. Typical magnetic field strength of household appliances at various distances			
Electric appliance	Electric field strength (V/m)	Electric appliance	3 cm distance (μT)	30 cm distance (μT)	1 m distance (μT)
Stereo receiver	180	Hair dryer	6 – 2000	0.01 – 7	0.01 – 0.03
Iron	120	Electric shaver	15 – 1500	0.08 – 9	0.01 – 0.03
Refrigerator	120	Vacuum cleaner	200 – 800	2 – 20	0.13 – 2
Mixer	100	Fluorescent light	40 – 400	0.5 – 2	0.02 – 0.25
Toaster	80	Microwave oven	73 – 200	4 – 8	0.25 – 0.6
Hair dryer	80	Portable radio	16 – 56	1	< 0.01
Colour TV	60	Electric oven	1 – 50	0.15 – 0.5	0.01 – 0.04
Coffee machine	60	Washing machine	0.8 – 50	0.15 – 3	0.01 – 0.15
Vacuum cleaner	50	Iron	8 – 30	0.12 – 0.3	0.01 – 0.03
Electric oven	8	Dishwasher	3.5 – 20	0.6 – 3	0.07 – 0.3
Light bulb	5	Computer	0.5 – 30	< 0.01	
Guideline limit value	5000	Refrigerator	0.5 – 1.7	0.01 – 0.25	<0.01
		Colour TV	2.5 - 50	0.04 – 2	0.01 – 0.15

(From: Federal Office for Radiation Safety, Germany 1999)

(Source: Federal Office for Radiation Safety, Germany 1999)
Normal operating distance is given in bold

With most household appliances the magnetic field strength at a distance of 30 cm is well below the guideline limit for the general public of 100 μT at 50 Hz and 83 μT at 60 Hz.

Optical part of the electromagnetic spectrum

Visible light and infrared radiation

Visible light, infrared (IR) and ultraviolet radiation refer to the optical part of electromagnetic spectrum. Regarding the potential for causing biological and adverse health effects, the optical spectrum may be further subdivided.

The term visible light should be reserved for wavelengths of radiant energy between 400 and 760 nm, which evoke a visual response at the retina (35).

Infrared radiation is that part of the non-ionizing radiation spectrum located between microwaves and visible light. "Near infrared" light is closest in wavelength to visible light and "far infrared" is closer to the microwave region of the electromagnetic spectrum. "Far infrared" waves are thermal. Following the classification by the International Commission on Illumination (CIE), the infrared radiation part of the spectrum is divided into IRA, IRB and IRC subparts (36).

Exposure to light and IR radiation results from various natural and artificial sources. The greatest natural source of visible light is the sun. Light is the essential component of the output of illuminating lamps, visual displays and a wide variety of illuminators. Aside from the importance of illumination for seeing, some light sources may, however, produce unwanted physiological reactions such as disability and discomfort glare, flicker and other forms of eye stress due to poor ergonomic design of workplace tasks.

The most significant artificial sources of human exposure to light and infrared radiation include welding and cutting, arc and infrared lamps, medical treatment with infrared lamps for a variety of diagnostic and therapeutic purposes, general lighting with fluorescent or tungsten and tungsten-halogen lamps, optical projectors and other similar devices. The spectral emission from these sources may be limited to a single wavelength (laser) or may be distributed over a broad wavelength band.

Infrared radiation may also be referred to as thermal radiation (or radiant heat), and is emitted from any warm object (hot engines, molten metals and other foundry sources, heat-treated surfaces, incandescent electric lamps, radiant heating systems, etc.).

Shorter, near infrared waves are not hot at all. These shorter wavelengths are the ones used by your TV's remote control.

Biological effects. In general, infrared radiation from the most common sources such as lamps, or from most industrial applications, will not cause any risk to the population or workers. The primary targets of an IR exposure are the skin and the eye (37,38).

There are at least five separate types of hazards to the eye and skin from intense light and infrared radiation sources:

- thermal injury to the retina; the local burning of the retina results in a blind spot (scotoma).
- blue-light photochemical injury to the retina; a particular form of this injury is named, according to its source, solar retinitis.
- near-infrared thermal hazards with the potential for industrial heat cataract, known as glass blower's or furnace man's cataract.
- thermal injury of the cornea and conjunctiva; this type of injury is almost exclusively limited to exposure to laser radiation
- thermal injury of the skin.

Long-term exposure even at relatively low level causes heat stress to the human body (39,40).

Lasers. A laser is a device, which produces coherent electromagnetic radiant energy within the optical spectrum from the far infrared (sub millimetre) to the extreme ultraviolet. The term laser is actually an acronym for **L**ight **A**mplification by **S**timulated **E**mission of **R**adiation.

The laser process was theoretically predicted by Albert Einstein in 1916, but the first successful laser was demonstrated in 1960. In recent years lasers have found their way from the research laboratory to the industrial, medical and office setting. In many applications, such as videodisk players and optical fiber communication systems, the laser's radiant energy output is enclosed. Therefore, the user faces no health risk. However, in some medical, industrial or research applications, the laser's emitted radiant energy is accessible and may pose a potential hazard to the eye and skin (41).

- Laser Hazard Classification

Current laser safety standards throughout the world follow the practice of categorizing all laser products into hazard classes. Generally, the scheme follows a grouping of four broad hazard classes, from 1 through 4. Class 1 lasers cannot emit potentially hazardous laser radiation and pose no health hazard. Classes 2 through 4 pose an increasing hazard to the eye and skin. The classification system is useful since safety measures are prescribed for each class of laser. More stringent safety measures are required for the highest classes.

The International Commission on Non-Ionizing Radiation Protection (ICNIRP 1995) has published guidelines for human exposure limits for laser radiation that are periodically updated. Virtually all laser beams exceed permissible exposure limits.

Ultraviolet radiation

The ultraviolet radiation (UVR) is a form of optical radiation with shorter wavelengths and more energy than its visible counterpart. UVR is present in sunlight and is also emitted from a large number of ultraviolet sources used in industry, science and medicine.

Ultraviolet radiation spectrum is subdivided and its components - UVA, UVB and UVC. UVC (very short-wavelength UVR) in sunlight is absorbed by the atmosphere and does not reach the Earth's surface. UVC is available only from artificial sources, such as germicidal lamps, that are very effective in killing bacteria and viruses on a surface or in the air.

UVB is the most biologically damaging UV radiation to the skin and eye (42). Although most of this energy is absorbed by the atmosphere, it still produces sunburn and other biological effects.

UVA, is normally found in most lamp sources. Although UVA can penetrate deeply into tissue, it is not as biologically damaging as UVB because the energy of this component of ultraviolet radiation is less than for UVB or UVC.

Sources of Ultraviolet Radiation. The natural source of ultraviolet radiation is sunlight. Other artificial sources are industrial arc and welding, industrial UVR lamps, "black" light, some medical treatments, germicidal UVR lamps, cosmetic tanning and general lighting.

Biological Effects. The most important localization of the biological effects caused by UVR is the skin and the eye.

The most frequent changes on the skin are erythema or "sunburn" and photosensibilisation. Erythema normally appears in four to eight hours after exposure to UVR and gradually fades after a few days. Severe

sunburn can involve blistering and peeling of the skin. UVB and UVC are both about 1,000 times more effective in causing erythema than UVA, but erythema produced by the longer UVB wavelengths (295 to 315 nm) is more severe and persists longer (42). The use of some medicines or certain products such as perfumes, body lotions, creams and so on may produce a photosensitizing effect on exposure to UVR. Reactions to photosensitizing agents involve both photoallergy (allergic reaction of the skin) and photo toxicity (irritation of the skin).

Chronic exposure to sunlight-especially the UVB component-accelerates the aging of the skin and increases the risk of developing skin cancer. Exact quantitative dose-response relationships for human skin carcinogenesis have not yet been established, although fair-skinned individuals are much more prone to develop skin cancer. Using the standard IARC classification UV-radiation was classified as a probably carcinogenic to humans.

The most frequent changes on the eyes after the exposure to UVR are photokeratitis, photoconjunctivitis and retinal injury from bright light.

Long-term exposure to UVR may contribute to cataract and such non-eye-related degenerative effects as skin aging and skin cancer. About 2-3 million non-melanoma skin cancers and 132 000 melanoma skin cancers occur globally each year. Some 12-15 million people are blind from cataracts and about 20% of those cataracts are connected with UVR exposure.

Small amounts of UV radiation are beneficial for people and essential in the production of vitamin D.

What is the global solar index? The Global Solar UV Index (UVI) describes the level of solar UV radiation at the Earth's surface. The values of the index range from zero to 11+: the higher the index value, the greater the potential for damage to the skin and eye, and the less time it takes for harm to occur. The UVI should especially target vulnerable and highly exposed groups within the population, e.g. children and tourists, and should inform people about the range of UV radiation-induced health effects including sunburn, skin cancer and skin ageing, and effects on the eye and immune system (43).

Graphic presentation of the UVI. A standard graphic presentation of the UVI promotes consistency in UVI reporting on news and weather bulletins, and serves to improve people's understanding of the UVI concept. The graphics package can be downloaded from the website of WHO's Global UV Project Intersun <http://www.who.int/uv/>.

Simple precaution measures to prevent UV exposition

Avoid the peak ultraviolet radiation period. If you avoid the sun during the 2 hours on either side of solar noon, you could avoid up to *60% of the day's ultraviolet radiation*.

Wear a Hat. A hat with a wide brim offers good sun protection for your eyes, ears, face, and the back of the neck.

Wear Protective Clothing. Wear lightweight, loose-fitting clothing as much as possible. Tightly woven cloth is best, but any clothing is better than none at all.

Use Sunscreen. Apply a SPF of at least 15+ broad spectrum sunscreen to all exposed areas of the skin as the last line of defence against the sun.

Wear Sunglasses that Block 99-100% of UV Radiation. Sunglasses can help protect your eyes from sun damage. Wraparound sunglasses are best because they can protect your eyes from all angles.

Look out for the UV Index. The UV Index provides a forecast of the expected risk of overexposure to the sun and indicates the degree of caution you should take when working, playing, or exercising outdoors. The UV index will provide you with guidance as to how strong the UV will be for the day.

Figure 5. Factors that influence the natural UV radiation

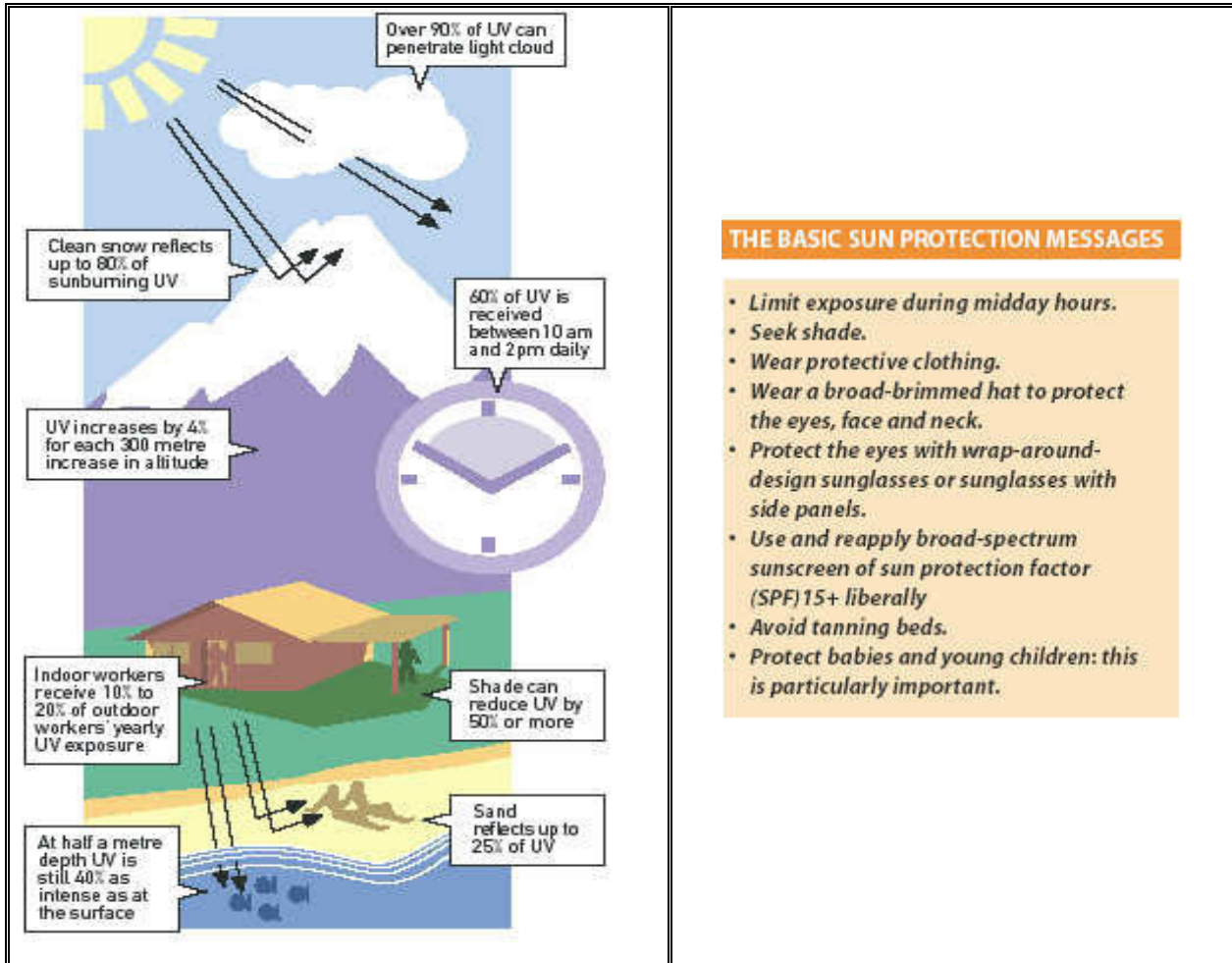
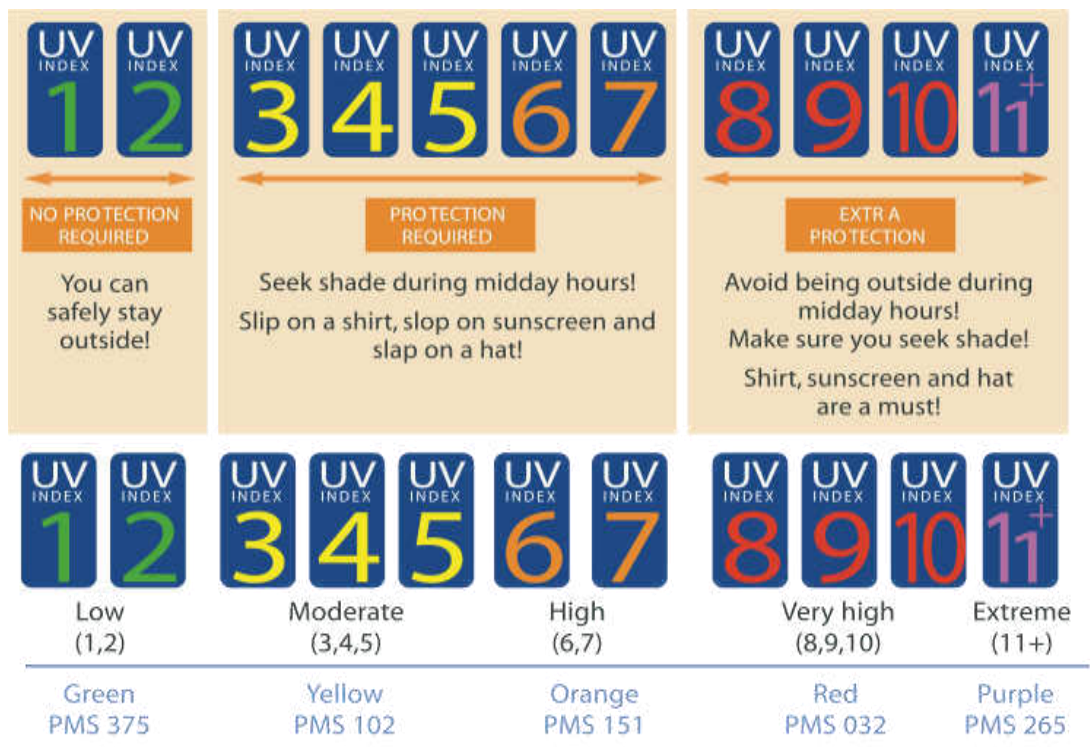


Figure 6. Graphic presentation of UV index and required level of protection



Exercises

Health risk assessment regarding the non-ionizing radiation

The purpose of the exercise is to provide students with relevant information about the sources, possible adverse health effects and basic principles of monitoring as a condition for environmental and occupational risk assessment.

Task: Estimating the effects of non-ionizing radiation on cancer morbidity and mortality.

Students read the two files containing the cancer morbidity and mortality data and data for occupation and environmental living condition. After that, they should:

- describe the data for morbidity, mortality and exposition,
- estimate the relations between morbidity, mortality, exposition and other environmental factors,
- calculate the risk.

Systematic literature review

The purpose of the exercise is to provide students with basic information about relevant literature as a solid basis for health impact assessment regarding the possible effects of non-ionizing radiation.

Students will be divided in three groups and will prepare essays in accordance to Task 1-3. Each of the group will oppose or accept the findings from others.

Task 1: Determine the scope and types of the literature review.

Basic needs are to define the:

- Inclusion criteria
- Exclusion criteria

Task 2: Determine the sources of relevant literature.

Primary sources (such as original peer-reviewed articles).

Secondary and tertiary sources (also called grey literature) such as review articles, reports, citations in journal articles, books, literature directories, Internet databases, newspapers, personal communications and unpublished data.

Task 3: Review and evaluate literature

- Develop evaluation criteria
- Evaluate each paper in relation to:
 - Methods used;
 - Relevance to local area;
 - Validity of findings.

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title	“Health needs” concept
Module: 1.28	ECTS (suggested): 0.1
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Keywords	A health-care provider perspective, a population perspective, demand, economic perspective health need, health care demand, health care need.
Learning objectives	After completing this module students should: be familiar with the concept of “health needs” from public health perspective.
Abstract	The concept of “health needs” is one of key concepts in public health. From the public health standpoint, the most important perspective on this concept is the perspective of a population, or an individual respectively. But along this perspective there exist several other perspectives, which can be to the certain extent similar, but also could be also very different. All this enters an enormous confusion in its understanding, and consecutively this concept seems rather elusive. This confusion originates from the fact that the concept of “health needs” is very difficult to define exactly, like it is also very difficult to define exactly the concept of “health itself”, since both concepts are extremely complex entities. The module is trying to enlighten some problems concerning the “health needs” concept.
Teaching methods	An introductory lecture gives the students first insight in “health needs” concept. The theoretical knowledge is illustrated by a case study. After introductory lectures students first carefully read the recommended readings. Afterwards they discuss the characteristics of “health needs” concept with other students. In continuation, they need to find the examples from their own experience.
Specific recommendations for teachers	<ul style="list-style-type: none"> • work under teacher supervision/individual work proportion: 30%/70%; • facilities: a lecture room, a computer room; • equipment: computers (1 computer on 2-3 students), LCD projection, access to the Internet; • training materials: recommended readings or other related readings; • target audience: master degree students according to Bologna scheme.
Assessment of students	Multiple choice questions test and group work (virtual scenario, describing a health need of an individual or of a population group).

"HEALTH NEEDS" CONCEPT

Lijana Zaletel-Kragelj, Ivan Erzen, Marjan Premik

Theoretical background

Introduction

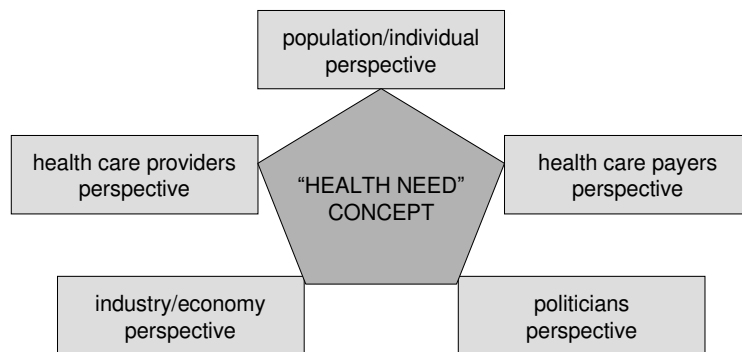
This module could be rather difficult to understand, since it is dealing with philosophical aspects of public health rather than with practical. Nevertheless, for public health students, it is extremely important to be familiar with the concept of "health needs", since it is one of key concepts in public health.

Here, at the very beginning of this module, we should emphasize that there exist several different perspectives on this concept. From the public health standpoint, the most important perspective on this concept is that of a population, or an individual respectively. This perspective will be the central under consideration.

Different perspectives on "health needs" concept

In the introduction, we have already emphasized that there exist several different perspectives on the "health needs" concept, which poses an enormous confusion in its understanding. Figure 1 presents the majority of the most important perspectives (Figure 1).

Figure 1. Different perspectives on "health needs" concept



As a consequence, this concept seems rather elusive. This confusion originates from the fact that the concept of "health needs" is very difficult to define exactly, like it is also very difficult to define exactly the concept of "health itself", since both concepts are extremely complex entities (1).

Trying to enlighten the "health needs" concept from the public health point of view, we meet several terms which are continuously used interchangeably. We will try to define/explain those terms which are most frequently brought into use, and place them in different perspectives on this concept, as well as their dimensions.

Definitions and explanations of terms

Central terms

In explanation of "health needs" concept, two central terms are "health need", and "health care need", but we need to start just from the term "need".

Need

The simplest term, "need", is used widely, but it can have a variety of meanings. In Oxford Advanced Learner's Dictionary of Current English (2) we could find four meanings of this term:

1. a situation when something is necessary or must be done,
2. a strong feeling that somebody want somebody/something or must have something,
3. the things that somebody requires in order to live in a comfortable way or achieve what he/she wants,
4. the state of not having enough food, money or support.

All these meanings share the same idea - a need refers to a lack of something.

Health need and health care need

In public health, the term “need” is used in a context of “health needs” concept. The problem is that under this term several meanings could be met. These meanings are on one hand closely related, while on the other they must be clearly distinguished.

“Health need” in its basic sense of “health need”.

The term could be explained in different ways. Since the term “need” refers to a lack of something, the most easily understood explanation in the context of concept of “health needs” could be that “health need” refers to a lack of health.

Another simple explanation is that “health need” is a desire of people to remain healthy.

“Health need” in a professional (medical) sense of “health need”.

Health need may be defined also as scientifically (biologically, epidemiologically, etc.) determined deficiencies in health that call for preventive, curative and eventually (where appropriate) control or eradication measures (3).

“Health need” in a sense of “health care need”.

The “lack of health” (from the population or an individual perspective) could be perceived as strong enough to be expressed in terms of “health care need”. This means that “health care need” could be perceived as “health need” which is strong enough for an individual to seek a help in a health care service.

“Health need” in an economical sense of “health care need”.

In health economics “health need” is defined as the minimum amount of resources required to exhaust an individual’s or a specified population’s capacity to benefit from an intervention (4,5).

Some other important considerations

Some other important considerations about “health needs” concept are:

- health need like health is not an absolute concept,
- there are gradations of health need, therefore health needs of a population or of an individual have to be prioritised,
- health need is a subjective rather than an objective, scientific concept,
- perceptions of need vary depending on the observer,
- health need is not a scientific judgement and it is not the domain of the medical profession only.

Frequently, the term “need” in the context of “health needs” concept is confronted and/or interchanged by the term “demand”.

Other important terms

Demand

In Oxford Advanced Learner's Dictionary of Current English (2) we could find three meanings of the term “demand”:

1. A very firm request for something; something that somebody needs,
2. Things that somebody/something makes you do, especially things that are difficult, make you tired, worried, etc.,
3. The desire or need of customers for goods or services which somebody wants to buy, or use.

Health demand and health care demand

We could notice that from a semantic point of view, the last meaning of the term “demand” is very close to the term “health care need”. In fact, these two terms could be understood from three perspectives at least.

1. “Health care demand” in the sense of “health care need”.

The term “health demand” is used as a synonym in this context as well.

In this sense, the term “health care demand” or “health demand” respectively, could be explained as an attempt by an individual in need to seek help from health care services.

2. “Health care demand” in the sense of economic “demand”.

For economists, the word “demand” is reserved for the desire for a good or service (such as health care) in addition to the ability to pay for it.

According to Last (4), demand for health care services is willingness and/or ability to seek, use, and, in some settings, pay for services. Sometimes further subdivided into “expressed demand” (equated with “use of health care service”) and “potential demand”, or “need”. This division was proposed by WHO experts group in 1971.

3. “Health demand” in the sense of “demand” in population/individual sense.

“Health demands” are usually measured in terms of the actual utilisation of health services. But, consideration must be given to the fact that all felt needs by a population (most usually in curative

medicine) cannot be translated into expressed need or demand for various reasons (like absence of accessible health services, lack of information, lack of confidence, low income, etc.).

Other related terms

Health care

According to A Dictionary of Epidemiology (4), health care is defined as service provided to individuals or communities by agents of the health services or professions to promote, maintain, monitor, or restore health. Health care is not limited to medical care, which implies therapeutic action by or under the supervision of a physician. The term is sometimes extended to include self-care.

Health care provider

According to a Glossary of Health Care and Health Care Management Terms (6,7), health care provider is an individual or institution that provides medical services (e.g., a physician, hospital, laboratory). This term should not be confused with an insurance company which "provides" insurance (7).

Health care supply

At this point, also the term "health care supply" needs to be mentioned. The three terms, being "health care need", "health care demand", and "health care supply" should be clearly distinguished. According to Stevens, health care need is what people might benefit from a health care system, health care demand is what people wish to use in a health care system, and health care supply is what is actually provided (8).

Some expert's perception of health needs concept and classifications

In the literature, we can find perceptions of "health need" concept of different experts or groups of experts, and their classifications, among them WHO Expert Committee on Health Statistics' perception, and Bradshaw's, and Kalimo's perception.

Classification of WHO Expert Committee on Health Statistics

A classification of "health need" was proposed by the WHO Expert Committee on Health Statistics in 1971 (9):

- perceived need - perceived need is the need for health services experienced by the individual and which he/she is prepared to acknowledge. Under certain conditions it may exceed the professionally defined need;
- professionally defined need - professionally defined need is the need for health services recognised by a health professional from the point of view of the benefit obtainable from advice, preventive measures, management or specific therapy. Under certain conditions it may exceed the perceived need;
- scientifically confirmed need - scientifically confirmed need is the need confirmed by objective measures of biological, anthropometric or psychological factors, expert opinion or the passage of time. It is generally considered to correspond to those conditions that can be classified in accordance with the International Classification of Diseases.

A classification of "health demand" was proposed by the WHO Expert Committee on health statistics in 1971 as well:

- potential demand - potential demand is the demand for health services corresponding to whichever is the greater of the perceived and professionally defined needs for each particular conditions or for all the conditions affecting a given population;
- expressed demand - expressed demand is the demand actually made on the health services available to a population. It may be greater than the actual utilisation because of the existence of waiting lists, limited resources or differences between patient's perception of their needs and professional's definition of those needs.

Bradshaw's classification

At about the same time, Bradshaw in sociological sphere presented his classification of needs (10). This classification could be often met in public health as well. He distinguished among four types of needs, being normative, perceived, expressed and comparative:

- normative need - normative needs are those that agree with norms, as defined by health professionals;
- perceived need - perceived needs are those perceived by individuals, depending on health services available;
- expressed need – perceived needs become expressed needs, once articulated;

- comparative need - generalization of evaluated needs in a population results in comparative needs.

Kalimo’s classification

In 1976, Kalimo, a Finnish expert for health care systems, proposed his perspective on “health needs” concept, in fact for health care service need. He operationally defined health needs as the difference between observed and ideal levels of health (11).

According to Kalimo, ill health in the individual can conceptually be understood as a disturbance in one or more subsystems, being psychobiological, perceptive, and social activity. As a consequence he distinguished among three types of “health needs” (11):

- medically defined need - when a disturbance is present in the psychobiological subsystem on the basis of clinical evidence;
- perceived need - when a disturbance is present in the perceptive subsystem on the basis of perceived or subjective evidence;
- socially determined need - when a disturbance is present in social activity on the basis of behavioural or social evidence.

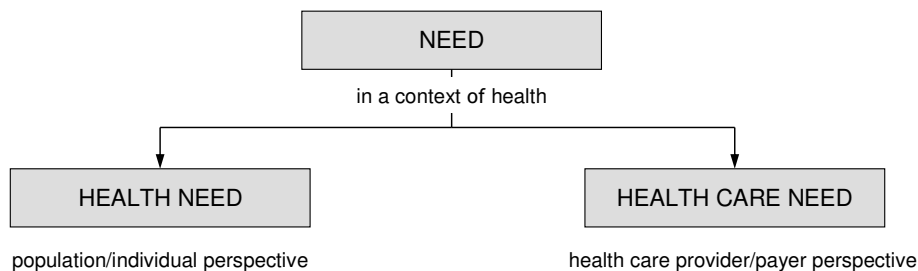
Health needs concept and public health

Public health view on the “health needs” concept is (or should be) comprehensive. Such a view originates from the fact that public health itself is a knowledge and profession that encompasses knowledge of several other professions and sectors (and it is as such multiprofessional and multisectoral), and integrate them to credit of people that seek for health. Thus, a public health professional needs to be familiar with different perspectives on this concept, to be able on one side to confront, and on the other to integrate population/individual, health care providers, health care payers, industry/economy, and politicians perspectives.

Two of the most important perspectives in a context of health are the perspective of lay people/population, and the perspective of health care providers and perspective of health care payers (Figure 2). The first are thinking about “health needs”, and the others about “health care needs” (Figure 2).

Mostly, both groups are thinking that they are talking about the same issue, but this is in fact far away from the truth. As it will be discussed later, the “health need” is a multidimensional concept and “health care need” is only one way to be expressed. That means that the health need could only partially be fulfilled through health care systems, especially those typical for western countries. In these countries, health care is understood to be mostly provided by medical care. The fact is that great deal of health is gained and lost outside of medical care, and the underlying determinants of good health are to be found in the environments of everyday life, people’s social, cultural, and economic circumstances and the interaction of lifestyles and behaviour with those circumstances. A great deal of “health needs” thus cannot be fulfilled through a health care system.

Figure 2. The most important perspectives on “health needs” concept



Also, inside the group of health care providers and payers there are differences in understanding of the health needs concept. For example, medical need is mostly defined as medically modifiable morbidity burden, while demand for medical services is defined as the request of the citizen, this time in the role of patient (a “consumer”) for medical care services (12). This definition is primarily related to payer’s perspective. In some cases, that what is “a need” for one, it is “a demand” for the other. Detailed discussion on this issue is beyond the scope of this module, and should be worked out in a separate one.

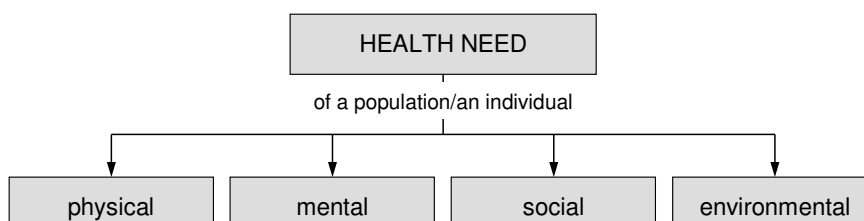
At this point we could simply stop this philosophical debate, but in fact, it could be continued, and additionally made even more complex with including the ethical perspective on the issue. This very important perspective is often neglected from the pure industry/economy stand point where most frequently only the rules of capitalism are those that count. But this issue is also beyond the scope of this module, like beyond the scope are all more economical considerations of health needs, including supply of health care.

From public health point of view, the most important perspective is certainly the perspective of population and the member of a population - the individual. Thus this perspective will be discussed in more details.

Health needs from the population/individual perspective

There exist several dimensions of health need from the perspective of population/individual, at least being physical, mental, social, and environmental (in the sense of natural, physical and biological, environment) (Figure 3).

Figure 3. Some dimensions of health need of a population/an individual



The disruption can occur in one or more subsystems at the same time.

Whatever health need dimension is, it could be perceived or not (Figure 4). When and how the need is perceived depends on different factors:

- mainly it depends on the amount and intensity of disruption. Every disease has its natural course, and most of them have preclinical phase before it is fully expressed with symptoms. If there are no symptoms, or symptoms are of low intensity, or are not frequent, the disruption is not disturbing for an individual. As a consequence, it is not perceived as a health need;
- to a certain extent, the perception of health need also depends on cultural and normative environment of an individual;
- today, health need perception could be also driven by remedies industry (e.g. pharmaceutical industry) using marketing methods to enhance consumption of their products;
- contemporary information technology (e.g. internet), as well, could raise the perception of health needs that otherwise would not be perceived.

If health need is perceived, it could be expressed or not (Figure 4). If it is expressed, this could be in different terms, among others in terms of need for professional health care (medical care).

With expression of health needs in terms of health care need, it is similar situation as in perception. Only in this case, the cultural and normative environment has bigger influence. Also social, economic, and natural environment influence expression of health needs. For example, if an individual has only moderate perception of health need, expression in terms of health care need will probably not occur, if the health care provider is far distant, or too expensive.

Meeting "health needs" of a population/an individual through health care system

If we consider only the physical and mental dimension of a health need which is usually searched for, and also (at least partially) fulfilled in the frame of health care system, we could confront the expressed perceived physical or mental health need to a health care need, recognized by health care professionals (Figure 5).

In fact, mostly, the physical dimension is considered inside health care systems, while the mental dimension is mainly not in the first plan.

When the health care needs meet the health need of a population/an individual we are talking about met need, otherwise the needs are unmet (Figure 6).

The unmet health need is even greater if we consider that great deal of health need is not generated physically or mentally, but also has other dimensions as well (e.g. social and environmental).

In some problems, it also happens that the need is recognized by health professionals, but it is not perceived by population/an individual (Figure 6). This is the case for example in screenings for diseases with unfavourable outcomes like cancer.

Figure 4. Perception and expression of health needs from the perspective of a population/an individual

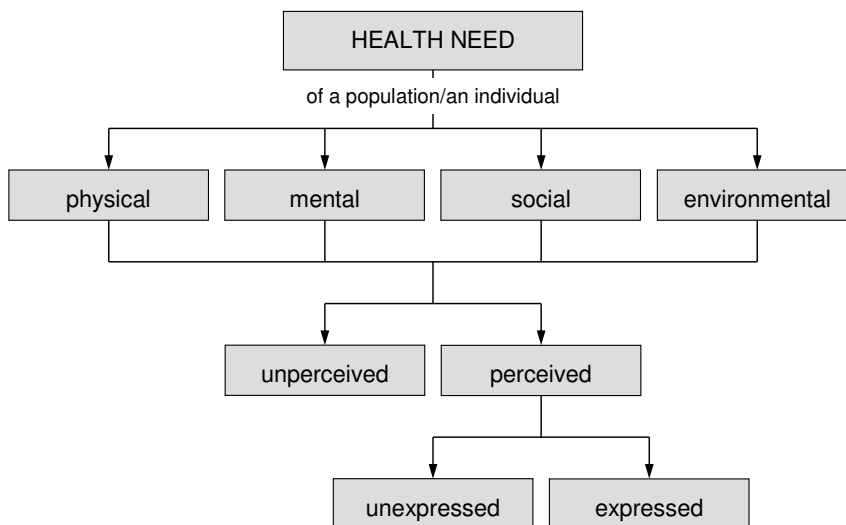
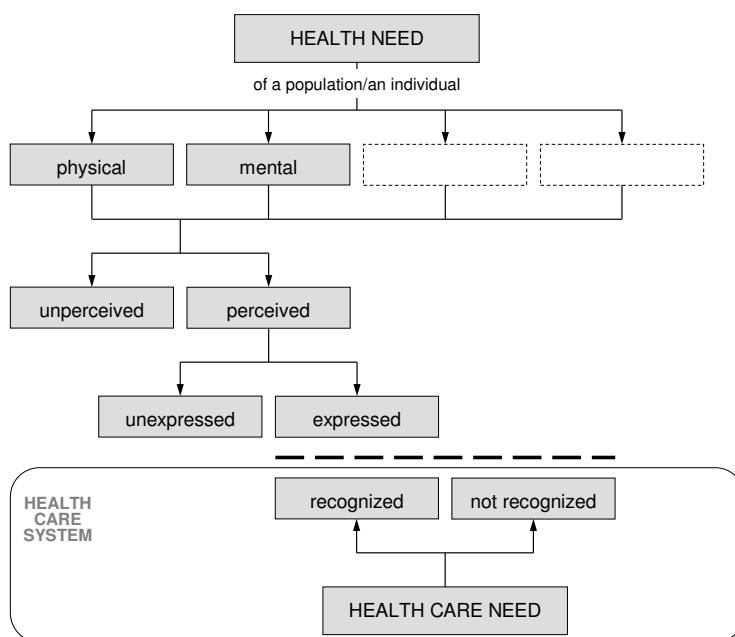


Figure 5. Expressed health needs confronted with recognized and not recognized health care needs

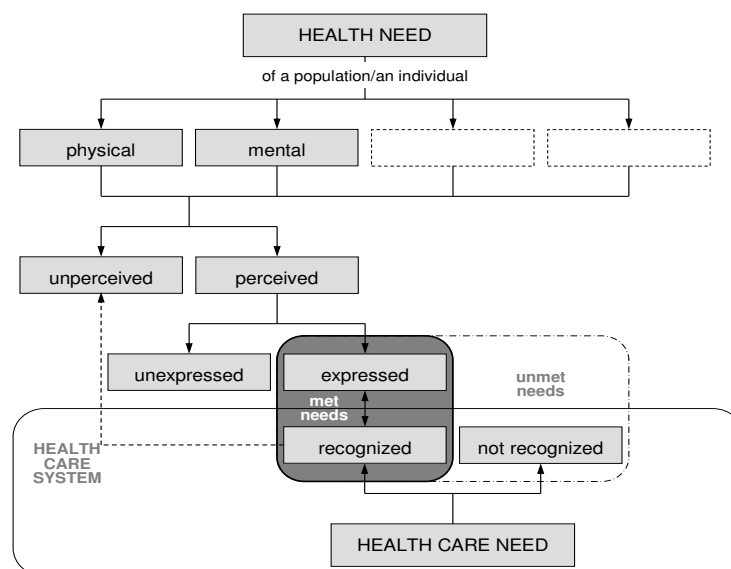


Health needs assessment in public health practice

At this point, we also need to introduce the concept of “health needs assessment”. This is (or should be) an important task for public health. The detailed discussion is beyond the scope of this module. An extra module is needed to deal with it, so we will consider only very basic views.

Assessment of health needs is not simply a process of listening to patients or relying on personal experience. It is a systematic method of identifying unmet health and healthcare needs of a population and making changes to meet these unmet needs. It involves an epidemiological and qualitative approach to determining priorities, which incorporates clinical and cost effectiveness and patients' perspectives. This approach must balance clinical, ethical, and economic considerations of need that is, what should be done, what can be done, and what can be afforded (8,13).

Figure 6. Met and unmet health needs of a population/an individual



Health needs assessment should not just be a method of measuring ill health, as this assumes that something can be done to tackle it. Incorporating the concept of a capacity to benefit introduces the importance of effectiveness of health interventions and attempts to make explicit what benefits are being pursued. Economists argue that the capacity to benefit is always going to be greater than available resources and that health needs assessment should also incorporate questions of priority setting, suggesting that many needs assessments are simply distractions from the difficult decisions of rationing.

For individual practices and health professionals, health needs assessment provides the opportunity for:

- describing the patterns of disease in the local population and the differences from district, regional, or national disease patterns;
- learning more about the needs and priorities of their patients and the local population;
- highlighting the areas of unmet need and providing a clear set of objectives to work towards meeting these needs;
- deciding rationally how to use resources to improve their local population's health in the most effective and efficient way;
- influencing policy, interagency collaboration, or research and development priorities.

In Box 1, questions that should be answered in health needs assessment are presented.

Importantly, health needs assessment also provides a method of monitoring and promoting equity in the provision and use of health services and addressing inequalities in health (8,14).

Box 1. Questions to be asked when assessing health needs

Questions in health needs assessments:

- What is the problem?
- What is the size and nature of the problem?
- What are the current services?
- What do patients want?
- What are the most appropriate and effective (clinical and cost) solutions?
- What are the resource implications?
- What are the outcomes to evaluate change and the criteria to audit success?

The importance of assessing health needs rather than reacting to health demands is widely recognised, and there are many examples of needs assessment in primary and secondary care.

There is no easy, quick-fix recipe for health needs assessment. Different topics will require different approaches. These may involve a combination of qualitative and quantitative research methods to collect original information, or adapting and transferring what is already known or available.

The stimulus for these assessments is often the personal interest of an individual or the availability of new funding for the development of health services. However, assessments should also be prompted by the

importance of the health problem (in terms of frequency, impact, or cost), the occurrence of critical incidents (the death of a patient turned away because the intensive care unit is full), evidence of effectiveness of an intervention, or publication of new research findings about the burden of a disease.

Conclusion

From the public health perspective, it is very important to be aware of different dimensions of health need of a population/an individual, and how they could be fulfilled. Public health's role is to be advocate in fulfilling population's health needs if they are legitimate and justified, and to prevent fulfilling unjustified health needs, especially if their fulfilling would result in cutting down fulfilling other justified health needs.

At the end, we need to emphasize again that health needs are not only what people can benefit from health care system (this is health care need), but also from wider social and environmental changes. In meeting health needs in such a comprehensive meaning, health needs assessment is extremely important public health task to be done. It involves epidemiological, qualitative, and comparative methods to describe health problems of a population; identify inequalities in health and access to services; and determine priorities for the most effective use of resources.

Case studies

To illustrate the theory on health needs we prepared several case studies. All of them are virtual, and could be only by chance similar to real situations.

Case study 1

A twenty-two years old student of medicine has got very high temperature accompanied by dry cough. He felt so badly that he decided to search for medical care. He visited his personal medical doctor who prescribed him antibiotics after pneumonia was diagnosed.

In this case, health need was perceived and expressed in medical terms. Since student's condition was evidently a clinically expressed disease, which could be treated inside the health care system, there was no doubt that his need for medical care was recognized by a medical professional. His health need was met.

Case study 2

A group of people living in a small valley, in which different kind of industry is located, expressed health need in terms of environmental health when they were told that a waste incineration will take place in one of factories. After they tolerated for decades the pollution and degradation of the environment they live in, they decided to search for professional help to prevent additional pollution.

In this case the health need was perceived and expressed but not in terms of medical care. It is expressed in terms of public health advocacy. Since environmental pollution in this valley is evident, evidence based public health reaction is justified, and steps to prevent further pollution needed.

Case study 3

A fifty-year old university professor has strongly perceived physical health need, expressed as a need for physical activity. He does not feel comfortable if he cannot be physically active at least few times per week. He mostly uses spinning combined by mountain climbing.

In this case the health need is perceived and expressed but not in terms of medical care. It is expressed in terms of sports activity which could be fulfilled through using recreational facilities provided by community or self-provided recreational facilities.

Case study 4

A new vaccine was launched to the market. The studies, mostly driven by the producer of the vaccine, showed for the time being its probable effectiveness in combating the disease that it is meant for. The biggest problem is that the price is rather high. To systemize vaccination with this vaccine, providing of some other health good would be necessary to cut down, since a huge population group needs to be vaccinated by this vaccine. Additionally, the optimal target group is not clear yet. The producers use economic marketing principles to advertise the availability of their product, and a group of citizens with a political support triggered a campaign in support of systematization of this vaccination.

In this case there are a lot of obstacles. First, the health need perception is mainly artificially driven by producer of the vaccine before its definite effectiveness is evident, and before optimal target group is clear. Second, the price of the vaccine is rather high. Third, not advantage of all other available and cheaper measures was used yet.

Exercises

Task 1

Carefully read the part on theoretical background of this module and recommended readings.

Task 2

Critically discuss the differences between the terms:

- “need” and “demand”;
- “health need” and “health care need”;
- “health care need” and “health care demand”.

Use method of a fishbowl.

Task 3

In a group of three to four students prepare a virtual scenario describing a health need of an individual or of a population group. Prepare a short presentation for other students. The scenario will be a part of the assessment.

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Recommended readings

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title	Priority setting for community health
Module: 1.29	ECTS 0.5
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Keywords	Community health, health care, methodology, priorities, rationing, resource allocation, selection criteria, setting priorities.
Learning objectives	After completing this module students and public health professionals should: <ul style="list-style-type: none"> • understand the underlying concept and methodology of priority-setting for community healthcare; • be aware of the range of evidences, criteria, and ethical arguments that could be applied in priority-setting process; • differentiate models and decision-making techniques for the prioritisation process; • identify effects, advantages and limitations of prioritisation in community healthcare.
Abstract	Priority-setting for community healthcare is a necessary and inevitable process in the context of ever increasing demand and economic downturns. The transparency of decision making process and explicit community resource allocation are preconditions of success in community health attainment. Social control mechanisms over the individual pressure or other influences on decision making process might be helpful. The course will cover: definitions and concepts, basic steps and components of priority-setting process, stakeholders, criteria, models and techniques for selection and ranking. Recommended readings and discussion topics are also given. Students are required to discuss and propose a method, criteria and stakeholders that should be included in the model of priority-setting in the healthcare for their community.
Teaching methods	Teaching methods include introduction lectures on prioritization in public health, interactive group discussions and individual work on the model of priority-setting in the healthcare for their community.
Specific recommendations for teachers	It is recommended that this module is organized within 0,50 ECTS credit, out of which one part will be done under supervision (lectures and group-work) and the other part will be individual students' work. Practical work should consist of discussion under supervision in groups of 6-8 students, and individual work on proposed model of priority-setting in the healthcare for their community. Clear method has to be based on knowledge attained during the course with details like: whose priorities are to be analysed and whose decisions, what evidences and how many of them, sources, arguments, criteria, steps in prioritisation, definition and suggestions.
Assessment of Students	Assessment should be based on students activities during the module and on quality of proposed method for setting community health priorities.

PRIORITY SETTING FOR COMMUNITY HEALTH

Milena Santric-Milicevic

Underlying concept and definitions

Demographic, economic and epidemiological transitions are present in many countries of the world. Change and innovation are needed in theory and practice of health policy management, in order to address contemporary community health needs and expectations in resource scarcity. In addition to good ideas and projects, there is a requirement to do things faster and better than before. Rationing seemed inevitable, thus, health of individuals and community became more exposed to the consequences of social and economic inequalities. Setting priorities in community health, taking into account changing needs and expectations underlies rational, explicit and transparent resource allocation, and ensures efficiency in allocation and technical provision of health care resources. In other words, health care prioritization provides directions for the best use of scarce human and financial resources.

Public health care sector interest for priority setting process, work methodology, the application of models, evidences and criteria for selection and subsequently stakeholders' participation, leadership engagement and decision making techniques, as well as design and implementation of resulting strategies has grown considerably over the last decade (1-18).

The term **priority** is commonly used to define the feature claimed to be precedence, basic, primary, and imperative. Priorities in community health usually imply the first and foremost priorities for resource allocation, and afterwards health needs priorities, health problems priorities and priorities in health care services delivery (19). The list of priorities in public health comprises also the priorities in population groups, among users, priorities in organization and management, in prevention, research work, and education.

World Health Organization (WHO) emphasizes that priority-setting does not consider the selection of "simplest and basic services for poor, but, providing the necessary and high quality health care, defined by certain criteria" (20).

WHO defines **priority-setting** as a an approach where "relative weight given to categories and functions in light of predefined criteria applied through a given methodology to make decisions on greater programmatic emphasis and special consideration in terms of resource allocation." while a **methodology** used in priority-setting "describes how different criteria are used quantitatively or qualitatively in reaching decisions about priorities. An explicit methodology makes priority-setting more objective, systematic and transparent" (21). **Criteria** are factors to be taken into account in determining priorities. Different sets of criteria are used in developing priorities for different purposes (e.g. for local health development or healthcare strategies or international health cooperation).

Priority-setting in public health belongs to health policy domain and it is the second part of policy cycle formulation, consisting of different types of decisions, starting from defining health problems to decision making on strategies for solving priorities. The most critical choices that have to be made will address the priorities among health services, programs and interventions and should assure improvements in the community health (19).

Health policy priorities are expression of conceived consensus between different partners' concepts and strategies. They act as leading criteria in the community health resource allocation, so, they should be provided foremost. Besides a positive priority-setting (the most important should be answered promptly), there is also a negative priority-setting attitude (less important to be delayed in favour to more important problem settlement), i.e. disinvestment (12).

Diverse range of prioritization in healthcare is going on, but not one example was simple (22-23). The main reason for complexity is that whilst priorities should pace with community health and development dynamics (like ageing, epidemiologic and reproduction changes, migrations and medical technology development), the sole process takes a lot of time to reconcile strong influence of powerful factors like, regulations, ethics, patient's demands and values, politicians and international pressures, as well as other different organizations interests. In addition, there are parallel trends in population. Transparency of priority-setting methodology is important if authority solutions are to be valued afterwards (22-23).

Priority-setting process and solving strategies

The priority-setting process in community healthcare involves making numerous decisions for stating the priority (or priority groups) and strategies for its solution. The majority of decision-making processes begin with the decision on the level of community to which the process and the authority of healthcare priority-setting are related.

Klein defines five types of prioritisation to be made in practice (19):

- i. Decisions for resource allocation to the health sector as a whole;
- ii. Decisions for resource allocation between geographical areas and services;
- iii. Decisions for resource allocation between particular forms of treatment,
- iv. Decisions for resources allocation between types of patients; and,
- v. Decisions on how much to spend on individual patients.

The first decision-making process includes planning and programming the budget. It is mostly a political decision on budget percentage for health care according to the macroeconomic principles of allocation. Decisions on other levels are more specific and complementary. They should be ethically and socially justified, besides economically approved.

In Figure 1, setting priorities is illustrated like a four stage process. The first stage of priority-setting process is identification of all health problems. Once health problem statement is defined, the decision makers move to the stage of priorities selection. Priorities or the groups of priorities should be ranked by some criteria or system in the next stage. Finally, the solving strategies are identified including the mechanism of their implementation in practice and monitoring and evaluation of the compliance with decisions made. Stages are linked one to another by the previous stage results. Every stage results might be (re)assessed in the light of their values, evidence reliability, objectivity and transparency, as well as questioning who did the research and analysis in each stage.

In the first stage of setting priorities process, the best way for defining the health problems in community will be to apply a comprehensive approach regarding health needs and health outcomes, contrary to focus on health needs and health status or on health outcomes assessment only. Examples of those far-reaching approaches are PRECEDE-PROCEED model for planning community health, "Planning Approach Community Health – PATCH", and "Choosing Health Plans All Together – CHAT" (23-25).

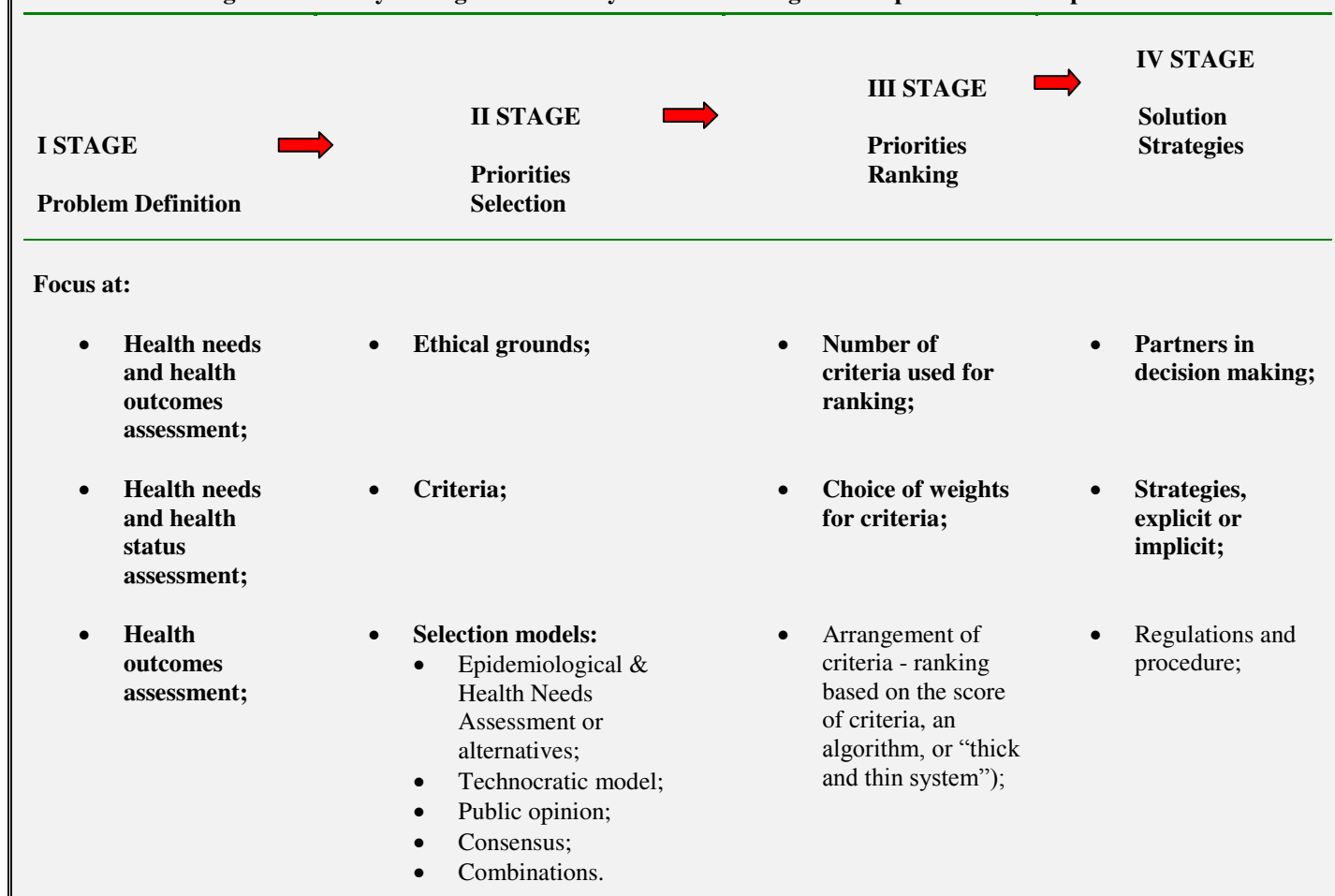
A well-known such example of setting priorities is the Oregon experiment, conducted in early 1990s, for Medicaid program. Primarily, the population was questioned on the number and type of services to be covered by the programme, then the expert's opinion was asked and an economic analysis was performed (26). Underlying principles for the concept of coincident measurements of population needs and preferred health outcomes are equity, justice and solidarity.

However, very often it is the case that health priorities are based on health status epidemiological analysis done by health professionals, but not so frequently, the list of priorities resulted from community based health needs surveys. Various techniques for needs assessment are starting with the definition of need. Bradshaw taxonomy of needs can be of assistance for decision on how to measure needs: normative, felt, expressed needs as demands and comparative needs (27). By this classification, normative needs are professionals' formulation, based either on epidemiological analysis and literature review, or on expert panel opinion and formal consensus methods. Needs assessment based on epidemiology of population health status, actually provides information on needs for health care.

Ghana Health Assessment Team, at the end of 1970s, pioneered the application of explicit criteria in setting priorities by calculating the number of healthy days of life lost to assess the impact of diseases on population health (28). Recent progress in the development of indicators and methods for measuring health status are introducing the composite measures of population health, like Disability Adjusted Life Years (DALY), Potential Years of Life Lost (PYLL), and Quality Adjusted Life Years (QALY), and Health Adjusted Life Years (HALY) instead of standard measures of mortality and morbidity (29). Felt needs, whether or not expressed and demanded, can be assessed also in many ways for public involvement in decision-making, like focus groups discussions, surveys, interviews or boards memberships (23). Comparative needs are related to the level of provision for different populations, and they express the differences in normative and felt needs between geographical areas. To evaluate these differences, standardization method of the indicators is commonly used.

Mostly, to evaluate effectiveness of allocated resources to health care sector, an approach for defining health problems in community based on calculation of health outcomes estimations is used, and it comprises numerous different activities (1,7,11-13,30-32). Depending on the definition of preferential health outcomes, there are available different instruments for their measurement and calculation. Health outcomes might be defined like improvements in health status or in patients' quality of life, like lifespan prolonging and surviving time, disease eradication, etc. Health outcomes measurements are possible at different levels for example: at individual level for health interventions effects assessments, at population level for estimating the health interventions benefits, at health system level for evaluation of the quality and efficiency of the primary or secondary health care.

Figure 1. Priority-setting in community healthcare: Stages of the process and components



Source: Santric-Milicevic M. Setting priorities in disease and injuries prevention at the national level. Master of Science Thesis. Belgrade: School of Medicine, University of Belgrade 2000 (in Serbian).

At the second stage of setting priorities, defined problems in community health are reviewed systematically, following up some normative and technical rules. Ethical principles must be considerate while introducing criteria and models for selection of priorities. Ethical grounds of priority selection process like: egalitarian ideology, objective or subjective doctrine for maximizing the utility, liberality principle, medical ethics or community "claims" should be clearly made in advance, to assure transparency of the process and acceptability of the decisions (2,12,33-36).

Criteria in selection procedures have to be sufficiently arguable, including their quality revision, update availability, and possibility for ease and repetitive measurements and monitoring, at least. Small set of criteria is preferable than the large one, with maximum six of them. In the literature, over two hundred criteria are mentioned, and in Table 1 the frequently used criteria are listed.

There are various models for selection of priorities (24). Some of them are built on epidemiological models based on population health status estimates. Others, partly rely on health needs assessment and epidemiological criteria, and whenever possible, on economical evaluation of health outcomes. In addition, models of selection are more or less objective, and some include public participation, SWOT analysis, willingness to pay techniques, but others don't (23,25).

Very important question is how should criteria be applied against the priorities? There are three common applications of the criteria in models for selection of priorities: to use all criteria simultaneously (in an algorithm) or to apply them as successive sieves (“thick and thin system”) or to rate the community health problems according to each criterion (or the score of criteria) (37).

The simultaneous application of all criteria against all community health problems is very difficult, especially if the differential weighting for criteria is used, since there is limit to the number of information that can be processed at any one time will still require review and refinement. To avoid rigidity in the process output, priority areas in community health are more likely grouped in the groups of low, medium or high priority

categories than listed in the list of priorities. Sequential application of criteria is generally preferred model of selection, as those remaining after the final criterion is applied will then be considered as the priority. In this procedure, the most important step that all partners should agree on is the order in which criteria are used as sieves.

Table 1. Frequently used criteria for priorities selection

- | |
|---|
| <ul style="list-style-type: none"> • Case fatality; • Premature mortality; • Urgency; • Disability; • Morbidity and mortality trends; • Preventability; • Quality of life; • Disease frequency and severity; • Available resources; • Costs; • Evidences of effective diagnostics and treatment; • Health care programs and experiences; • Priority level (e.g. national, regional and local); • Utilization of health services; • Ethical principles; • Political adequacy; • Individual responsibility; • Social preferences. |
|---|

Author's compilation of criteria used in priority-setting studies (23)

The third option is to rank each community health problem against of all the selected criteria. Then, combine the ranks on each of the criteria to come up with an index or composite score. Variations of the above models of selection exist and are more complex and more systematic approaches which sometimes include paired comparisons of criteria, weighted voting and ranking.

The most recommended model for selection of priorities was the technocratic model, tested in Oregon (27). It consisted of three subsequent phases: in the first one, the quantitative analysis of burden of disease was done, in the second phase, economic evaluation of alternative health interventions cost and outcomes was proceed, in the third phase the list of paired disease and interventions is formed, framed by budget limits of Medicaid health care program. In Netherlands, priorities selection model consisted of four criteria, subsequently introduced like sieves: necessity, efficiency, effectiveness and, individual responsibility (38). In Sweden, the committee for prioritization used a two far steps model of setting priorities: first step was personal interviews with politicians, high administrative personnel and senior medical doctors with the aim to affirm previous prioritization activities and influences and in the second step selecting priorities was done by scaling up – exclusion model (39). Diagnoses and treatments were modelled and ranked from 1 to 10 with consideration of health-gain, usefulness, medical result, risk, cost/resources, quality of life and evidence. The lowest pairs of diagnoses and treatments were excluded (39).

In the third stage of setting priorities, if the priorities were previously selected in certain categories (for example: the most important, important, not important) or priority areas in community health, the ranking might be valuable to specify priorities for strategy proposals. Criteria for ranking should reflect the practicability of the strategy proposals, their achievability under financial constrains, and their viability in community.

In the fourth stage of setting priorities, when priorities are ranked, decision makers should agree on solving strategies (Table 2). The basics of this stage are partners and strategies. Responsibility for health is beyond health systems and individual potentials, laying on the whole society (38). Advisable is to avoid one-side decisions and social control mechanisms over the individual pressure or other influences on decision making process might be helpful. Partners in community health decisions are always health authorities, providers, and insurers.

Community participation is recognized as important, though not so much practiced, but seems inevitable for big reform strategies and all radical changes (23,35,36). Everyone in community has its role, e.g., health professionals should decide on technical aspect of health care prioritization, economists and insurance funds representatives should provide economic aspects, but community members are those whose health issues are questioned. International bodies, such as World Health Organization, World Bank and other EU regional offices, non-government organizations and funds act as necessary partners in strategy decisions and health

policy evaluation. International health organizations may help to define their country partners' health policy and support efforts in attaining goals and tasks.

Whether or not explicit, strategy decisions are used on demand side and on supply side, in the same time (39,40). Some are monetary, with limitations, restrictions and exclusions, and others are indirect or not monetary strategies, like services access, regulations, waiting lists, etc. Table 2 presents some types of solving strategies examples by countries.

Table 2. Types of solving strategies: examples by countries

Type	Solving strategies examples	Country
Monetary	Health services restriction	Great Britain
	Basic package of services and exclusions	SAD
	Limited budget	Countries in transition
	Cost-containment	USA, Germany
	Patients payment ability	USA
	Health insurance premium	USA, Canadian provinces
Non monetary	Open market competition of health care services	Developed countries
	Limited access to some services	Netherlands
	Human resources allocation	Former Soviet Union countries
	Capital resources allocation (health centres etc)	All
	Clinical licensing and regulations	England
	Work conditions by the health Lows	All
	Guidelines	New Zealand, Australia
	Vulnerability priority (age and reproduction period)	Eastern Europe countries
	Waiting lists	Canada

Author's compilation

Conclusion

The complexity of the priority-setting process is partly due to immediate need for explicit health decisions and partly due to authority privilege for discretion versus community rights of transparency in decision-making process. Despite many information, concepts, knowledge and experiences, there is no golden formula for priority-setting for community healthcare.

Exercises

Setting community health priorities

At the start of the exercise ask students to give an example on setting health priorities.

Small group (maximum six students) questions for discussions:

- Who decide on community health priorities in your community?
- What do decision makers want to know for setting community health priorities?
- What arguments, information and evidences are needed and available for health decision makers?
- What does the social preferences entail in real life for setting community health priorities?
- Does the alternative for prioritization in community health exist?

Individual work recommended for developing priority-setting skills for community healthcare. A student assignment should include:

- Community description
- Prioritization level and partners' identification
- Arguments for an approach, criteria and ethical justification chosen for defining and selecting the community health problems
- Critical explanation of strategies choice regarding feasibility.

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Recommended readings

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4. Priority setting exercise (A Customization of the Simplex Method)
<http://www.cdc.gov/od/ocphp/nphsp/documents/Priority%20Setting%20Exercise1-Simplex.pdf>.

HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title	Health promotion and community capacity development
Module: 1.30	ECTS: 0.5
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Keywords	Community development, health promotion, partnerships, program Sustainability.
Learning objectives	After completing this module students and public health professionals should: <ul style="list-style-type: none"> • be familiar with the “healthy community concept”; • explore the similarities and differences between different types of building healthy communities; • be able to initiate sustainability of healthy community programmes through the wide partnership; • recognize the importance of project such as “Healthy Cities”, “Healthy School”, “Healthy Hospitals”, etc; • summarize the needs for establishing such a programme.
Abstract	Development of a healthy community currently represents an important process from different stand points, especially for improvement of population health and for health promotion intervention among vulnerable population groups such as women and children, adolescents, poor people, people with mental illnesses and refugees. Community orientated approach particularly ensures proper identification and meeting the needs of underserved population groups which are most often not recognised, either because they belong to special ethnical or cultural groups, or they are poor. Community strengthening for improvement of their health is realised through the wide and sustainable partnership of local community members, their leaders, supportive organisations, financers and governmental institutions, which are present in all phases of health promotion intervention. Examples of community-based health promotion programmes, worldwide and in Serbia, show that wide partnership ensures improvement of numerous health determinants which is impossible to achieve by isolated health service activities. Authentic community leaders that are educated for successful leadership during all phases have prominence in development of these programmes. Achievement of their long-term sustainability through the multidisciplinary approach is a constant challenge to community-based health promotion programmes.
Teaching methods	Teaching methods include introductory lecture, exercises and interactive methods such as small group discussions.
Specific recommendations for teachers	<ul style="list-style-type: none"> •share of work under teacher’s supervision/individual students’ work: 30%/70%; •facilities: a computer room; •equipment: computers (1 computer on 2-3 students), LCD projection equipment, internet connection, access to the bibliographic data-bases; •training materials: recommended readings are available in the internet; •teacher should be ready to help students to explore the health promotion programmes and projects at WEB sites of WHO, CDC as well as the WEB site of Canada.
Assessment of Students	Assessment is based on a seminar paper, a class presentation, and an oral exam.

HEALTH PROMOTION AND COMMUNITY CAPACITY DEVELOPMENT

Milena Santric-Milicevic, Vesna Bjegovic-Mikanovic, Sanja Matovic-Miljanovic

In the course of last environmental changes and societal transformations, human behaviour and ideologies for health attainment and improvement have been tested. Community support has been recognised as an exceptionally important element of improvement of population health, especially of vulnerable population groups such as women and children, adolescents, poor people and displaced people.

The interest of health care for the community is not new and existed in previous centuries, when communities provided support to people's healers, as it is done today in some traditional cultures. At the end of 19th century, participation of the community was basic factor of public health movements that developed in European and other countries. However, in the first half of the 20th Century, development of big cities and achievements of medicine in treatment of infectious diseases limited activities of the community. Local and regional planning led to a separation of places where people live and where they work, and development of electronic media led to the loss of need to maintain relations with members of the local communities (1).

After the Second World War, the community is again re-affirmed since limited effects of the medicine based on curative approach are confirmed (hospital treatments, one-way relations doctor – patient an expensive technologies). Numerous surveys provide the evidences that efficiency of the medical technology for improvement of community health is by far lower in comparison with activities that such community can perform for its own health (2). Illustrative example is the difference in efficiency of intensive neonatal care for infants with lower body mass than normal and efficiency of community work with future mothers with provision of good prenatal care (3).

In addition to this, in spite of the development of the expensive health care it becomes less accessible to vulnerable individuals, families and community, not only in undeveloped, but also in highly developed countries. Large number of people affected by poverty lives in rural areas or city suburbs, not managing to satisfy the basic needs. Their communities characterize numerous risks that endanger health: unsafe drinking water, lack of hygienic distribution of waste, bad living conditions, unemployment, malnutrition, violence, drug abuse, sexually transmitted diseases, teenage pregnancies, social exclusion and marginalisation, and loss of social capital (4).

The latest research indicate that health is endangered both in the poor or high developed countries (5). For example, lifestyle (i.e. tobacco and harmful alcohol use) and occupational differences largely explain the life expectancy gap among Europeans (an average of 80 years for women in 2010, while that for men was 72.5 years) (5). The striking health and wellbeing difference between two suburb regions, recorded as “Glasgow effect”, was that in poor developed suburb of Glasgow the life expectancy for males was 54 while in more developed suburb it was 82 (6) Furthermore, Glaswegians from socially deprived communities had lower life expectancy and poorer health than people from similarly deprived parts of other cities in the United Kingdom. Experts agree that health inequities in Glasgow cannot only be attributed to severe social and economic deprivation, and that “answers lie in repairing a fragmented society where many people feel they do not have control of their lives”. In addition to patch up economic deficits, building social capital of individuals can offer mutual support, skills and capacities that promote health and well-being. Similar has been noted among vulnerable poor and Roma communities and persons with additional needs in the eastern European countries (7,8).

For these reasons, building of healthy communities is today a leading goal of modern health systems and health institutions that recognise the importance of prevention of ill-health statuses through the development of healthy life styles and healthy environment. Modern reforms of the health system compulsorily consider the support of the community recognising that population health is also determined numerous factors outside medical care and that those factors can be controlled by community itself, through its cooperation with other sectors, such as sector of agriculture, water supply, education. Today, worldwide, many governmental and non-governmental organisations that develop models of health improvement and their implementation in local communities are established.

Community

The community concept itself is differently explained, depending on discipline that is handling this term. Therefore, even in 1955, Hillery collected and analysed 94 definitions of this term, noticing three basic components of the community (9): people in social interaction, within geographical area and those that have one or more common relations. Much later, experts were also engaged in definition of this term. Bracht, for

example, defined community as »a group of people that shares common values and institutions« (10). Nagy and Fawcett state that community most often entails a group of people who share common place, experience or interest, so that it includes people who live in the same territory (same neighbourhood, same city or same state) (11). However, they emphasize that individuals can feel as a part of the community, above all since they share same experience, for example: racial and ethnical communities (Serbian, European or African community), religious communities (Orthodox, Catholic or Muslim community), or community of individuals with visual, developmental or mental disabilities.

One of newest is also Nutbeam's definition (12). He explains community as »specific group of people who often live in defined geographical zone, share common culture, values and norms, and is organised through social structure according to the relationships that community developed over the time«. Members of the community gain personal and social identity by sharing common beliefs, values and norms that are developed in past and can be modified in future. Individuals in community are aware of their identity as a group and share common needs and dedication to satisfy those needs. In modern communities, especially in developed countries, individuals do not only belong to one isolated community, but rather join into larger number of communities based on different features such as territory, occupation, social interests and use of spare time. Examples of these are business, working communities or different children's communities.

The idea of community that reside a certain physical space is more and more received with reserve and the advantage given to »virtual« communities, ie. Facebook, Linked-in, Twitter, etc (13-15). Development and expansion of interactive media and computer technology remove geographical differences among traditional communities. Development of Internet shows that physical distance determines little differences among communities that use Internet, making geographical zones less fundamental (16,17). Therefore, certain assumptions regarding community are erroneous (18):

1. "Communities are homogeneous". On contrary, communities aren't often homogeneous; interests of poor people often exceeded community goals.
2. "Knowledge automatically creates desired changes in behaviour". In reality, traditional community behaviour often has certain value, so long time is needed for smaller or bigger desired change of community behaviour.
3. "Community leaders act with the aim to achieve highest interests for community members". Actions of leaders are not always for the benefit of whole community; often happens that powerful persons direct the benefits of the preventive program towards personal promotion or promotion of their families.
4. "Financers and promoters of community programs share same goals of community development". However, financers most often want to mobilise the resources of the community itself, as soon as it is possible, while promoters of the program give advantage to development of the confidence among community members, which takes certain time, and for which the conflict of interest arises.
5. "Activities of community development do not create conflicts for planners". In essence, management of community based programs can have serious problems if it is not sufficiently flexible in adjusting defined goals to the dynamic development of activities in community. Above all, time is needed for activities to develop, and hence community give priority to other needs that were recognised in program goals and individual interests may exceed those of the group.

From the aspect of health improvement, for example of mother and child health, several factors determine involvement in community based programs: a) women traditional and natural role in provision of health services, preparation of meals, maintenance of hygiene or care for children, reflect aspects of the inter-sector cooperation for health improvement and finally; b) better possibilities for information flow towards female members of the community and children, with the creation of informal »network« of communications; c) women often have stronger community roots, especially in developing societies, and d) women's organisations that already exist in many communities provide ready structure for their participation in health improvement program.

Strengthening the community capacity (resource development and capability enabling)

The movement for community development was affirmed in 1950s through the auspices of United Nations. At that time, different community initiative commenced such as mothers' clubs in Europe. In literature, for the first time this concept was considered in an article by Leo Baric from 1955, under title "Health Education In Community Development", in which the importance of the culture and dynamics of community on the territory of Yugoslavia is analysed (19). Also, one of first projects organised for development of the community in the world ran in 1950s in Ivanjica (Serbia), with the goal of decreasing infant mortality through the community action, and improvement of infant, children, pregnant women and mothers' health care (20). In our country, the practice of development and effective involvement of the community through specific programs

which, partly or fully, were orientated to improvement of health of women and children, was present even later (20-22).

Firstly, the term “community development” meant mass health-educational activities in poor, rural areas, and later its meaning expanded to numerous joint activities of community, governmental and non-governmental organisations that represent process for improvement of economic, social and cultural conditions of the community (23).

The community development may be regarded as a method, program and concept (2,3,23). As a method, community development is similar to community procedures, used in work of social workers with individuals endeavouring to gain their confidence, define problem or needs, arouse their deliberation on solving problems and improvement of situation, to help in efforts in finding needed resources for improvement. When regarded as a program, community development ensures improvement of the overall community life, planning on basis of recognised needs of its members, emphasizing the importance of “self-help”, encouragement and education of local leaders and provision of technical support for development in sense of human resources, equipment, material and money. As a concept, community development is similar to primary health care since it emphasizes activities that have multiple purpose, assumes that provision of basic services and material support is base for development and recognises that process by which the goals are reached (local initiatives, trust and cooperation) are more important than goals themselves (20). Community development is a process that starts with people and their needs, considers their values and dignity and promotes equal opportunities for improvement. The programme success depends on the community participation level, and accomplishment in project management, strategy for sustaining the change and leadership.

Community actions for health in community development represent collective efforts directed towards the increase of control over health determinants, and therefore over the health improvement (12). In accordance with Ottawa Charter Concept community actions for health are closely related to enabling strengthening, recuperation of the community. Capable community is the one in which individuals and organisations apply skills and resources in collective efforts directed towards health priorities and meeting of health needs. The significance of concrete and effective community in establishing priorities for health, adoption of decisions, planning of strategies and their implementation for achievement of better health is emphasized. Enabling commences with development of community awareness that represents four-level process (19):

1. Consideration of aspects of reality and problem;
2. Collective identification and search for roots of reality and problem;
3. Research on inter-relations; and
4. Development of action plan for changing the reality.

Both community development and enabling entails participation of its members in actions for health, through the active inter-sector partnership; however the importance of active partnership with the community sectors is neglected in planning and organization of preventive programs. An illustration is the introduction of program for decrease of incidence of breast and cervix cancer in a certain group of women or the community. It most often begins by focus group discussions where health workers present frightening extent of the problem, inviting citizens for get involved in its resolution. Since they, most often, omit cultural, marital, religious and other barriers of the community in consideration of breast cancer problem, these programs do not succeed in influencing the health status of the community significantly, since, regardless how high and tragic rates of breast and cervix cancer are, members of the community do not recognise this as a health priority. Therefore, efficient community based approach must ensure partnership of its members with health professionals in identifying and solving community issues and must orientate towards health determinants in the way community sees them, even when it comes to the prevention programs for specific diseases.

Building healthy communities through the wide partnership

People create healthy communities by demonstrating unity and by operating as accelerants of positive changes, finding new modes for actions with the goal of creating an environment that attends to healthy life styles and encourages people to effectuate their own potentials (23). Preconditions for such community improvement are efforts for defining more common problems that are related to each other and partnership (joint work) in their resolution (24). Partnership encourages people to associate and strengthen community capacity for positive changes over time, in different spheres. Also, associating/pooling up of people from different segments of community, by rule, leads to a success. For example, efforts made to improve health of children run through partnership of education authorities, teachers, business people, paediatricians, parents, young and old. Community, which developed successful partnership in one area (such as fight against drug abuse among youth), may easier recognise other priority (such as law immunisation coverage of children) and use gained experience for efficient action (improvement of immunisation coverage).

It is extremely important that partnerships are wide, and involve representatives from largest possible number of different segments (school, work, and ministry) and different community levels (neighbourhood, local community, municipality, city, and republic). Also, important is that wide partnership, which really

represents the whole community, lasts long enough (5 to 10 years) so that changes that lead to improvement of health are achieved, as well as to become accelerator of the community health action. Key participants of such a wide partnership are:

- Local members of the community - group of people from the community who directly work on health improvement program, organised through non-profit, non-governmental organisation and state institutions (for example: partners for improvement of children health from this group include people from media, business companies, schools, citizens associations in community, youth organisations, local administration, health institutions, financial institutions);
- Support organisations – local, regional or state institutions that provide advisory and technical assistance for running community programs (for example: university research centre may provide advices in relation to community analysis, strategic planning, management development and evaluation; institutes of public health to provide community with necessary data, such as proportion of children without adequate immunisation); and
- Financers, sponsors and governmental institutions – ensure financial resources needed for development of community based programs, but also for activities of support organisations (these resources need not be continuous, but ensure credibility for groups in community and possibility to secure new resources by alluding the fact that they were financed by respectable foundation or ministry of health).

Numerous health programs initiated either by international organisations, health institutions or local community should include wide community partnership regardless whether they are orientated to a specific population group or to general population, to numerous health determinants or specific health problem. In WHO documents dedicated to “Health for all in the 21st Century” specially emphasized is the importance of the community and its wide partnership as the basis of sustainable development of the mankind (25). One may notice plenitude of examples for community based projects, in developed as well as in underdeveloped countries like WHO/ EU programs – “Healthy Cities” or “Healthy School”.

Community-based interventions for health improvement

Health improvement based on community interventions is most often related to values of modern democracies, since in ideal conditions authority and responsibility for adoption of decisions on health improvement are delegated as closer to the population as possible, and approach favouring exclusively individual responsibility for health is avoided (26,27). Different level of support and participation of the community in health-educational interventions aligns them in one of five possible types (19):

- Type 1: Primary goal set for the community is enabling (strengthening) and improvement of socio-economic status, since it is equalised with health.
- Type 2: The same as previous one, but in the course of the community development and identification of needs, community itself discovers needs that are consistent with standards of preventive medicine and health education goals, i.e. needs for better primary health care service, prevention of accidents, through solving children's problem.
- Type 3: It is characterised by »health community projects« that improve health and prevent disease. This is done through building the health profile and assistance to community work much more by the emphasis of »perceived needs« than, for example, recognition of needs to improve cardio-vascular health.
- Type 4: Primary goals are in the sphere of preventive medicine, and this type of interventions is personified in cardio-vascular preventive programs. Its approach is more “top to the bottom” than previous types, but it recognises the importance of the community and utilisation of existing forms of leadership.
- Type 5: More limited programs, with limited community participation, but with use of joint efforts of different organisations, for example media and schools, and residential area or working place service providers.

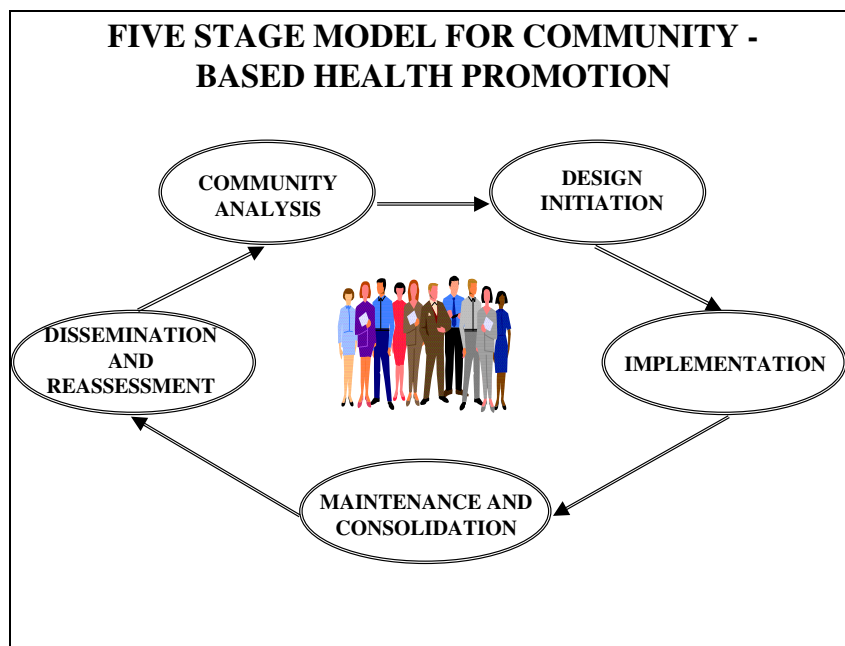
Since the complexity of implementation of above mentioned community interventions is recognised, numerous models representing guidelines for health workers and community members were developed with the aim of successful implementation and conduct of community health improvement programs (3,26,27). All these models differ in theoretical basis and complexity; their common characteristics are that they emphasize the process, wide partnership with community members and their participation in all phases of program development, especially in planning. Regardless to the number of steps, in all community based health improvement projects, especially those which are centrally initiated, following successive phases may be recognised (Figure 1): community analysis, project initiation, implementation, maintenance and consolidation, and dissemination and reassessment.

In almost all models, community analysis has exceptionally important place, because specific community actions are planned on the basis of it. In addition to defining needs for health improvement,

community analysis also needs to enable defining of its “context” - beliefs and expectations, social structure, immediate issues (such as poverty), financial resources, formal and informal leadership, as well as the extent of experience in joint actions (establishing partnerships) (8). Also, it needs to explain immanent forms of behaviour, conditions of the environment and economical climate, as well as to indicate the capability and readiness of the community to participate in the program, with recognition of potential barriers. In this phase, the assessment of capabilities of project organisers to implement the project in the community is considered important, which is, unfortunately, often forgotten. Community analysis is most often documented by community level indicators that serve for direct and indirect measurement of the magnitude of the problem at the local level and success in reaching the defined goals (for example, data on body injuries in schools may be an indicator of violence in the community).

During project initiation all initiators and community members work together. What precedes joint activities is the identification of interested citizens and their inclusion into working groups as per priorities. Following groups are formed: group for planning, group for selection of the organisational structure, group for defining the mission and goals of the project, group for determining specific strategies and methods for implementation phase, group for health improvement education and those that care for recognition and awarding of successful volunteers and other participants. Exceptionally important is the selection of the project coordinator, training and provision of the technical support and its activities. Such mobilisation of the community leaders, as well as community members, to contribute to the accomplishment of project goals with their time, resources and talent is known as the organisation of the community (3,23).

Figure 1. Phases in community-based health improvement project



Source: Authors compilation

Community members may participate actively and passively at all levels of health improvement programs, more or less persuasive for long-term community actions. They may participate in: program benefits (for example in immunisation), program activities (for example in distribution of contraceptives), implementation of the program (implies managerial responsibility for reaching goals that are planned at higher levels, for example organisation of the centre for free activities for youth), program monitoring and evaluation (ensures modification of determined goals in accordance with process evaluation, which is the rarest form of participation) and program planning (participation is most active, widest and entails participation in previous phases).

Implementation is the phase during which, through the operational plans and with established priorities, previously jointly planned activities are effectively conducted. This is the phase in which wide participation of citizens and community partnership are realised, and resources, process evaluation and feedback information on possible problems and their resolution are ensured. Although the community is mobilised at the very beginning, its participation is here even more broaden and community health improvement network is generated (23). Special responsibility and obligations for the success of this phase are with the project coordinator who has communication and negotiation skills.

Maintenance and consolidation is the phase in which participants successfully integrate intervention project into the existing community structures, create atmosphere of cooperation that sometimes exceeds conflicting interests of different groups in the community, recruit new volunteers and disseminate information on project activities. This obtains wide acceptability and continuous community involvement. Measure of the success of this phase is the conduct of project activities in community even many years after the project ends (24). Unfortunately, many community projects fail in this phase and, therefore, many stakeholders are currently interested in solving this problem.

Dissemination and reassessment is continuous process during which the community analysis is renewed, and effectiveness of the intervention project, future courses of community development, management and long-term sustainability of achieved changes are assessed. Project results are summarised and disseminated to community members, sponsors and anyone interested in health improvement. Endeavour to institutionalise the project is most often in this phase, however much more realistic effect is the inducement that the community receives with the project to continue with actions for health (23).

Sustainability of community programs

The community program continuity largely depends on political and social stability of the community as well as on its socio-economic conditions. Previous experiences imply that, regardless how well programs were designed and planned, longevity and sustainability in community become preconditions for their efficiency and effectiveness. Although significant assets are invested in implementation of health programs in developed countries, those programs do not sustain long after their initial phase (26-28). Primary focus of many programs for health improvement in community was efficiency, while longevity did not have major importance. Programs were mainly designed as demonstrational or institutional. There are at least three reasons for which some community health improvement programs cannot sustain (26-28):

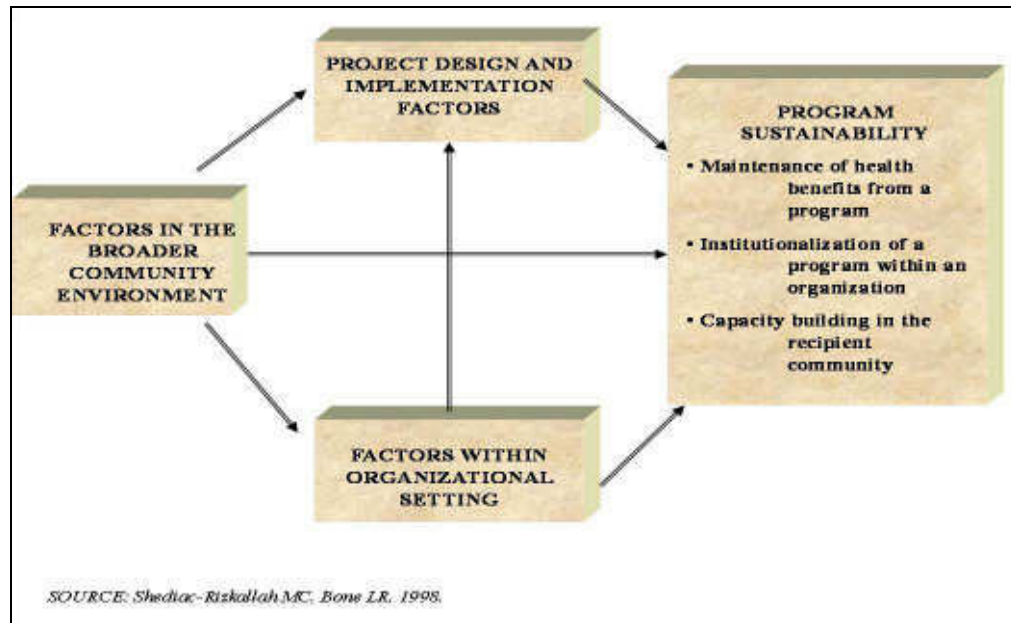
- Disease prevention program is ending, but envisaged disease is still preserving;
- Many programs lose their basic resources before their community activities develop; and
- Many new programs suffer due to consequences of previous ones that were stopped or inadequately ended, and therefore lose support and confidence of the community.

Community support today ensures continuity of the health improvement programs, and therefore represents compulsory goal in intervention planning, and especially planning of necessary resources for running the community program. One example is the experience from the community project for breast and cervical cancer control (28). This five-year-program was conducted in Baltimore and was based on education of educators who came from the target community. They educated women emphasizing the importance of screening. At the same time numerous activities ran in cooperation with health service, community volunteer groups and sponsors, such as for example, guided group discussions. They led to expansion of the program onto other areas of women's health and its popularity in medical circles. However, non-existence of careful resource planning in initial phase conditioned their lack in the phase of implementation of mechanisms for expansion of the community programs, and therefore the program was not sustainable anymore, i.e. lost the continuity.

An optimal period for achieving the program sustainability, when it can also be evaluated, is five to seven years (28). Literature quotes different methods for reaching the phenomenon of sustainability of community based health improvement program, and for the success, what is needed is their combination, since there are no "golden standards". Most important methods to some authors (28) are the following (Figure 2):

- Design and program implementation with the benefit in respect to community health (development of healthy life styles, prevention and mortification of communicable diseases by their eradication);
- Its institutionalisation (integration of the program within governmental and non-governmental organisations that already exist in the community or with existing state programs for community health);
- Inclusion of the whole community and its support to the program (through the training of community members to provide information or to be leaders for promotion of community health), and
- Support of the wider community environment (insurance of socio-economic and political preconditions, support of state institutions, especially of the Government and relevant Ministries).

Figure 2. A framework for conceptualizing program sustainability



The way forward

Development of a healthy community today represents an important process for mother and child health improvement in which health professionals and general public are involved, bearing in mind the importance of these population groups and their vulnerability in every society. Community orientated approach ensures identification of those women and children whose needs for health improvement most often are not recognised, either because they belong to special ethnical or cultural groups or to groups of poor. Community strengthening for improvement of their health is realised through the wide partnership of local community members, supportive organisations, financers and governmental institutions, which is present in all phases of health improvement intervention. Examples of community based health improvement programs, in world and in our country, show that wide partnership ensures improvement of numerous health determinants which is impossible to achieve by isolated health service activities. Authentic community leaders that are educated for successful prosecution of all phases have prominence in development of these programs. Achievement of their long-term sustainability through the multidisciplinary approach is a constant challenge to community based health improvement programs.

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title	Oral health promotion and oral diseases prevention
Module: 1.31	ECTS: 0.5
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Keywords	Dental health surveys, health behaviour; health promotion, oral health, oral hygiene.
Learning objectives	<p>The educational objectives of this module are:</p> <ul style="list-style-type: none"> • To increase the awareness of health professionals about the positive effects of oral health promotion programmes on oral health of a population; • To sensitise health professional for developing an attitude about promoting oral health as a very important task of their work. Health professionals represent a bridge to policy-makers in the sense of thought-transference and implementation of research achievements into practice. <p>After completing this module participants should be capable to:</p> <ul style="list-style-type: none"> • Assess the data currently available; • Collect additional data; • Analyse, interpret and present the data; and • Formulate a policy response to the results.
Abstract	<p>World Health Organization recognizes oral health as an important component of general health, and furthermore, oral health is essential for well-being. The majority of oral diseases is related to lifestyles and reducing these mostly chronic diseases relies much on changing behaviour. Changes for the better in behaviour can and do occur, but require commitment and expertise within health promotion. Customs, practices and lifestyle issues play a role in the oral health of a community and should be considered when national policies and programmes are being formulated.</p> <p>Oral health promotion is an integral part of general health promotion. Together, oral health promotion and general health promotion address the inseparable issues of systemic and oral diseases, general and oral hygiene, general and oral health care attitudes, and general health services as well as dental services. Thus, oral health promotion and oral disease prevention should embrace what is termed 'the common risk factor approach'; leading to the integration of oral health promotion into broader health promotion.</p> <p>Each country should produce a thorough description of its population in terms of demographics, socioeconomics, health, diet, nutrition, and cultural factors affecting oral health knowledge, attitudes, beliefs, and behaviours. The case of Slovenia is used as an example.</p>
Teaching methods	<p>For the purposes of this training programme a workshop will be executed. The whole programme will be carried out as a discussion led by moderator. After every activity, specific learning objectives will be determined for every participant and until the next workshop their professional tasks should be performed. Their achievements will be reported (within 10 minutes) and discussed with other participants at the next meeting. The formulated document should be submitted to policy-makers.</p> <p>Resources: The computer room for 20 participants needs to be assured. Statistical package SPSS for Windows should be installed on every computer and if necessary, programme should be also installed to the personal computers of the participants. Equipment: data show for PowerPoint presentation, overhead projector, paper, pencils.</p>
Specific recommendations for teachers	<p>Work under teacher supervision/individual students' work proportion: 67%/33%. Facilities: a computer room. Equipment: PCs (1 PC for 2-3 students), LCD projection equipment, internet connection, access to the bibliographic data-bases. Training materials: available on the internet. Target audience: master degree students according to Bologna scheme. It is recommended that participants (group of 15 to 20) are all familiar with statistical package SPSS for Windows.</p>
Assessment of Students	<p>An attitude test for assessment of attitude changes. The questionnaires applied at the beginning of the first meeting and at the end of the course, or essay, discussing professional impact.</p>

ORAL HEALTH PROMOTION AND ORAL DISEASES PREVENTION

Barbara Artnik

Theoretical background

World Health Organization (WHO) recognizes oral health as an important component of general health, and furthermore, oral health is essential for well-being (1). The majority of oral diseases is related to lifestyles and reducing these predominantly chronic diseases relies much on changing behaviour. Changes for the better in behaviour can and do occur, but require commitment and expertise within health promotion. Customs, practices and lifestyle issues play a role in the oral health of a community and should be considered when national policies and programmes are being formulated.

It has also become clear that risk factors for oral diseases are often the same as those implicated in the major general diseases (2). Oral health and general health share common factors related to diet, the use of tobacco, and the excessive consumption of alcohol and the solutions to control oral disease are to be found through shared approaches with integrated chronic disease prevention.

Oral health promotion is an integral part of general health promotion. Together, oral health promotion and general health promotion address the inseparable issues of systemic and oral diseases, general and oral hygiene, general and oral health care attitudes, and general health services as well as dental services. Thus, oral health promotion and oral disease prevention should embrace what is termed 'the common risk factor approach'; leading to the integration of oral health promotion into broader health promotion concept as reported earlier (3). As a result, any advances in the evaluation of oral health promotion programmes are likely to benefit the development of health promotion in general.

Each country should produce a thorough description of its population in terms of various factors affecting oral health knowledge, attitudes, beliefs and behaviours. This information should be analysed in relation to known and acceptable oral health strategies used in other countries, so as to establish the potential appropriateness of establishing such interventions. International exchanges of information are important in this context (1).

Healthy behaviour

Appropriate oral hygiene performed by individuals reduces dental plaque and improves gingival health. Teeth can be brushed several times a day, but for a sufficient maintenance of oral hygiene is necessary to brush them at least once a day before sleeping. Dentists should be visited at least once a year for professional checking and treatment if needed. Dental visits are also important for eventual additional information about good oral hygiene of an individual. Proper oral health care includes as well healthy dietary habits. Sweets and soft drinks contain a large amount of sugar and should be avoided (4).

Many of the direct risk factors for oral diseases are known. A reduction or elimination in the effects of risk factors is possible through appropriate knowledge and behaviour such as preventive self-care, limiting high-risk behaviours like use of tobacco and alcohol, taking part in professionally provided preventive, diagnostic and therapeutic care, and having a supportive environment (e.g. community water fluoridation). In order to confront negative behaviours through education and health promotion so as to improve the oral health status of the population, action is necessary not only at the individual level but also at the levels of the health care professions and society.

General and oral health education and promotion

Preventive dental services can improve health only if they are used by the public and the oral health care providers (1). Appropriate use of self-care and professionally provided services requires both, the dissemination of information to the oral and general health care providers, and to the public at large. Studies on services provided by dental practices have shown that the majority of services are for the restoration of diseased teeth rather than for prevention (5,6). The dissemination of knowledge to the public is also critical in order to stimulate appropriate utilization of dental services and self-care behaviours. Knowledge of factors related to caries and periodontal disease is poorer among older adults than among younger adults (7). The regular use of dental services is associated with improved knowledge. This demonstrates the importance of education provided by dental practices and other sources.

According to several studies there is a significant relationship between general health and oral health on the one hand and socioeconomic and cultural factors on the other. A European and North American survey (8) showed that people of lower education and lower income families and individuals with little or no

education were more likely to be edentulous than others. A Swedish study (9) indicated a strong relationship between general health, social factors and oral health among women at retirement age. Moreover, chronic disabling medical conditions, social and psychological factors such as social participation, and negative life events had an important influence on oral health (10). It was also reported (11) that deprivation indices were sensitive to variations in oral health behaviours and could be used to identify small areas with high levels of need, and that they had a major role to play in research into features of people and places and how these promote and/or damage both oral and general health. A worldwide study by Parkin and Muir (12) revealed that tobacco and alcohol use heightened the risk of oral cancer, especially in older adults.

Social and economic factors need to be addressed in both general and oral health promotion. Predisposing risk factors such as gender, age, geographical location, culture and racial/ethnic status are seldom modifiable but they strongly influence oral health status and must be acknowledged in the development of programmes aimed at reducing risk factors for oral diseases and conditions. A lack of perceived need is a prime example of a predisposing attitude.

Socioeconomic and demographic factors are consistently associated also with seeking and obtaining professional dental services. Persons with low income, low educational levels, no insurance coverage, or residing in locations with few health care providers are less likely to have visited a dentist during the past year than others (13). Other indirect influences include individual enabling factors such as: educational and income levels; transportation; lifestyle, including smoking and alcohol consumption; and community support, such as financial assistance programmes and the availability of appropriate health care providers. The removal of barriers to both self-care and professionally provided strategies is necessary if a reduction in the burden of oral impairments in the population is to be achieved. This requires an oral health care delivery system that is different and more inclusive than what is traditional in most countries.

In order to maintain and improve the oral health of adults it is necessary to move beyond the focus on oral health as being primarily dependent on individual lifestyle choices. The social contexts of these choices remain hidden if an exclusively individual approach is adopted. The amount of control that people have over their own health is overestimated. The maintenance of oral integrity places enormous challenges on the behaviours not only of individuals but also of health care providers and the system, and requires the continuation and improvement of research, education, community programmes and clinical care (1).

Preventive oral care programmes in Europe

Over the past few decades, a marked decline in the prevalence of oral disease has been observed in several Western European countries. In the adult population, fewer adults are now edentulous and more maintain their functional dentition as measured by having at least 20 natural teeth present. In children, improved oral health is seen in the systematic decline in dental caries and a continually growing number of caries free individuals. This is ascribed to changing life-styles and living conditions, a more sensible approach to sugar consumption, improved oral hygiene practices, use of fluorides in toothpaste, fluoride mouth rinsing or topical application of fluorides, and systematic school-based preventive programmes.

Such positive trends of lower dental caries experience are observed also in children in Slovenia where school oral health programmes were established and maintained up to recent time. However, the general pattern is that the prevalence rate of dental caries in children has remained high in most of South, Central and Eastern Europe (14-16).

Because of the economic and political changes in Eastern Europe, oral health systems are now in transition. Prior to 1989, oral health care for children was provided by public health services and most countries of the region had established school dental services. Since 1989, privatization and decentralization of oral health services have taken place and most public health programmes have been brought to a halt. This change in systems has had a negative impact on utilization of oral health services. In Eastern Europe, high numbers of children attend the dentist with dental emergencies (pain/problems) rather than for preventive reasons. By contrast, the example of Slovenia is interesting since the country consolidated preventive oral care programmes for children in kindergartens and schoolchildren throughout the years of socio-political transition.

A survey of oral hygiene habits of children and adolescents in 41 countries across the WHO European region and North America also indicated that in 2005/2006, there were wide differences in tooth brushing frequency between countries. In Switzerland, Sweden, Netherlands, Germany, Denmark and Norway more than 75 % brushed more than once per day, whereas in Finland, Romania, Greece, Lithuania, Turkey and Malta fewer than 46 % brushed more than once per day (17). At a national level, one study found that 64 % of Polish schoolchildren reported that they brushed their teeth twice per day (18). In addition, 70 % of children had sweets every day or several times a week. Data revealed that the dental self-care capacity of schoolchildren needs to be improved (17,18). School health education programmes may be instrumental in development of healthy lifestyles in oral health as well as general health. Several studies conducted in Eastern

Europe have shown that in addition to involvement of parents, schoolteachers may assist in this process of oral health promotion.

Case study: Oral health promotion in Slovenia

High level of oral health promotion in children

In the past decades, caries prevention in children has been carried out in Slovenia systematically and on a large scale, mainly in the form of fluoride treatment (tablets, topical application, brushing with fluoride gel), education for better oral hygiene, and an extensive fissure-sealing programme (19) (Table 1).

Fluorides have been used for the prevention of dental caries for more than 40 years. In the 1950s and 1960s, fluoride tablets were the mainstay of our preventive programme. After 1968, their use began to decline, and between 1970 and 1975 they were largely replaced by topical fluoride application, performed in dental clinics customarily twice a year. Since 1980 tooth brushing with concentrated fluoride preparations (F-gel), performed under the supervision of dental hygienists, has been the most widespread measure; it is carried out by children aged 7–15 years in primary schools twice a month or around 16 to 18 times a year. Since about 1985, the vast majority of the population has been using fluoridated dentifrices.

Table 1. Preventive programme in Slovenia

Period	Programme
1957-	Fluoride tablets for children aged 0-11 years and expectant mothers (discontinued in 1970 for mothers)
1968-75	Topical application of 2 % NaF in children aged 7-15 years
1980-	Toothbrushing with amine fluoride gel twice monthly in schools, supervised by dental hygienists. Widespread use of fluoride containing dentifrices
1983-	Competitions held in primary schools "Let's have clean teeth"
1986-	Fissure sealing on a mass scale

Source: Vrbič, 2000

An extensive dental health education programme, which also includes supervised tooth brushing in groups, is implemented in schools and day-care centres for pre-school children. During dental health education classes, held in so-called "prevention rooms", children are taught the correct way of brushing their teeth. In primary schools, competitions for healthy teeth have been organized since 1983. The oral health education programme is carried out by dentists, nurses and dental hygienists, with ample assistance from teachers, parents and other health care personnel, united in the Slovenian Society for Oral Health. It was founded in 1992 with the aim of promoting oral health and organizes annual celebrations of Oral Health Day, which are also attended by representatives of the Ministry of Health and the WHO.

Fissure sealants were adopted for large-scale use in Slovenia in 1986, after a 5-year trial conducted in four school dental clinics in different parts of Slovenia (20,21). Treatment starts at the age of 6 years with sealant placement on all sound first permanent molars directly upon eruption. Treatment then continues with sealing of newly erupted molars and, if necessary, premolars until the age of 18.

Slovenia has a well-organized public dental health service. Set up after the World War II, the public dental health service has functioned efficiently throughout the post-war period, and the preventive programme has been systematically implemented. From 1945 to 1992, all Slovenian dentists were employed by the public dental health service and private practice was not allowed. The public dental health service covered the dental care needs of the entire population. The school dental service is part of the public dental health service. Most large primary schools in Slovenia have their own dental clinics, located on the school premises. In 1991, Slovenia became an independent country, and in the following year, private practice was legalized. Since then, a number of school dentists have left the public dental health service to work in the private sector. After 1991, the social and political system in Slovenia underwent considerable changes, yet the public dental health service continued to function without major problems. This was mirrored in the caries prevalence, which continued to decline during the transition period (19,22). In some Eastern European countries, the recent social and political changes have created much more serious difficulties in the field of health, and caries levels have remained fairly high.

It is likewise impossible to determine with certainty which factors have been the most influential for the caries decline in children in Slovenia. However, the probability is that these were mainly fluoride treatments, improved oral hygiene and fissure sealing (19).

Supervised brushing with concentrated fluoride gel is currently carried out in most primary schools. This has been the most widespread form of fluoride treatment in Slovenia since 1980 (19). Oral hygiene in children and adolescents up to 18 years of age improved over the past decades. This is confirmed by the findings of regular dental examinations, performed by school dentists, in which the presence of dental plaque and gingivitis is recorded (19). The improvement is understandable since competitions in oral hygiene maintenance have been conducted in primary schools continually for 30 years. Twenty percent of primary schools participated in the competition in 1983, compared to as many as 98 % in 2012/2013 (23). These competitions receive considerable attention from the public; the presentation of awards, organized in a different town each year, is attended by about 1500-2500 schoolchildren and teachers (23,24). There is no doubt that oral hygiene has improved because of the popularity of the competition (19).

Aside from the above-mentioned measures, Slovenia has an extensive oral health education programme, which won the 1997 Bright Smiles/Bright Futures Award, sponsored by the International Association of Paediatric Dentistry (25).

In 1998, 86% of Slovenian 12-year-olds had sealants on one or more teeth (19). The proportion of 12-year-olds with sealed teeth in individual regions ranged from 62 %, observed in one region, to 100 % in four of the nine geographic regions of Slovenia. The average (86%) is among the highest national averages reported worldwide in the literature so far (19). The beginning of large-scale use of sealants in Slovenia in 1986 coincided with the appearance of a clearly declining caries trend, which has continued to the beginning of the 21st Century. Vrbič (19) concluded that sealants have played a major part in the caries decline in Slovenia. More than 95 % of sealants are applied in school dental programmes and the rest by private dentists. All the preventive measures mentioned (with the exception of sealant placement on first permanent molars directly after eruption) are implemented in an organized and consistent manner mainly in primary schools and much less so in the pre-school period. This is probably the main reason that the caries decline has not become apparent in the primary dentition (19).

These experiences from Slovenia indicate that schools provide significant platforms for control of oral disease in children and they are relevant settings for oral health promotion.

Challenges for the future

The WHO oral health goals have been formulated for the year 2020 as part of the so called WHO Health21 policy for Europe (26). By this year, at least 80 % of 6-year-olds should be caries free and on average no more than 1.5 DMFT should be observed for children of age 12 years. In South Eastern Europe, such goals can only be achieved if oral health promotion and oral disease prevention programmes are implemented at community level. Important demonstration programmes are now established in several countries with the technical support of the WHO. The school oral health programmes are organized according to the concepts of the WHO Health Promoting Schools Project. The evaluation of demonstration programmes may thereby be most instrumental to the development of national oral health programmes and the experiences may also be shared by health professionals and health care planners across countries.

In Slovenia, development of public dental care network for children and adolescents is necessary. A new preventive dental care programme with well-defined responsibilities of all parties concerned should be adopted and should comprise the content, volume, quality, time, monitoring, and financial sources allocated for these purposes. We should not forget the public health measures that should be taken, dental health education integrated in health promotion (kindergartens, schools etc.), education of the professionals etc. Such a programme could improve the situation, reduce the differences between the regions, and improve dental health education.

Adults at high risk for poor oral self-care in Slovenia

In contrast to oral health in children, systematic information on the oral health behaviour profile of the adult population is needed in order to support the planning and evaluation of oral health promotion programmes for the public.

In the general Slovenian population, the prevalence of poor oral self-care was 6.9% (27). The main results of the study showed that poor oral self-care is unequally distributed among adults. Individuals, who are at the highest risk, are men, in age groups 40-49 and 50-59, hardly attainable for educational activities (unemployed and uneducated, living in rural parts, mainly from eastern Slovenia). This population group lives in poor socioeconomic conditions that have a negative impact on practicing healthy lifestyle.

Since the degree of oral care according to the collected data (27) is rather low in Slovenia it could be assumed that almost 7% of the Slovene population has been insufficiently informed about preventive dental care and are not aware of the importance of oral health in their overall wellbeing. Because they do not feel the need to take care of their teeth properly they have not developed a dental care friendly lifestyle. This group of people is therefore highly prone to teeth infections, decay and various teeth conditions as well as different health problems that are indirectly connected with oral health.

Distribution of teeth brushing frequency by gender shows that adult males are much more ignorant towards their oral health than females (28-30) and are more prone to tooth decay (31,32). The results are more or less the same in other similar studies.

Older people also tend to take less care of their teeth compared to younger people. The percentage of respondents aged 50–59 who are neglecting their oral health is almost double compared to the respondents aged 25–29. These huge differences can be explained by the fact that younger generations (especially those born after 1975) took part in organized dental education in preschool care institutions, schools and community health care centers. Still we can not be entirely satisfied with the awareness of preventive dental care in the age group 25–29 because the basic research report on health behaviour in Slovene adults (33) shows that around 32% of respondents from this age group have not visited a dentist for the last 12 months. We expected, that a much lower proportion of adults from this age group would be neglecting their oral health because they had been subjected to extensive dental-health prevention programmes (leading to higher awareness), but obviously we were mistaken. The interesting thing is that the lowest percentage was reached in the age group 30–39 (28%). It could have been due to the fact that young adults aged 25–29 do not feel the need to visit the dentist because they know their teeth had been taken care of in their childhood so they do not worry about them; but they are subconsciously aware of the need to have their teeth regularly examined for prevention reasons and they start doing it after they reach their thirties.

The widespread drinking of soft drinks amongst the population is also problematic. The problem lies in the uncontrolled consumption of monosaccharides or so-called “fast sugars” between meals that can have potentially disastrous effects on oral health. It usually affects younger adults (25–29-year-olds: 39 %, 30–34-year-olds: 37 %) and falls under the average level no sooner than in the 50–54 age group (33).

The relationship between low level of dental care and social class has been rather significant. People with higher socioeconomic status tend to have a more positive attitude towards preventive health care and vice versa. According to the 2011 Survey on Income and Living Conditions (SILC), the at-risk-of-poverty rate in Slovenia was 13.6% (34). If we take into account the level of poverty in Slovenia, we can clearly see the close connection between the oral health care and socioeconomic situation in the country.

The strength of our study of oral self-care (27) is that it is a part of the general health survey on risky health behaviour. At the same time, is not as detailed as it could be. The international questionnaire, for example, does not anticipate questions about protective means and applications in the oral cavity. However, additional questions can be included by individual countries. This is recommendable for such type of a research in the future because protective means can play an important role in oral public health, as reported earlier (35).

We are well aware that other behavioural patterns like smoking and alcohol drinking (especially immoderate drinking habits) should have been taken into consideration if we were to get the whole evaluation of the oral health care. But such a task demands a profounder analysis and broader spectrum of professionals.

Future perspectives

In Slovenia, renewed national goals for good (oral) health in the next decade should be set up. It is important to monitor the frequency of consumption of soft drinks, which becomes an important issue in Slovenia (not only because of poor oral health but also because of obesity). Development of public dental care networks for children and adolescents, and permanent monitoring of oral health status of adults (in the general frame of monitoring health behaviour) are necessary as well. A new preventive dental care programme with well-defined responsibilities of all parties concerned should be adopted and should comprise the content, volume, quality, time, monitoring, and financial sources allocated for these purposes. We should not forget the public health measures that should be taken, like the use of fluorides, dental health education integrated in health promotion (kindergartens, schools etc.), education of the professionals etc. Such a programme could improve the situation, reduce the differences between the regions, and improve dental health education. Special attention should be given to the oral health promotion for those population groups with the highest odds registered: for men, for those with low educational level, and for those belonging to the lowest social classes, as well as of healthy living and lifestyles in general, especially for low socioeconomic groups, and for elderly people (financial and physical accessibility). People should be motivated to take care of their general and oral health actively, whereas the society should enabled them to do so.

Exercises

For the purposes of this training programme four tasks will be executed (one task for every learning objective). The whole programme will be carried out as a discussion led by moderator. After every task specific learning objectives will be determined for every participant and until the next meeting their professional tasks should be performed. Their achievements will be reported (within 10 minutes) and discussed with other participants at the next meeting.

Task 1

Stimulating introduction at the first meeting will be led by moderator: key words will be used as a target to sensitise the participants that oral health promotion is an integral part of general health promotion. Discussion: The assessment process of the availability of data. Task 1 they have to achieve until the Meeting 2:

- To inventory the data that are already being collected and that can be used to assess the oral health status in different population groups;
- To assess the informative value of these data;
- To make provisions for generating new data.

Task 2

At the second meeting the reports should be presented by every participant. Discussion: Existing data sources. The results of the first workshop will determine whether additional data need to be collected or just data from different registries or surveys should be linked. Task 2 they have to achieve until the Meeting 3 (if necessary):

- To add variables to existing data sources;
- To link data from different registries.

Task 3

At the third meeting the reports should be presented by every participant. Methodological guidelines should be discussed and refined. It has to be decided:

- Which indicators will be used;
- Should the analysis be limited to measuring the effect of lower socio-economic status on poor oral health of people of lower socio-economic status, or should it also aim at measuring the total impact these differences have on the oral health of the population;
- The choice of an adequate level of analysis and the application of multilevel analysis.

Task 3 should be accomplished until the Meeting 4:

- To analyse differences in oral health;
- To interpret the results carefully;
- To prepare the results for clear and understandable presentation.

Task 4

At the fourth meeting the results have to be presented clearly and understandably (e.g. to use graphical displays) by every participant. The discussion: Formulating a public health policy response to the results:

- To what extent has the state identified oral health promotion as an important part of general health promotion until now;
- What are the objectives for any interventions;
- Who are the main groups with a concern for poor oral health;
- What are their interests, priorities, and commitments;
- What is the context within which interventions need to be considered;
- etc.

The formulated document should assure that public health policy satisfies identified needs and finally it should be submitted to policy-makers.

Follow up workshops on health policy development should be performed every six months.

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title	Functional assessment of older people
Module: 1.32	ECTS (suggested): 0.25
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Keywords	Assessment, elderly, functional ability, functional assessment.
Learning objectives	After completing this module students and public health professionals should: <ul style="list-style-type: none"> • Understand the need and significance of multidimensional assessment regarding health needs of old people; • Increase knowledge about different variables connected with functional ability of old people; • Be aware of principles and procedures of functional assessment instruments; • Recognize the differences between ADLs and IADLs in theory and during the processing different instruments of measuring.
Abstract	Public health and medical practice are particular important domains in which the process of continuing aging of the population has huge implications. An additional effort of medical education must be made to improve the healthcare system and to provide appropriate knowledge and skills to all healthcare professionals engaged in providing care for elderly. Evaluation of an elderly patient requires multidimensional approach and sufficient time in everyday practice. It has been shown that functional status is a very important factor for a person's evaluation of each overall health status as 'good' or 'bad' and it constitutes in many cases the key concept for individuals, especially the old, prior to their decision to use health services. Bad functional status is one of the physical status variables leading to the more frequent use of health services, especially in the population of old people. At the same time, physical and cognitive function deficits are among primary predictors of decreased quality of life in home-dwelling elders. Comprehensive geriatric assessment begins with a review of the major categories of functional ability: activities of daily living (ADLs) and instrumental activities of daily living (IADLs). The students will be introduced with the range of possible measuring instruments.
Teaching methods	Teaching methods include lectures, students' individual work under the supervision of teacher and interactive methods such as small group discussion. Students should have opportunity to search the Internet in order to explore some of the web sites concerning measuring the functional ability.
Specific recommendations for teachers	It is recommended that the module should be organized within 0.25 ECTS credits, out of which 3 hours should be done under supervision (lectures and plenary sessions), and the rest is individual and small-group work.
Assessment of students	Multiple choice questionnaire (MCQ).

FUNCTIONAL ASSESSMENT OF OLDER PEOPLE

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The proportion of elderly people in the population of Europe is growing steadily, and many countries stand today at the critical turning point for confronting the challenges and issues generated by this phenomenon. The demographic shift toward an ageing population impacts on the labor market, productivity, economic growth, social security, public finances, political and cultural life. To meet these challenges, the governments have to provide „constructive responses”, as European Commission keeps asking (1). An underlying principle of all national strategies is that older persons should remain integrated in society, regarded as contributors to and agents of development, participating actively in the formulation and implementation of policies that directly affect their well-being. The empowerment of elderly population, their full participation in the society and promotion of all their functional capacities are essential elements for principle of “active aging”.

Public health and medical practice are particularly important domains in which the process of continuing aging of the population has huge implications. An additional effort of medical education, not only in the fields of geriatrics and gerontology, must be made to improve the healthcare system and to provide appropriate knowledge and skills to all healthcare professionals engaged in providing care for elderly. It is a process of continuing paradigma shift from disease-oriented to function-oriented assistance and assessment, which entails knowledge of social, cognitive and mobility factors. These broad range of factors influence general perception of health and quality of life of elderly people and have to be considered within the scope of usual medical practice, especially in primary health-care settings.

Sistematic and multidimensional approach in geriatric assessment

The problems of elderly are often complex and multidimensional. In the care and delivery of health services to older persons, it is necessary to conduct a systematic and multidisciplinary approach.

The most important characteristic of CGA is the use of multidisciplinary methods. The term has been defined by the 1987 National Institutes of Health Consensus Conference on Geriatric Assessment Methods for Clinical Decision-making as a "multidisciplinary evaluation in which the multiple problems of older persons are uncovered, described, and explained, if possible, and in which the resources and strengths of the person are catalogued, need for services assessed, and a coordinated care plan developed to focus interventions on the person's problems." (2). It is a multidimensional process designed to assess an elderly person's functional ability, physical health, cognitive and mental health, and socio-environmental situation. The aim of a comprehensive evaluation is to optimize an older person's ability to enjoy good health and quality of life, to reduce the need for hospitalization and/or institutionalization, and to enable them to live independently for as long as possible.

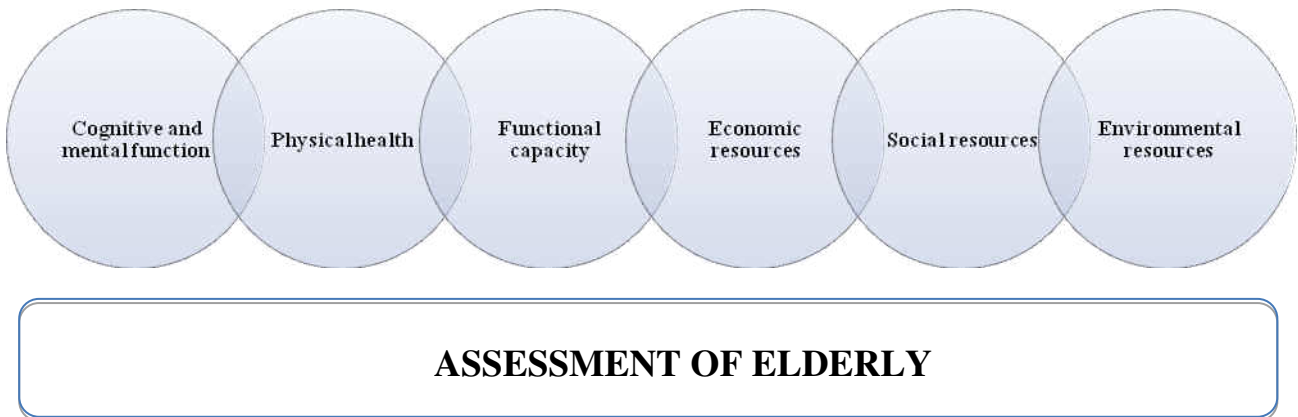
Comprehensive geriatric assessment differs from a standard medical evaluation by including domains which are not strictly medical, by emphasizing functional ability and quality of life, and, often, by relying on interdisciplinary teams. The participation of multidisciplinary teams can greatly increase the expertise and enthusiasm for patient assessment and care (3). The final organization depends on the program goals, setting, patient load, and funding. Most groups consist of a physician, a nurse, and a social worker. Other members include a physiotherapist and occupational therapist. Some assessment teams also have a dietician, psychologist, psychiatrist, podiatrist, ophthalmologist, or clinical pharmacologist. Nevertheless, the cost of programs with integrated approach has limited their use.

Although some cost-effectiveness evaluations suggest that these programs can save money, few programs operate in integrated care systems that can track these savings. An alternative approach is to conduct less extensive assessments in primary care offices or emergency departments (4).

Among comprehensiveness, staffing, organization, and structural and functional components, geriatric assessment programs vary widely in purpose. It can be used to decide on treatment or may serve as the basis for determining eligibility for care. At the same time, assessment is useful in the process of evaluation the effectiveness of a program or a specific service. Objective data may indicate future decline or improvement of health status, allowing the caregivers to intervene appropriately (5).

Because of the range of problems that can be present, the WHO has identified and recommended certain domains (Figure 1) to be assessed in elderly patients (6).

Figure 1. Recommended domains in the assessment of elderly



A geriatric assessment can be performed in many different settings such as a hospital, a nursing home, an outpatient clinic, a physician's office or the patient's home. It can be conducted by highly trained professionals or, sometimes lay persons with little formal training. It is appropriate to cite: "the more structured the assessment, the less specialized the assessor needs to be" (7).

In the assessment process of an older person there are some special issues that have to be considered (Table 1).

Although it is necessary to spend approximately 60 minutes to assess an older patient, who often present with a complex array of medical conditions complicated by psychosocial problems, the doctor is usually limited to 15-20 minutes per patient (8). In that brief time, especially at the outpatient primary care practice, the elderly patients can not communicate the full scope of their problems and doctors can't get answers to all the questions they need to ask. Less extensive assessments have to include assessment of functional ability. The old patients perceive their health status specifically and it is usually stronger connected with the functional ability than the number and character of different diseases (9).

Functional ability

There are many different ways to define functional ability, in a very broad theoretical range. Nevertheless, three components are present in almost all definitions: self-care, self-preservation and ability to perform physically active life, as long as it is possible. A simple explanation of a term is that functional status is personal ability of fulfilling different needs (10). Functional status depends of person's biological, psychological and social capacities, which synchronically enable all activities (11). It is not a constant but changeable value, under the influence of a number of positive or negative modulators. Functional status does not always reflect the physician-related health state of the individual.

It has been shown that functional status is a very important factor for a person's evaluation of each overall health status as 'good' or 'bad' and it constitutes in many cases the key concept for individuals, especially the old, prior to their decision to use health services. Bad functional status is one of the physical status variables leading to the more frequently use of health services, especially in the population of old people (12). Physical and cognitive function deficits are among primary predictors of decreased quality of life in home-dwelling elders (13).

Table 1. General issues in the assessment of elderly

Interviewing older person	Problems	Recommendations
Establishing communication	Difficulties with hearing and vision may lead to poor performance, frustration of all parties, unnecessary use of proxies and even misdiagnosis	Establish good communication. Slowly ask questions, wait for the response, and enunciate carefully, facing the respondent. Speak loudly or, when hearing is problem, use the written form of the interview.
Time	Interviewing older person take more time than usual. Some may have difficulty focusing on the task, response time is longer, and lonely people may want to talk about other things. Sometimes, we deal with persons with cognitive defects.	Interviewers need special training in learning how to accommodate some of this time delay, but not get off the track. Dealing with persons with minor cognitive deficits may need more prompts and reminders.
Fatigue	Older respondents may tire easily, especially when they have multiple medical problems. That can lead to incomplete interview.	Interviewers need to be trained to recognize indications of fatigue and to offer to stop and even divide the session into multiple parts geared to the respondent's tolerance.
Embarrassment	Older people may become upset when they cannot perform certain physical or cognitive test. They may not feel free to admit certain problems, especially when they could face consequences (e.g. institutionalization).	Interviewers need to be instructed how to avoid and cope with these reactions. Assure the clients of confidentiality. However, be ready to deal with own embarrassment when asking old person about continence or depression.
Test batteries	Often it is needed to use a battery of tests during the assessment of old person. It could be very tiring for the client and take a lot of time in practice.	It is better to begin with easier and less threatening material and proceed on the basis of performance. Areas like cognition, where failure is more feasible should be presented as late as possible.
Socio-environmental situation	Factors that affect the patient's socio-environmental situation are complex and difficult to quantify. They include the social interaction network, available social support resources, special needs, and environmental safety and convenience, which influence the treatment approach used.	It is important to have such information about an elderly patient at the first interview. It can be easily obtained by an experienced nurse or social worker. Several assessment instruments are available, but none is quantitative or clinically useful. A checklist can be used to assess home safety.

Source: Adapted (4,7)

Variables connected with functional ability of old people

It appears that demographic and psycho-social variables mediate the relationship between health status and activities of everyday life. In particular, demographic characteristics have an impact on levels of daily functioning and seem to play a role even after controlling for a variety of health variables (14,15). The most often mentioned variables connected with functional ability are: sex, age, physical and socio-environmental conditions, attitudes and beliefs, available technology, resources (finance and others) and physical activity (16).

Age of patient significantly determines the functional status. It is estimated that after the 30 years of life, a person loses 1% of functional ability each year (17). Especially noticeable decrease in functional status is after the 85 years. Nevertheless, the mechanism of a functional decrease is individual and it cannot be exclusively connected with the age of the person (18).

Chronic diseases and a number of periodically or permanently present symptoms are expected companions of old age. As it was mentioned above, the functional status is not directly and only determined by these variables. Recently published data for Serbia (representative sample, more than 9000 respondents),

illuminated the health problems of our elderly. Every second old person has gait problems and back pain, and more than 40% frequently suffers from headache and neck pain (19).

Gender is significantly associated with the functional status of old person. In the majority of published studies on the big representative samples (mostly longitudinal studies), the men of old age experience higher levels of functional ability than women (20-22)

Physical activity is most often mentioned variable in the connection with desirable functional status in old age. The WHO (World Health Organization) experts emphasized that "physical inactivity is unnecessary loss of human resources" (23). The active elderly have better functional status, less are inclined to injuries and fractures, and have smaller hospitalization rates than the inactive (24). Although, there are many data that prove the benefits of physical activity, the sedentary way of living is the usual way of spending the old age. According to data from Serbia (19) only 19% of our old people are physically active and less than 10% exercise on the regular bases. The reason of that especially bad behaviour could be the still present cultural pattern, which gives a picture of old person as inactive, mostly ill and frail.

Economic status is often a present variable connected with the functional status of the elderly. In such models, it is usually the bad economic status with a lower level of education and less influenced (and paid) previous job of old persons (25). Nevertheless, we can find the articles discussing about disparate effects of socioeconomic status on physical function and emotional well-being in older adults. The authors are certain that in the old age exist a number of compensatory mechanisms, which make very complicated the explanation of the relationship between socio-economic status and functional ability (26).

Social isolation, lower level of education, loneliness and depression are mentioned as the predictors of functional status in the population of old people, but less frequently than the previous variables. It is complicated to quantify the socio-environmental context of living and it is in the focus during the sociological, not the medical studies. The social support is proved to be in the positive correlation with the functional ability in old age. In the less developed countries, the social support and traditional function of the family are the most important contributions to the overall quality of life for elderly. The problem of isolation is more present in the developed world, but the local community is much more organized to compensate the role of family (27).

Measuring functional ability

Functional assessment is the evaluation of a person's ability to carry out the basic activities of daily living (28). It is the systematic process of identifying or diagnosing the capabilities and deficiencies of persons at risk from the consequences of ageing and illness (29). Functional ability could be assessed through three domains: physical, psycho-cognitive and socio-cultural ability. In each domain are dimensions especially important to the elderly people (Table 2).

Table 2. Dimensions of functional ability in elderly people (30)

Functional ability		
Physical ability	Psycho-cognitive ability	Socio-cultural ability
Musculoskeletal function	Reading and writing	Self-care
Hearing	Using of the spoken language	Communication with other persons
Vision	Memory	Ability to work
Voice and speech	Time of reaction	Ability to learn
Senses (hot, cold, pain)	Observation	Maintaining good relations with other persons
Cardiovascular and respiratory function	Intelligence, logic	Economic independence
Metabolic, immune, digestive nutritive and other functions	Personality Functioning of the CNS	Ability to be active in certain area of social life

Source: Edmund MW, Mayhew MS. Functional assessment

Comprehensive geriatric assessment begins with a review of the major categories of functional ability: activities of daily living (ADLs) and instrumental activities of daily living (IADLs). A common trait of different approaches to functional assessment is measuring a level of assistance to old person, in order to fulfil certain task or activity. Deficits in ADLs and IADLs indicate a need for additional information about the patient's socio-environmental situation. When elderly persons begin to need help performing these activities, their risk of becoming more dependent increases.

ADLs (Activities of Daily Living)

ADLs are self-care activities that a person normally does in daily living (eg, eating, dressing, bathing, transferring between the bed and a chair, using the toilet, controlling bladder and bowel). The ability or inability

to perform ADLs can be used as a very practical measure of ability/disability in many disorders. When people are unable to perform these activities, they need help in order to cope, either from other human beings or mechanical devices or both. Although persons of all ages may have problems performing the ADLs, prevalence rates are much higher for the elderly than for the younger population. Within the elderly population, ADL prevalence rates rise steeply with advancing age and are especially high for persons aged 85 and over. Measurement of the activities of daily living is critical because they have been found to be significant predictors of admission to a nursing home, using of paid home care, hospital or outpatient services, insurance coverage and mortality. Estimates of the number and characteristics of people with problems performing ADLs are also important because of the increasing number of private long-term care insurance policies and proposed public long-term care insurance programs that rely on ADL measures to determine whether an individual qualifies for benefits. Patients unable to perform these activities and obtain adequate nutrition usually require caregiver support 12 to 24 hours/day (4,31). To determine a person's basic activity of daily living (ADL), the Katz index of ADL is often used.

The Katz Index of Independence in Activities of Daily Living

The Katz Index of Independence in Activities of Daily Living, commonly referred to as the Katz ADL, is the most appropriate instrument to assess functional status as a measurement of the client's ability to perform activities of daily living independently. It is a basic observational tool, on which all other functional assessment instruments have been developed. Clinicians typically use the tool to detect problems in performing activities of daily living and to plan care accordingly. The index ranks adequacy of performance in the six functions of bathing, dressing, toileting, transferring, continence, and feeding. Clients are scored yes/no for independence in each of the six functions. A score of 6 indicates full function, 4 indicate moderate impairment, and 2 or less indicates severe functional impairment (32).

According to Katz, the six ADLs are in the hierarchical relationship. These ADLs were described as "early loss" and "late loss" ADLs. Complex ADLs, such as bathing and dressing, are "early loss", and represent functions that are more susceptible to early cognitive decline. "Late loss" ADLs are functions which are last expected to be lost by a person (eating, bed mobility).

IADLs (instrumental activities of daily living)

IADLs are activities related to independent living in house or apartment (e.g. preparing meals, performing housework, taking drugs, and going on errands, managing finances, using a telephone). To determine the instrumental ADL (IADL), the Lawton IADL scale is one of the more commonly used instruments.

The Lawton IADL scale

The Lawton IADL scale was the first assessment tool to measure the more complex ADLs that demonstrate a person's ability to adapt to the environment. The scale was made to improve usefulness of functional assessments of community dwelling elders. The assessment is based on seven criteria: using the telephone, travelling by car or public transportation, food or clothes shopping, meal preparation, housework, medication use and management of money. Each criterion is graded on 3 part scale: independent, assistance needed and dependent. Two separate surveys need to be completed: one from the patient, and the other from informant (nurse, doctor, care-givers or family member). The instrument produces a summary score, with a range of 0 (low function) to 7 (high function) (33).

Research studies have demonstrated the relationship between ADLs and IADLs. Persons who are dependant in ADLs are also dependant in IADLs. On the contrary, persons who require assistance in performing IADLs are not necessary unable to perform ADLs (34).

Some authors understand functional assessment as a process by stages (phases, levels), through three phases of the assessment. The first level is assessment of Basic activities of daily living (BADLs), which refers to individual's ability of performing primary biological activities, i.e. eating or dressing ability. The BADLs are more relevant for institutionalized patients and/or elderly individuals with severe disabilities. The second hierarchal higher level is assessment of already mentioned IADLs. In order to assess for example the ability of an old person with minor health problems to live independently in the community, the TADL' indexes are preferred to the previous ones. These measurement tools include more typical activities of daily living, e.g. gross mobility, home chores and role performance. At the end, assessment of the highest level of activities, Advanced activities of daily living-AADLs, refers to range of social activities, recreation, occupation or hobby. The authors emphasize the importance of a ADLs assessment, commonly forgotten in routine health interviews, but the first sign of health and functional decline (35).

Types of functional assessment instruments

There are few types of used functional assessment instruments. Sometimes, the single-item or two-item questions about functional performance are assessed domains in the much more comprehensive survey.

Self-report questionnaires represent the respondent's performance rather than their actual performance. It can be done via the mail, over the telephone or face to face interviews.

The same instruments could be used as a Proxy report measure, after the assumption that the old person is too cognitively impaired to be a reliable respondent. The proxies can be family members or professional caregivers. Direct observation measures require the person to perform an activity at a time and place where the performance can be observed by a trained observer. Observers are trained to assess specific indicators, for example, speed and gait pattern. Performance based measures are tests usually focused on dimensions of physical functioning such as balance, strength, speed of performance, gait speed or hand dexterity. The preferences or disadvantages of different measures are presented in table 3 (36).

Table 3. Functional assessment instruments

Type of instrument	Preferences	Disadvantages
Single-item or two-item questions	These tools are a relatively inexpensive way to screen out persons who do not need further functional assessment.	A confusion may arise about what standard of comparison the respondent is using
Self-report questionnaires	These measures are easy to administer and low in cost. It is not necessary to have high trained personal to assess the old person by questionnaire. They are easy to administer and can be done in person, via mail or by telephone.	These measures are not sensitive to change in function. The cognitive status or the mood state of the respondent has a direct impact on the quality of the responses. Discrepancies between self-report and actual ability to perform can be questioned.
Proxy report measure	These measures are relatively inexpensive, easy to administer and can be done in person, via mail or by telephone.	Proxies are subjects who biased recall. They can exaggerate or minimize dependency. Proxy respondents who are family members tend to underrate performance than the old person would report.
Direct observation measures	Measures of direct observation tend to have structured criteria for observing and scoring the performance. Advantages of these tools are their high degree of face validity and sensitivity to change over time.	These measures are costly in terms of performance time by the older adult and observation time of observer. In the laboratory or clinical settings, the environment is unfamiliar to the subject, which may influence the performance.
Performance based measures	These measures have excellent face validity for the tasks being performed. They are sensitive to change over time, can be used to assess function when recall is limited, and have better reliability for persons with mild to moderate cognitive impairment.	These measures are expensive. When subjects do not complete the task it is difficult to determine if the failure is due to low level of motivation, inability to do the task, non-supportive environment, or a combination of factors. Performance that occurs in the clinical setting may not equal performance at home or in daily life.

Exercise 1: Cognitive assessment in older people

Students should read provided recommended readings-review paper about cognitive assessment in older people (37), and have opportunity to do the additional search through the Internet about the same topic.

Organized in a few small groups (4-5 students), students will discuss with tutor the following questions concerning cognitive assessment in older people:

- ✓ What is cognitive function?
- ✓ Why does cognitive assessment matter?
- ✓ What are the key aspects of cognitive assessment?
- ✓ What can we find out about cognitive status of an older patient only by observation?
- ✓ Do we have standardized instruments for assessment of cognitive status of an older patient?
- ✓ What are the challenges of cognitive assessment in everyday practice of a general practitioner?

- ✓ Examples of brief, easy to use and sensitive instruments, feasible to use in practice (such as clock drawing test, mini-mental test and others);

Time 90 minutes

Case study: Importance of a multidimensional approach in the assessment of elderly

A 79-year-old widowed woman, who recently completed chemotherapy for breast cancer, complained of intermittent chest pain, palpitations, weakness, and forgetfulness. Her family was concerned that she may be developing dementia. She lived alone in a one-bedroom apartment and had been managing all of her affairs independently. Her family was alerted when her telephone was disconnected for non-payment of several bills. They also noted that she seemed thinner but attributed this to the chemotherapy. The apartment was disorganized, and the refrigerator was almost devoid of food.

A team for home care (general practitioner, nurse and social worker), revealed a probable diagnosis of major depression with underlying anxiety causing chest pain and palpitations and weight loss secondary to depression. Also, mucositis related to chemotherapy was noted, and polypharmacy contributed to weakness and fatigue, making it difficult to transfer out of chairs and the toilet. The team believed that the patient would need to be monitored after therapy to see if a diagnosis of dementia would be later confirmed. Social support and financial resources were considered adequate. After discussion with the patient and family, a care plan was developed and instituted.

Phase 1 included moving the patient to live with her daughter during this time of recuperation, with a trial at her apartment when the team felt she was ready to return. Her medications were streamlined to ensure that they were actually required and matched a diagnosis, and dosages were checked for appropriateness. If less expensive agents or those with improved side-effect profiles were available, a trial would be considered. An antidepressant and an analgesic were added for major depression and for mucositis. The patient was scheduled for outpatient physical therapy. A home evaluation determined that grab rails and an elevated toilet seat would assist with transfers in the bathroom. Armless chairs in the kitchen and dining area were replaced with appropriate height chairs with arms, and several throw rugs were disposed of because of the concern for fall risk. Based on the patient interview, the patient noted that she was concerned that she would have a cancer relapse, though there was no evidence of this to date. A list of breast cancer support groups was also provided to the patient. Over the next several weeks, the patient's mood, energy, and appetite all improved. Her chest pains and palpitations resolved with successful treatment of depression. Though she was still concerned about a cancer relapse, she felt the support groups were helpful. After a successful trial in her apartment, she returned to living independently, now with a home care aide visiting twice a week and with home-delivered meals.

Exercises

Task 1: Individual work

Students read the case study and try to distinguish the task of each member of a team from the text. How are health and social needs of the old women connected? What is the advantage of a home visit from this case? Each student will try to deal with this situation under the different circumstances, when the old person's family does not have home care options. Students read their reports and discuss different opinions and solutions.

Time 90 minutes.

Task 2: Group work

Students are organized in a few small groups (4-5 students) and have opportunity to search through the Internet. Each group will have task to find and present one successful model of integrated care for elderly.

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title:	Health literacy
Module: 1:33	ECTS (suggested): 1.0
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Keywords	Health, health literacy, literacy.
Learning objectives	After completing this module, the participant will be able to accomplish the following: <ul style="list-style-type: none"> • define and describe health literacy and list factors that influence health literacy, • identify who is affected by health literacy, recognize the consequences of limited health literacy, • determine who are the stakeholders in health literacy, and apply lessons learned to improve health literacy.
Abstract	This module introduces the concept of health literacy, the issues and challenges of low health literacy; measurement tools; and organizational approaches to meet the challenges of low health literacy provides strategies for considering literacy when creating public health messages for the general public and provides strategies for considering literacy in direct public health services to the public. Where there are adequate levels of health literacy, that is where the population has sufficient knowledge and skills and where members of a community have the confidence to guide their own health, people are able to stay healthy, recover from illness and live with disease or disability.
Teaching methods	Multiple teaching / learning strategies will be used for the module: lecture with discussion, student presentation of homework, group activities focusing on interdisciplinary approaches to improving health outcomes in patients with low literacy, case studies, and video materials.
Specific recommendations for teachers	This module should be assigned 1 ECTS. Teachers should be familiar to give examples of specific challenges and problems in public health.
Assessment of Students	Assessment will be formative based on students' participation (attendance, small group discussion and assignments) and summative based on homework examination with presentation and final exam by multiple choice questionnaire. Individual assignment is a homework (up to 2000 words, references excluded).

HEALTH LITERACY

Aleksandra Jovic-Vranes, Vesna Bjegovic

New health society in almost all aspects of life faces us with active role in health care related decisions. Achieving and maintaining good health is a continuous process in which we need knowledge and skills. Health decisions place us in a position to become "active citizens" and "informed patients". However, some lack access to the necessary information, or do not have the adequate skills to make informed decisions about health. These skills are key component of health literacy.

Literacy and health

Literacy is a human right and can be considered a tool of personal empowerment; literacy is a means for social and human development (1). Modern concept of health includes physical, mental and social well-being, a broader understanding of literacy includes range skills to navigate and apply knowledge. The positive and synergistic effects of general literacy and education on population health are well known. Education is essential to a thriving society. Not only does it provide the basis for successful participation in our economy and democracy, but it is an essential determinant of health (2).

An important step in examining literacy and health outcomes is to clarify what literacy means and how it has been measured. In its most common usage, literacy refers to an individual's ability to read and write (3). It is also sometimes used to describe a person's facility with or knowledge about a particular topic. For example, we often see phrases such as "science literacy," or "computer literacy." These terms generally refer to a person's ability to function in a particular context that requires some background knowledge. A working definition of literacy for the 21st century that attempts to integrate a broad range of factors has been proposed by the Center for Literacy of Quebec: Literacy involves a complex set of abilities to understand and use the dominant symbol system of a culture for personal and community development.

The need and demand for these abilities vary in different societies. In a technological society, the concept is expanding to include the media and electronic text in addition to alphabets and numbers. Individuals must be given life-long learning opportunities to move along a continuum that includes reading, writing, critical understanding and the decision-making abilities they need in their communities (4).

Increasingly, literacy is viewed as including a variety of skills needed for an adult to function in society.

The Canadian Education Research Information System has identified six such skills (5):

- quantitative literacy;
- scientific literacy;
- technological literacy;
- cultural literacy;
- media literacy; and
- computer literacy.

It is essential to add health literacy to this list and include it in the policy. A health literate person is able to use health concepts and information generatively—applying information to novel situations. A health literate person is able to participate in the ongoing public and private dialogues about health, medicine, scientific knowledge and cultural beliefs (6).

What is health literacy?

Health literacy, as a discrete form of literacy, is itself dependent upon more general levels of literacy. Thus, it becomes increasingly important for social, economic, and health development (7). Health literacy has many dimensions, including what it means to be able to read, understand, and communicate important medical and health information during different phases of life (8).

Early definitions tended to focus on patient's ability to read and understand health care information and their compliance with medical instructions. Later, definitions broadened to include the ability to assess health information, make informed choices, personal empowerment and the importance of context (9). In this same way, "health literacy" has been defined as a constellation of skills that constitute the ability to perform basic reading and numerical tasks that are required to function in the health care environment (10). By improving people's access to health information, and their capacity to use it effectively, health literacy is critical to empowerment. Poor literacy can affect people's health directly by limiting their personal, social and cultural development, as well as hindering the development of health literacy.

Health literacy has been defined by the World Health Organization as follows "the cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand and use

information in ways which promote and maintain good health" (11). Some authors have used an expanded definition of health literacy that includes a working knowledge of disease processes, self-efficacy, and motivation for political action regarding health issues. The European Health Literacy Survey developed an integrated definition from a review of more than 15 definitions of health literacy: "Health Literacy is based on general literacy and entails people's knowledge, motivation and competences to access, understand, appraise and apply health information to make judgments and take decisions in terms of healthcare, disease prevention and health promotion to maintain and improve quality of life through the life course" (12).

Health literacy is dynamic, requiring an individual to learn new information and discard outdated information on an ongoing basis, and demands continuous involvement between the individual, health care providers and other community resources (13,14). An individual's health literacy may also change over their life course as their skills set becomes subject to different information processing demands. Areas commonly associated with health literacy include: patient-physician communication, drug labeling medical instructions and medical compliance, health information publications and other resources, informed consent, responding to medical and insurance forms, giving patient history, public health training.

The need for today's patients to be health literate is greater than ever, because medical care has grown increasingly complex.

Factors that influence health literacy

There are many factors that determine the health literacy level. Individual knowledge and skills, along with past experiences and other demographic, cultural, and environmental factors, affect the way in which the public understands and uses health information. Factors that affect health literacy within the health system and professional practice include the communication skills of health professionals, level of complexity and novelty of the health information, cultural and linguistic suitability of health information and services, information dissemination channels, and existing infrastructure that facilitates and supports healthy behaviors (15).

Reading level, numeracy level, language barriers, cultural appropriateness, format and style, sentence structure, use of illustrations, interactivity of intervention, and numerous other factors will affect how easily health information is understood and followed.

Limited health literacy was common and strongly associated with:

- worse health status, quality of life and early mortality
- poor self-report of health status
- less health knowledge and comprehension of health information
- difficulty in taking medications appropriately and interpreting labels and health messages
- higher rates of hospitalization, emergency care visits and lower rates of preventive service use

Persons with limited literacy skills have poorer health status than the rest of the population. This may be due to the deficits in health knowledge as well as medication errors, poor understanding of medical instructions, and lack of self-empowerment. Patients with limited literacy skills have less awareness of preventive health measures and less knowledge of their medical conditions and self-care instructions than their more literate counterparts. They also have more emergency department visits.

The combination of medication errors, excess hospitalizations, longer hospital stays, more use of the emergency department, and a generally higher level of illness results in high cost for the healthcare system (16).

Populations at risk include: elderly (age 65+ years), minority population, immigrant population, low income, people with chronic health conditions, lack of educational opportunity, learning disabilities (17-19).

Measuring health literacy

A number of countries, including Canada, the United State of America, the United Kingdom and Ireland, have conducted population level surveys of health literacy. The first international survey has recently taken place in eight European countries as part of the European Health Literacy Survey 2010 (12). However, most of the existing research in health literacy has taken place in clinical settings (20).

Currently, there is no measure of health literacy that reflects the broad range of skills captured in the definition. Instruments for measuring literacy in the health-care setting have focused on the ability to read and, in some cases, to use numbers. Commonly used are the wide range achievement test reading subset (WRAT), the rapid estimate of adult literacy in medicine (REALM), and the test of functional health literacy in adults (TOFHLA) (21-23).

Health literacy is an important public health investment and needs long-term commitment, multilevel approach, political engagement, and strong partnerships.

Without health literacy, we will undoubtedly fall short of achieving our goals for a healthy and prosperous citizenship (24).

Improving health literacy

Improving health literacy has been added as a Healthy People 2010 objective (25), and two reports by the Institute of Medicine and the Agency for Healthcare Research and Quality summarize the data regarding the prevalence of low health literacy and its relationship to health care quality, use, outcomes, and disparities (26,27). According to data, the costs due to limited health literacy in the US or in Switzerland correspond to about 3-5% of the total health care spending (28). The deleterious effects of poor health literacy have already been seen in diverse disease conditions such as asthma, HIV/AIDS, and diabetes mellitus (29-31).

Therefore, health literacy can impact on disadvantage and health inequalities by empowering active and informed participation in health care (32).

The primary responsibility for improving health literacy lies with public health professionals and the healthcare and public health systems. Policies and programs are needed to respond to the extent and impact of low literacy. All levels of government need to be involved in developing and supporting such health literacy policies and programs. They are required to reduce the numerous and interconnected individual and system barriers to health literacy. It is important to ensure that health information and services can be understood and used. Also, attention should be directed to the population groups that appear most likely to have low levels of health literacy. Where there are adequate levels of health literacy, that is where the population has sufficient knowledge and skills and where members of a community have the confidence to guide their own health, people are able to stay healthy, recover from illness and live with disease or disability.

None of this will happen without the recognition that health literacy is a serious concern which needs to be addressed.

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title	Inequalities in health
Module: 1.34	ECTS (suggested): 2.0
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Keywords	Health policy, life expectancy, mortality; national health programs, policy making, socioeconomic factors.
Learning objectives	The first two educational objectives (domain of intellectual skills) of this module are: <ul style="list-style-type: none"> • To increase the awareness of health professionals about the negative effects of persisting inequalities in health within and between countries; • To sensitise health professionals for developing an attitude about reducing inequalities in health as a very important task of their work. Health professionals represent a bridge to policy-makers in the sense of thought-transference and implementation of research achievements into practice. After completing this module (domain of intellectual, practical and also communication skills) participants should be capable to: <ul style="list-style-type: none"> • Assess the data currently available; • Collect additional data; • Analyse, interpret and present the data; and • Formulate a policy response to the results.
Abstract	Socio-economic inequalities in health are a major challenge for health policy, not only because most of these inequalities can be considered unfair, but also because reducing the burden of health problems in disadvantaged groups offers a great potential for improving the average health status of the population as a whole. However, it seems that public health professionals are not enough aware of inequalities in health, or they are not trained enough to handle them. It can be partially explained by the fact that there is insufficient postgraduate education and continuous training in the field of socio-economic inequalities for public health personnel. This module consists of four activities (tasks), one activity for every learning objective: Task 1 - Assessment process of the availability of data, Task 2 - Existing data resources, Task 3 - Methodological guidelines, Task 4 - Formulating a public health policy.
Teaching methods	For the purpose of this training programme a workshop should be performed (Four weekends of training course on Friday afternoon and on Saturday) within four months. The whole programme should be carried out as a discussion led by moderator. After every activity, specific learning objectives should be determined for every participant and until the next workshop their professional tasks should be performed. Their achievements should be reported (within 10 minutes) and discussed with other participants at the next meeting. The formulated document should be submitted to policy-makers. Resources: A computer room for 20 participants needs to be assured. Statistical package SPSS for Windows should be installed on every computer and if necessary, the software should be also installed to the personal computers of participants. Equipment: data projector for PowerPoint presentation, overhead projector, paper, pencils.
Specific recommendations for teachers	Suggested ETCS: 2, of which 2/3 should be supervised work and 1/3 individual work. It is recommended for participants (a group of 15 to 20) to be familiar with the statistical package SPSS for Windows. A computer room should be provided.
Assessment of students	An attitude test should assess the changes in the attitudes of participants. Two questionnaires should be administered to all course participants, one at the beginning of the first meeting and the other one at the end of the training course. Module evaluation: Questionnaires should be distributed during the course to assess the level of satisfaction of participants with the programme. However, the most important evaluation of the module should be the final outcome – health policy formulation.

INEQUALITIES IN HEALTH

Barbara Artnik

Introduction

Differentials in health and longevity by socioeconomic status (SES) and by the nature of social relationships have been identified in a myriad of studies, some dating as far back as the 1800s. More so than most research areas, this field has actively engaged researchers from many disciplines, including sociology, psychology, economics, demography, epidemiology, biology, and medicine. They have found that, with few exceptions, persons of higher socioeconomic status and persons who are more socially integrated, experience lower rates of morbidity and mortality than their respective counterparts (1-4).

The international evidence points to an uneven distribution of health and disease, favouring those in socially advantaged positions, whether position is measured by income, education, occupation or other indicator or socioeconomic status. These associations have been identified across time, place, gender, and age. Moreover, these inequalities in health are apparent for a broad set of outcome variables, such as self-perceived health, most illnesses, disability, mortality, and psychological well-being, and for alternative measures of social position, such as income, other measures of wealth, education, occupation, level of social integration, and marital status. The magnitude of the differentials is substantial, not trivial. For example, mortality rates are commonly two to three-fold greater for people at the bottom than at the top of the social scale; life expectancy is five years less for unskilled workers than for professionals; there is a gap of between nine to twelve years in disability-free life expectancy between poor and rich people (5).

Terminology

The term »inequality« is used for stating differences in health status determined by social variables like educational grade, professional category and income level sometimes added up to one integrated index of social status. By some, this is called »vertical« inequality, whereas »horizontal« inequality may refer to various dimensions of disparities connected with gender and age or different ways of looking at a person's position in the society, e.g. marital and family status, ethnic group, whether one is a migrant or a native resident, etc. Others prefer not to make such a distinction but to think instead in terms of disadvantaged or vulnerable groups such as migrating labourers, the unemployed, socially isolated elderly, and one parent families.

The differences or variations in the health profiles can be measured from standard health statistics. However, not all of these differences can be described as inequalities.

Inequality in health is a term commonly used in some countries to indicate systemic, avoidable and important differences. However, there is some ambiguity about the term, as some use it to convey a sense of unfairness, while others use it to mean unequal in a purely mathematical sense. Added to this is the problem of translation in some languages, where there is only one word available to cover both "inequality" and "inequity". To avoid confusion, the terms "equity" and "inequity" have been chosen by World Health Organisation (WHO) for the European Health for All strategy.

The term "inequity" as used in WHO documents has a moral and ethical dimension. It refers to differences in health which are not only unnecessary and avoidable, but in addition, are also considered unfair and unjust. In order to describe a certain situation as inequitable, the cause has to be examined and judged to be unfair in the context of what is going on in the rest of society. The issue of equity in health is not only equity in health outcomes, but also equity in the various determinants of health. The concept of fairness obviously involves a moral judgement and is, therefore, intrinsically difficult. As is the case with health outcomes, the inequities in health determinants are those that should not exist. Every person should, in terms of equity, have the opportunity to access those sanitary and social measures necessary to protect, promote, and maintain or recover health (6).

Explanations for inequalities in health

Three categories of explanations for the observed patterns have been proposed. One set of hypotheses relates to a set of causal mechanisms through which socioeconomic status and social relationships potentially affect health status and the risk of dying. A second type of explanation, sometimes referred to as "selection" or "reverse causation", refers to a set of pathways whereby unhealthy individuals may reduce their social position or become socially more isolated as a consequence of their inferior health status. A third, less frequently invoked explanation encompasses artefactual mechanisms, such as measurement error.

The consensus among researchers from different disciplines is that the observed disparities in health are driven largely (although not entirely) by a complex set of causal processes, rather than by selection or

artefactual mechanisms. In terms of SES and health, the claim has been that, although there is some evidence of downward social mobility among individuals in poor health, this selection process makes only a minor contribution to the overall association between SES and a wide range of health indicators (7-13).

Similarly, scientists have argued that selection processes have a negligible impact on the observed health differentials in social support, social integration, and marital status (14,15).

Artefactual mechanisms (e.g., errors of measurement, such as undercounts in the census, numerator-denominator problems, such as inconsistencies in reports between registration and census data, or inappropriate measures of mortality or SES) are also not considered to be a powerful explanation of the observed associations (16,17).

A review of inequalities in health

The relation of poverty to ill health has been known for centuries, and the classic work of medical historians such as Sigerist (18) outlines the evolution of that relationship. He describes the major lines of thought of the eighteenth century, when activists like Johann Peter Frank recognized poverty as a major cause of disease and advocated for a police function in public health. The industrial revolution accentuated the appalling health living conditions of the poor and led to the utilitarian approaches of reformers like Chadwick towards improving the health of the poor in the nineteenth century.

It is appropriate here to point out the role of one of the medical heroes, Rudolf Virchow (19), whose leadership of the health reform movement in this country has left a remarkable legacy in terms of social security that includes health benefits. He investigated an outbreak of relapsing fever in Silesia and came to the conclusion that the causes were essentially social. According to Sigerist, he recommended prosperity, education, and liberty, which can develop only on the basis of complete and unrestricted democracy.

Almost every country in the world has data showing the differences in health outcomes. In spite of that, researchers refer frequently to the United Kingdom where there is a tradition of more than 150 years of collecting and analysing health data. The politically most effective description of socio-economic gradients and mortality after the Second World War was so-called Black Report (1) published first 1978 in the United Kingdom. The results demonstrate the constant social gradient for almost all causes of mortality. It was a seminal work on the inequalities in health and the policies necessary to promote and restore health. Even though the report caused little positive domestic reaction at the time, it was and continues to be the stimulus for debate and research in the international arena on the inequalities of health outcome and the means to address them.

More recently another study on inequalities in health in the UK has been conducted, and the findings have been published in what is known as the Acheson Report (20), after Sir Donald Acheson. The report documents the persisting inequalities in health and states that for many measures of health, inequalities have either remained the same or have widened in recent decades. The report “adopts the socioeconomic model of health and its inequalities” and posits that the capacity of the personal behaviour and lifestyles of individuals to affect health is significantly modulated by the social and community influences in which a given individual operates. In addition, there is a wide range of living and working conditions that can positively or negatively affect the health outcomes.

The data clearly show the impact of social class on health. In spite of criticisms of the formulation of the social classes, there is now overwhelming evidence of the influence of social hierarchy on health. In the classic work *Why Some People Are Healthy and Others Not* (21), Renaud makes a most definitive statement: The lower one is situated in the social hierarchy as defined by work, lodging, education, income or whatever; the lower one’s probability of staying in good health and the lower one’s life expectancy. This is the most frequent and most pervasive of all the observations made in the history of public health.

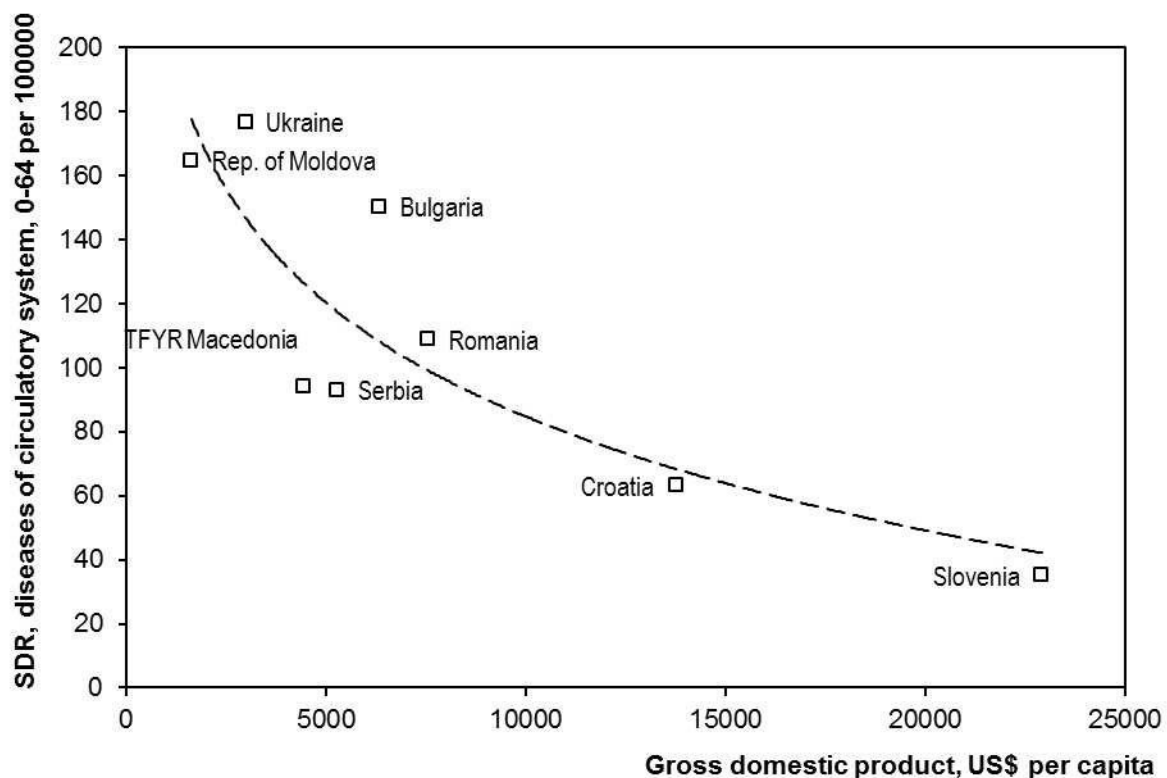
The fact that health outcomes are to a large measure socially determined gives hope that these social conditions, if altered, can lead to improved health. The Acheson Report (20) notes that in order to reduce health inequalities, “further steps should be taken to reduce income inequalities and improve the living standards of poor households.” This recommendation is remarkably accurate when it addresses both the aspect of difference in income and the absolute level of income that is associated with poverty. There has often been debate as to whether it is income distribution or poverty that has the major impact on health. The answer is that the predominance of one or other depends very much on the economic status of the population examined.

There is a clear potential link between social ties and social capital as reviewed by Kawachi (22). Kawachi and his colleagues (23) describe lucidly the two approaches to the economic situations associated with ill health. There is the focus on absolute poverty, with the need that is expressed so often today to eliminate or to eradicate poverty. These expressions borrowed from the image of disease control and eradication but, although attractive as slogans, are not usually useful in operational terms. The other focus is on relative deprivation, where it is the difference in income between groups perhaps at any level of wealth that is a major determinant of health outcome. It is important to make this differential. Poverty affects the individual’s capacity to maintain or recover his or her health and in addition impacts on the societal environment that itself will affect health. Relative deprivation or, in its commonly assessed expression, misdistribution of income is not an individual

characteristic, but is very much a structural aspect of the society or group in which the individual has to function.

As already indicated, it is not only absolute deprivation that is important. As Wilkinson's seminal work (24) has proven, income inequality has an equally and sometimes more powerful influence on such health outcomes as infant mortality rate and life expectancy. Particularly in the developed and richer countries, it is income distribution rather than individual measures of wealth such as per capita gross domestic product (GDP) that are important. However, a decreasing exponential trend of standardised mortality from cardiovascular diseases at increasing GDP can be observed in the countries of South Eastern Europe (Figure 1).

Figure 1. Standardised mortality rate (SDR) from diseases of circulatory system and gross domestic product (GDP), South Eastern European countries, 2010 (Source: WHO/Europe, European HFA Database, January 2013)



Income misdistribution is associated not only with health outcome but with a whole range of social pathologies. In societies that have more income inequality, there is increased criminal activity, for example.

Constant (although not necessarily linear) relationships between SES (measured by occupational class, income, or education level) and health status have been established for other outcomes, including the infant mortality rate and the prevalence of major chronic diseases (7). A well established relationship between educational level and health status is mediated in part by the obvious connections between higher educational achievement, a better job, improved standard of living and more resources to devote healthcare and treatment.

People in many of the lower income countries – and, indeed, poor, disadvantaged and marginalised people everywhere in the world – have benefited less from the products of health research and continue to suffer high – and often growing – levels of ill health and premature death. Many of the reasons for this can be traced to failures to use knowledge which can be linked to issues such as inadequate finances, lack of political will, weak infrastructures and missing human resources.

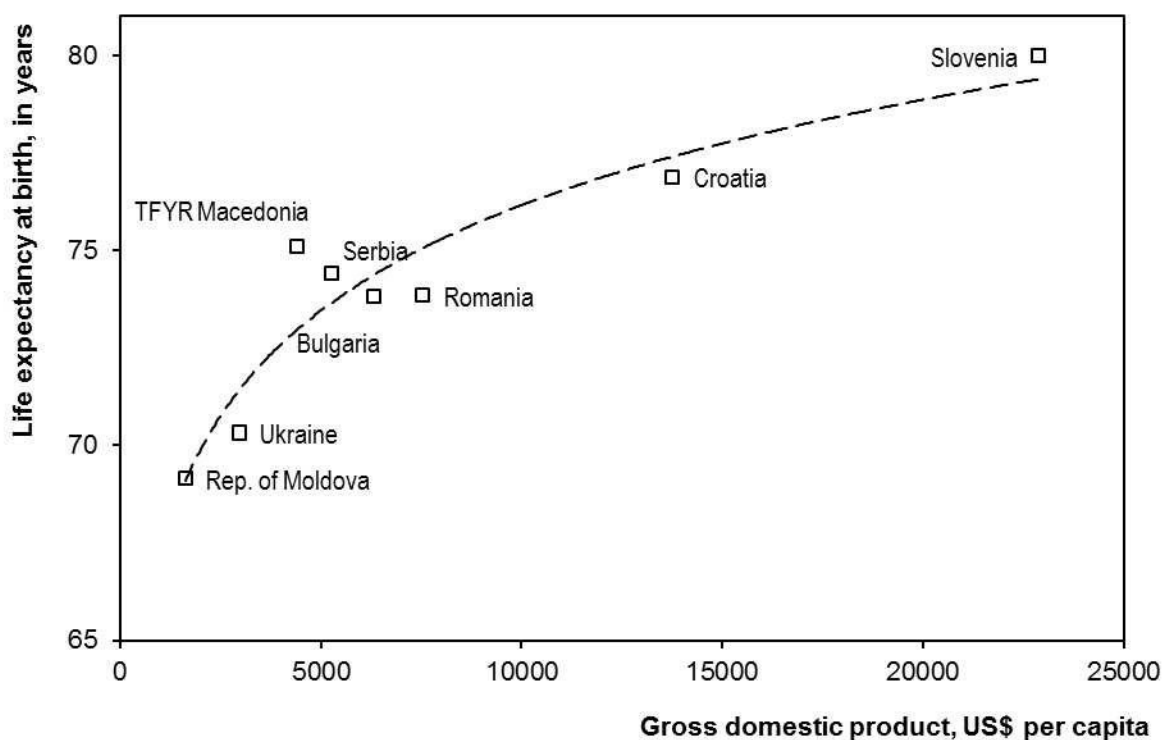
There is a vicious circle linking poverty and ill health. As a consequence, poor people are subject to higher rates of maternal mortality, HIV/AIDS and a host of other burdens that can have devastating consequences for themselves and their families.

It also has been proposed that when material deprivation is such that the expectations of the individual cannot be fulfilled, a situation develops similar to the anomie described by Durkheim (25). As he first conceived

it, anomie refers to a state in which the usual norms are no longer clear or observed, and later he used the concept to describe anomic suicide. The competition between individuals and the incongruence between aspirations and possible satisfaction favoured the impulse towards suicide. It is not farfetched to relate the increase in criminal activity and social stress attendant upon income inequality to the anomie of Durkheim.

The relationship between income and measures of health such as life expectancy is curvilinear. The poorer the group, the sharper and clearer the relationship, but above a certain level of income the curve flattens and the effect of income on health is progressively muted. In terms of country level comparisons, we can note that the effect of income on life expectancy, for example, is stronger in the developing than in the more developed countries. Figure 2 shows the connection between life expectancy at birth and GDP in South Eastern Europe. A logarithmic trend from the given data of South Eastern Europe shows a strong positive gradient for the low GDP, whereas a moderate increasing slope for the countries with the higher GDP is observed. The life expectancy trend confirms the observations from other countries.

Figure 2. Life expectancy at birth and gross domestic product (GDP), South Eastern European countries, 2010 (Source: WHO/Europe, European HFA Database, January 2013)



In a classic series of data produced 25 years ago, Preston (26) developed a family of curves for the relationship between income and life expectancy for different decades of this century. The curves remain qualitatively the same, but over time—as countries prosper—the curves shift, and there is a higher life expectancy for the same income level. This is a most important observation, in that it leads to the view that there are exogenous factors such as technology, both hard and soft, that have contributed to this increase in life expectancy at similar income levels. It is the advent of this technology that has been implicated in the finding of the relatively more rapid improvements in health in many of the developing countries.

It has been suggested that it is not only difference in outcomes, such as mortality rates, that can be affected by misdistribution of income. Income differentials result in or are derived from different work opportunities, and these employment differentials are said to create a situation in which the self-worth and autonomy of the lower paid worker are so affected as to lead to varying degrees of psychosocial stress. The spread of information that shows what can be achieved elsewhere makes the appreciation of the gap between aspirations and reality so great that there can be outcomes measured in terms of physiological abnormality. The television images of the rich and famous are seen in the most remote parts of the world, and miracles of modern technology appear to be there simply for the asking. Blood pressure, for example, increases when there is incongruity between what the individual perceives to be an acceptable or conventional lifestyle and that to which he or she is subjected or relegated because of material deprivation.

Results are less clear cut in studies that employ multiple measures of social position. For example, Fuchs (27) argues that when health is modelled as a function of both income and schooling, the latter variable dominates, sometimes leading to a negative association between health and income.

Findings from many studies have challenged the notion that the association SES and health is due largely to the adversities associated with poverty. Instead of revealing a threshold effect, these associations have emerged at every level of the social hierarchy (e.g., the highest social class was shown to be healthier and have lower risks of dying than the next highest group), generating what researchers now refer to as a social gradient in health. For example, the widely cited Whitehall study from the 25-year follow-up of British civil servants (28-30) shows the social gradient in all-cause mortality. The mortality gradient was present even within a relatively homogeneous group: civil servants in one type of occupation (stable office jobs) and one geographical location (London), but in different grades of employment (8). These men were all in stable employment and none were in poverty in any absolute sense of that word, yet there is a gradient in mortality. Each grade in the civil service has higher mortality rates than the grade above it in the hierarchy.

Lisa Berkman and Thomas Glass (31) have reviewed the evidence for the strong and consistent protective effect of participation in social networks and of social support. Evidence from the Whitehall II study shows that the lower the position in the hierarchy, the less frequent the participation in social networks outside the family and the more negative the degree of social support (32).

The impact of poverty on health is still evident today, and in every country it will be the poor who are the most disadvantaged, both in terms of health outcomes and in access to the factors that make for good health. Poverty is associated with mental as well as physical illness, and there are good data to show that low socioeconomic status is associated with higher rates of psychopathology. But as the Report on World Mental Health (33) points out, “although poverty is linked to mental ill health, economic prosperity does not translate directly into either personal or social well-being.”

There is a gradient in health outcome running from the most to the least advantaged members of society; these health outcomes are not specific to any particular cause; a medical response will not solve the problem; nor will a response that emphasises individual choices over lifestyle. Inequalities in health are a manifestation of the social determinants of health. While it does not follow automatically that if the causes are social in origin, the solutions need necessarily to be social; it is likely that an understanding of causes of inequality has the possibility to lead to policies that can make a fundamental contribution to improving health in society (34).

WHO: Health for All in the 21st Century

The policy of the World Health Organisation (35) is based on the fact that the world is one and indivisible. As stated in the 1998 World Health Declaration, the enjoyment of health is one of the fundamental rights of every human being. Health is a precondition for well-being and the quality of life. It is a benchmark for measuring progress towards the reduction of poverty, the promotion of social cohesion and the elimination of discrimination. Health status is differing significantly between the Member States of European Region (51 countries) and within them is representing the major obstacle to development. The regional policy for health for all is a response to the World Health Declaration (35). To achieve health for all in the 21st century, the European Region of WHO has set 21 targets (36), which Member States are supposed to achieve between the years 2005 and 2020 (depending on individual target) by the means of the national policy and regional development's orientations. For equity in health, the first two targets are of the main importance. Equity in health is supposed to be attained by the means of solidarity at country level and in the European Region as a whole.

Target 1: Solidarity for health in the European Region

Poverty is the major cause of ill health and lack of social cohesion. One third of population of the eastern part of the European Region, 120 million people, live in extreme poverty. Health has suffered most where social systems have collapsed, and where natural resources have been poorly managed. This is clearly demonstrated by the wide health gap between the western and eastern parts of the Region. The differences in infant mortality rates are the most significant (from 3 to 43 per 1000 live births) as well as in life expectancy at birth (from 79 to 64 years). According to the plans of the WHO (36), the present gap in health status between Member States of the European Region should be reduced by at least 30%. In order to reduce these inequities and to maintain the security and cohesion of the European Region, a much stronger collective effort needs to be made by international institutions, funding agencies and donor countries. Furthermore, external support should be much better integrated through joint inputs into government health development programmes that are given high priority and are firmly based on a national health for all policy in the receiving country.

Target 2: Equity in health

Second target of the WHO aims to ensure the differences between socio-economic groups to be decreased, since even in the richest countries in the European Region, the better off live several years longer and

have fewer illnesses and disabilities than the poor. The health gap between socioeconomic groups within countries are supposed to be reduced by at least one fourth in all Member States, by substantially improving the level of health of disadvantaged groups of inhabitants.

Poverty is the biggest risk factor for health, and income-related differences in health – which stretch in a gradient across all levels of the social hierarchy – are a serious injustice and reflect some of the most powerful influences on health. Financial deprivation also leads to prejudice and social exclusion, with increased level of violence and crime.

There are also great differences in health status between women and men in the European Region. Other health-risk factors, which are determining association with a certain socio-economic group, are educational level, nationality, etc.

Advisable Guidelines for Reducing Inequalities in Health

Socio-economic inequalities in health are a major challenge for health policy, not only because most of these inequalities can be considered unfair (6), but also because reducing the burden of health problems in disadvantaged groups offers a great potential for improving the average health status of the population as a whole (37). The international community and national governments are turning to the scientific community for advice on how to reduce inequalities in health. Governments are looking, in the worlds of WHO's strategy for Europe, for »a scientific framework for decision makers« and »a science-based guide to better health development« (36). As recommended by the WHO for European Region (36), policy-makers should develop a systematic strategy for monitoring socio-economic inequalities in health. Action should be taken on different levels. Inequalities should be reduced by the means of the state strategy, city and community policies, using intersectional co-operation. Extend of the health and social activities should be planned, co-ordinated and enlarged in a professional and a precise manner, with the special emphasis laid on children, invalids, pregnant women and elder persons. People as individuals should be aware and ensured better information on growth and development of children, life-style and health, endangerment at work, etc. Taking the measures stated here above is conditioned by structural and etiological familiarity with inequality between individual groups of population in a certain place and time.

Several principles for action stem from the concepts of equity outlined by Margaret Whitehead (6). These are listed here as general points to be borne in mind when designing or implementing policies, so that greater equity in health and health care is promoted:

1. Equity policies should be concerned with improving living and working conditions;
2. Equity policies should be directed towards enabling people to adopt healthier lifestyles;
3. Equity policies require a genuine commitment to decentralizing power and decision-making, encouraging people to participate in every stage of the policy-making process;
4. Health impact assessment together with intersectoral action;
5. Mutual concern and control at the international level,
6. Equity in health care is based on the principle of making high quality health care accessible to all,
7. Equity policies should be based on appropriate research, monitoring and evaluation.

However, it seems that public health professionals are not aware enough of the inequalities in health, or they are not trained enough to handle them. It can be partially explained by the fact that there is insufficient postgraduate education and continuous training in the field of socio-economic inequalities for public health personnel.

Above all, it should be stressed that solving problems of inequity cannot be achieved by one level of organisation or one sector, but has to take place at all levels and involve everyone as partners in health to meet the challenges of the future.

Conclusions

There is consistent evidence throughout the world that people at a socio-economical disadvantage suffer a heavier burden of illness and have higher mortality rates than better off counterparts (1-4).

Science has brought dramatic improvements in human well-being world-wide, as witnessed by the contributions it has made to extending lifespan and quality of life for people in many countries in the last century but the benefits of modern health research have not been evenly shared. Half of the world's premature deaths could be prevented with simple and cost-effective interventions. But it is not enough known how to make these more widely available to the people who need them.

The risks that lead to chronic diseases contribute to health inequalities by social class in developed countries, and increasingly in developing countries (38-48). There is a need for researchers focusing on inequalities in health to identify which interventions and policies will have the most pronounced impact on reducing social class inequalities (49) and engage in the development of health promotion approaches that explicitly target reduction in inequalities.

The targets of WHO in the European Region (36) are clearly very ambitious, that may not be realistic everywhere. Nevertheless, it gives a clear focus to health policy and promotes the monitoring of quantitative changes over time in socio-economic inequalities in health, which is essential to assess the effects of health policy interventions. This will only work, however, if ways can be found of quantifying the “size” of socio-economic inequalities in health (50,51).

However, although we should not formulate policies in the absence of evidence to support them, we must not be paralysed into inaction while we wait for the evidence to be absolutely unimpeachable (34). The evidence in this Chapter provides basis for formulating policies to address the social determinants of health.

Exercises

Advisable guidelines for reducing inequalities in health

For the purposes of this training programme four tasks will be executed (one task for every learning objective). The whole programme will be carried out as a discussion led by moderator. After every task specific learning objectives will be determined for every participant and until the next meeting their professional tasks should be performed. Their achievements will be reported (within 10 minutes) and discussed with other participants at the next meeting.

Task 1: Stimulating introduction at the first meeting will be led by moderator: key words will be used as a target to sensitise the participants that the inequalities in health exist. Discussion: The assessment process of the availability of data. Task 1 they have to achieve until the Meeting 2:

- To inventory the data that are already being collected and that can be used to measure the magnitude of socio-economic inequalities in health (from socio-economic registries, mortality registries, health interview surveys, etc.);
- To assess the informative value of these data;
- To make provisions for generating new data.

Task 2: At the second meeting the reports should be presented by every participant. Discussion: Existing data sources. The results of the first workshop will determine whether additional data need to be collected or just data from different registries or surveys should be linked. Task 2 they have to achieve until the Meeting 3 (if necessary):

- To add variables to existing data sources;
- To link data from different registries.

Task 3: At the third meeting the reports should be presented by every participant. Methodological guidelines should be discussed and refined. It has to be decided:

- Which morbidity and mortality indicators will be used and how the socio-economic status of subject will be measured and classified;
- Are absolute or relative differences (or both) to be measured;
- Should the analysis be limited to measuring the effect of lower socio-economic status on health of people of lower socio-economic status, or should it also aim at measuring the total impact these inequalities have on the health of the population;
- The choice of an adequate level of analysis and the application of multilevel analysis.

Task 3 they have to achieve until the Meeting 4:

- To analyse socio-economic inequalities in health;
- To interpret the results carefully;
- To prepare the results for clear and understandable presentation.

Task 4: At the fourth meeting the results have to be presented clearly and understandably (e.g. to use graphical displays) by every participant. The discussion: Formulating a public health policy response to the results:

- To what extent has the state identified inequalities in health as an important health and social problem until now;
- What are the objectives for any interventions?
- Who are the main groups with a concern for inequalities in health?
- What are their interests, priorities, and commitments?
- What is the context within which interventions need to be considered?
- etc.

The formulated document should assure that public health policy satisfies identified needs and finally it should be submitted to policy-makers.

Follow up workshops on health policy development should be performed every six months.

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Recommended readings

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title	Health services management
Module: 1.35	ECTS: 0.5
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Keywords	Evidence-based, health services management, management components.
Learning objectives	After completing this module students and public health professionals should have <ul style="list-style-type: none"> • increased their understanding of management theory and practice and development of interest for health services management, • explored the current ideas and trends in health services management, as well as basic characteristics of managing health services organization, • identified and reviewed the key interrelated components in health services management (planning, organizing, staffing, leadership and controlling), • improved their skills in management and raised their understanding of modern evidence based management, • explained and justified their intentions for seeking a higher standard of management at their own place of work.
Abstract	Modern management is a process of creating and maintaining an environment in which people working together may accomplish predetermined objectives. It occurs in a formal organizational setting through utilization of human and other resources by which demands for health and medical care are fulfilled by provision of specific services to individual consumers, organizations and communities. Management, as a universal and complex process, open towards its environment, consists of five essential components: planning, organizing, staffing, leadership and controlling. The activities of an effective manager imply basic skills providing the balance among these interrelated components and skills evidence based management.
Teaching methods	Lectures, Case studies, Role playing, Focus group, Nominal group technique.
Specific recommendations	Skills in computer modeling.
Assessment of students	Multiple-choice questionnaire.

Health Services Management

Zorica Terzic, Vesna Bjegovic-Mikanovic, Zeljka Nikolic

Historical development of management theory

Organizing of people for achieving common goals and utilizing management principles have been a phenomenon known for centuries. However, the first scientific theories on management appeared in 19th Century, as a goal of economic and non-economic companies, imposing themselves as the basic economic principle: achieving maximal results with minimal investment (1). In that period, Frederick W. Taylor (1856-1915) could be viewed as an author of 'scientific management'. In his research in the field of work organization, he recognized the importance of achieving cooperation and harmony in teamwork, as well as workers' improvement in accomplishing better job results ('Principles of Scientific Management').

Nevertheless, many hold the view that greater merit for the real beginning of the science in question should be given to Henry Fayol (1841-1925) and his work 'General and Industrial Rights'. He pointed out general management principles: linkage between authority and responsibility, the unity of leadership and teamwork, all of which represent the basis of classical school of management, even at present. In the same period, other scientists such as Frank B. Gilberth (1868-1924), Lillian M. Gilberth (1878-1924), Max Weber (1864-1920), contributed to further management theory development. The famous Hawthorne experiment carried out with workers of the Western Electrical Company power plant in Chicago from 1927 till 1932, as well as the findings of the researcher named Elton Mayo (1880-1949) threw a new light on classical theories. The study began as research on the impact of illumination level on work productivity of experimental group of workers. Either the level of illumination increased or decreased, the productivity kept rising.

Furthermore, there were experiments with modifying resting periods, working hours' reduction and wage changes. None of these could have explained the alterations in work productivity of the experimental group. The researchers ascribed the productivity modifications to social attitudes and relationships in the working group. Namely, the group started regarding itself as 'noticeable', gaining the feeling of being important. This experiment outlined the significance of work motivation and initiated a series of psychological theories of management. After 1950, behavioral sciences showed great interest in studying motivation as an important means for achieving predetermined goals.

The authors of motivation theories, still applied in management practice, are: Abraham Maslow, Frederick Herzberg and Douglas McGregor. Studying individual and collective behavior at place of work, they noticed that management was not only a technical process and stressed the importance of a positive attitude towards people being managed. There have been numerous operational approaches analyzing management as a complex and open system in a dynamic balance with the environment (economic, technological, sociological, political, legal, ethical and cultural).

Development of interest for health services management

It may be noticed that only within the last three decades has the management become an area of significant interest in health systems, too. Until that time, the management was regarded as a scientific discipline suitable only for big corporations and commercial companies, and not for social domain like health care (2-4). This is understandable bearing in mind that health services organizations used to be less complex, with significantly lower costs and underdeveloped technology. At the beginning of the 20th Century, managerial roles were assumed by a physician-administrator, appointed by the Managerial Board with an exclusively autocratic managing style and one-dimensional distribution of authority and responsibility. Only two professional groups were in charge of providing health care services, a physician and a nurse. However, by making health services organizations more complex, increasing gaps between medical technologies, advanced and limited resources, as well as by environmental changes, objectives of health services organizations have been changed and made complex in relation to the society as a whole. Presently there is an ongoing affirmation of the managerial skills application in health services organizations, too.

The essential characteristics of external environment in which today's management of health services organizations is taking place, include population aging, miraculous but costly diagnostic and treatment technologies, efforts to modify life styles and underscore health promotion and prevention (5). Also, modern health systems in numerous countries are faced with ethical and economic crisis of unpredictable level. Political, social and, most frequently, professional groups are trying to solve the crisis by introducing various changes in health legislation and functioning of health services organizations. In view of the alterations mentioned, Peter Drucker, a distinguished management theoretician, has noticed a paradox in health services organizations in which there is a growing work pressure on employees, but at the expense of additional activities being

minimally or completely unrelated to those jobs for which the employees were qualified (6). In the last decade of the 20th Century, there was a growing recognition of a conflict between doctors (as leading professional group in a health services organization privileged to do autonomous clinical work) on one hand, and managers (whose job includes controlling the work of employees), on the other. In accomplishing effectiveness, managers traditionally analyze resources, while doctors review clinical activities and patients' outcomes. In this way, a potential conflict exists. Such environment makes a challenge for successful managers, with the practice of effective leadership becoming one of rare solutions for the survival and development of health services organizations (2,3,7).

The majority of health systems in Central and Eastern Europe are undergoing the process of transition from bureaucratic and centralized to much more efficient systems with decentralized responsibilities, private sector introduction as well as more effective trends toward a higher level of health care quality (8-10).

Characteristics of managing health services organizations

Basic concepts, principles and skills in management encountered in industrial and other organizations may also be applied in health care institutions by respecting their social roles in each society: it represents a part of national state policy; it employs a large number of people; it provides health care; it does different kinds of research; it educates on a continuing basis; it represents significant economical factor; and it plays an important role as a country's social stability factor, taking into account people's expectations and trust put in this service.

Nowadays, health services organizations are known by its most complex organizations and management, with a modern hospital being top ranking by its complexity. Extensive working activities' differentiation and specialization are obvious, and working tasks are accomplished by a number of different participants in terms of educational level, training and functions. The authority structure in managing a health services organization is divided among three authority and responsibility centres: Managerial Board, Doctors and Administration (2,3).

Managerial Board is legally responsible for the organization as a whole, including provision of health care, public relations and assistance in resources supply for its functioning. Managerial Board that most commonly reflects a profile of the community comprising a health services organization. It means that the former consists of delegates from various social groups of certain educational level and experience.

Doctors, comprising a medical board, but others as well, have a powerful role in management, since they are held responsible for the majority of cost rendering decisions made. As a predominant profession, doctors in health services organizations participate, at least, in three management processes: managing a patient, managing a doctors' team and managing a health services organization. This makes them 'the potentially best managers in health services organizations' (11). Related to this centre of management structure, many underline a typical phenomenon of health services organizations: for doctors, having power and authority does not imply being also responsible for financial risks. In spite of being highly educated in the medical area, most doctors are very little acquainted with their real working environment, since they spend most of their working hours with patients or are devoted to their own advanced training. Thus, there occurs a phenomenon of separation between clinical autonomy (freedom and opportunity for doctors to work in the best possible way to help their patients) on one hand, and institutional interests, on the other. Due to increasing costs of health care service provision, doctors are no longer in a position to make independent clinical decisions and provide patients with all the services they find beneficial for them. For this reason, it is impossible to enable effective management of health services organizations without a considerable doctors' participation in decision-making concerning leadership.

Administration, composed of director, heads of departments and chiefs of assisting services, is the third and last authority centre in managing health services organizations, responsible for operational management, but with both limited scope of authority and knowledge about the process of working directly with patients. The task of the director of the institution is to plan, make decisions, coordinate and control activities of the employees in order to ensure efficient and effective work with patients. In numerous health services organizations, doctors used to hold the position of directors (operational managers). However, in the course of time they kept being replaced, in highly developed countries, by professional managers who were not doctors (10). Such practice was not the same in some developing countries as well as countries of the Eastern Europe till 1990s.

In the study of managing health services organizations, apart from the triple power and authority distribution outlined, there exist their specific responsibilities (2-4):

- responsibility for the patient, above all, within the scope of modern medicine and health promotion movement, with provision of the best possible health care, with minimal costs;
- responsibility for the employed health workers by recognizing their sensible requirements for safety in terms of wages, appropriate working conditions, promotions, but also identifying their fears caused by uncertainty due to positive effects at work (outcomes concerning the treated patients' health);

- responsibility for a financier and different social groups (donors, sponsors) supplying resources for functioning of the institution;
- responsibility for the community (public) in determining means for meeting the population health care needs; and
- responsibility for oneself by making efforts to perfect one's knowledge and skills related to management as well as readiness to make effective responses under conditions of continuing environmental changes.

Management, definitions and its components

There are many definitions of management and the following is very often cited: "Management is the process, composed of interrelated social and technical functions and activities (including roles), occurring in a formal organizational setting for the purpose of accomplishing predetermined objectives through utilization of human and other resources". Management, as a universal and complex process, open towards its environment, consists of five essential components: planning, organizing, staffing, leadership and controlling (2,3).

Planning in management

Planning in management basically includes decision-making related to prospective services, activities and objectives as well as how they may be accomplished. Decision-making implies the following: problem definition, information gathering, alternative solution making, the best option choice, policy planning, policy undertaking and evaluation of the results obtained. The most varied methods, more or less effective, facilitate decision-making and are one of the basic topics in modern schools and courses for managers, such as: intuitive methods; simulation methods, models and role-plays; decision tree; PERT; linear programming and others (5).

Success in all other managerial roles depends on planning, since it also implies a selection of the single solution among different alternative ones offered. Efficient managers spend a lot of their working hours, perhaps even up to 40%, developing and improving the company's work schedules, formulating them in such a manner that both the organization's short-term management is successful and, at the same time, its long-term business activities more effective. Beside classification of plans according to planning time perspective, Cohen's division (12) is also very useful for managerial staff:

- Corporate plans cover the company as a whole most frequently for the period of 5 to 25 years.
- Strategic plans refer to changes introduction, most often in specific organizational areas, for the period of 2 to 5 years.
- Leadership plans represent implementation of steps outlined for strategic plans and are related to improving the organization's activities, correcting weak points and possible flaws, allocating current resources for accomplishing the predetermined objective and adjusting to the existing environmental changes. These are usually annual plans.
- Operational plans are associated with shorter-term steps outlined for leadership plans as well as common activities of certain organizational sections.
- Financial plans determine financial resources and equipment required for accomplishment of goals, most frequently for a year.

Within planning, the vital issue in modern management theory and practice comprises the development of goals in the form of plans, expressing the type of final results of organizational activities (2,3,4,11). Sound management is considered to imply an ability to point out goals and rank them according to their priority, as well as the ability to utilize proper means to maximize those objectives. Although there is a tendency to express the goals in quantitative manner, it is this 'virtue of vagueness' that is significant in determining general objectives and the necessity for their continuous reconsideration. Both managers and employees should take part in establishing objectives, and numerous studies have shown that such approach leads to increased working performance since it is clear to the individual what is expected of him/her to do. Also, people are ready to work on more demanding goals if they have participated in their development. Therefore, one of the management types frequently applied in health care is 'Management by objectives' whose concept was introduced by Peter Drucker as early as in the middle of the 20th century. 'Management by objectives' is a process in which both superiors and subordinates collectively identify general objectives defining, for each individual, a scope of responsibilities for fulfilling the expected results, as well as criteria upon which individual contribution to working process is monitored and assessed.

Organizing in management

The next management component – organizing, implies interaction of all organizational resources (manpower, capital, and equipment) in order to accomplish the goals most efficiently. Organizing, thus, includes

resources organization: individual or group task assignment and responsibility shift to individuals for achieving group goals. Good organizational development and maintenance have been considered a crucial factor of successful companies with organizations representing social subsystems mobilizing people, power and resources in terms of attaining determined, collective social objectives. This is achieved through appropriate organizational structure. It represents establishment of patterns of either interrelated organizational unit components or management components (13). After the work division, it is necessary to group works and individuals who will perform those works, through the establishment of adequate organizational units, such as sectors, services, departments, etc. This process is usually termed departmentation (or departmentalization). Bases for departmentation have increased, but the basic concept is largely unchanged. Mintzberg suggests six bases for grouping workers into units and units into larger units (5,14):

- knowledge and skills (hospitals group surgeons in one department, pediatricians in another),
- work process and function (department of finance in health services organizations),
- time (hospitals and other health services organizations are 24 hour-a-day operations; some workers are grouped into day, evening, and night shifts),
- output (many health services organizations group workers in those which produce inpatient or outpatient services),
- client (workers are grouped by patients / consumers served; for example geriatric or women's health programmes), and
- place (workers are grouped by physical location, ambulatory health services downtown or in suburban locations).

Each organizational unit performs a part of the overall company's task and it is connected to other organizational units. After determining the organizational units, managers for each of the units are also selected, and they are given authority and responsibility to direct the work of these organizational units.

Organization may be formal or informal. The first is characterized by firmly formulated policy, clearly expressing what each employee's task is, as well as field of action in which an individual may work freely and creatively. The second, aimed at enabling successful company's functioning, has to be based on excellent interpersonal contacts. Organizations may also be divided into simple and complex. Simple organizations have one manager and several employees. They are usually informal, flexible, with supreme structure authority. Complex organizations consist of big hospital institutions compared to labyrinths. They are usually of a hierarchical, bureaucratic organizational structure with the stress on planning and rigorous control (2,4,15).

Forming the organizational structure can be achieved in different ways. The most acknowledged and used ways of forming organizational structure are: as per functions, products, territory, the project, matrix, and others. Functional organizational structure designs grouping activities, and defining the organizational units according to certain functions, which comprise an array of uniform and interconnected activities, by which a certain task or a part of the company's business process is performed in the best way. The essential advantage of a functional organization is that the staff is grouped according to specialties and is always at disposal. However, functional structure is characterized by inflexible hierarchical nature, autocratic style of leadership, rigidity and one-way superior-subordinate-directed communications. Product organizational structure devises an organizational unit to be formed for each kind of product. The advantage of such structure is that it can direct all resources and all activities onto a single product. Its basic disadvantage is that it doubles the organizational units and cadre, which is unacceptable to smaller companies. Territorial organizational structure implies that organizational units are formed according to geographical regions they supply, which is rather convenient for big companies. In such an organization it is necessary to have a decentralized management, which requires additional control by the company's head management. Problems may also arise with transportation costs, and due to the need for large number of personnel and managers for each particular region. Project organizational structure implies creation of a special organizational unit, a project team whose task is to realize the particular project. Its advantage is direct orientation and efficient realization of the task. The drawback of the project is mainly connected to duplication of the human resources, and problems with personnel after the project team is dismissed. Matrix structure is designed to ensure modern people-oriented management; it is flexible, with two-way superior-employee communications and good coordination among different units. It is a combination of the functional and project organizations. The advantage of the matrix organization is that it enables efficient management of a great number of projects and efficient utilization of resources, and it also alleviates conflicts between managers. Disadvantages are connected to more complex communication, as well as to potential instigation of conflicts in relation to resources allocation.

The most varied organizational forms may be encountered in health services organizations ranging from bureaucratic structure with clear-cut hierarchy to matrix structure in which power of decision making is closer to those working with patients. Each organizational form has to be made to be capable of functioning, enable each member to make his/her own contribution and assist people to effectively accomplish common goals. This means that a good organizational structure is never static. Nevertheless, a bureaucratic structure is considered to be capable of functioning well in routine tasks. For organizations whose main purpose is research,

different adaptive models make a far more adequate solution. The example is a project structure ensuring swift switches of employees from one to the other project work phase withholding flexibility in certain areas (such as research autonomy) and having rigorous control in others (e.g. financial resources).

Within organizing, coordination is an important activity related to providing conditions under which all the activities, inside the company, are realized through simple steps. In the early phase of management, this was considered to be the most important element. Nowadays, this is regarded as good for unplanned activities, or the periods known as 'management crisis'.

Typically, managers make three simple errors in organizing, as a management component:

1. Managers do not leave enough freedom for decision making to their subordinates.
2. Too few subordinates are held responsible to a single manager. Managers prefer organizing too few than too many workers, which results in unnecessary double cost expenditure for leadership jobs and forming of bureaucratic apparatus in the company.
3. Managers, in organizing, generally do not apply motivating methods: employee remuneration by work successfully performed and/or penalty in case of unsatisfactory work performance.

Staffing in management

Staffing is the third vital component exclusively related to human resources planning. This role may be particularly conflicting for managers, since they are individually well aware of the staff significance for the company's successful operation. Staffing has its technical and social aspects (2,4,15). Technical aspects refer to human resources planning, job analysis, candidate recruitment for vacancies, their testing, selection, then performance appraisal, compensation and benefits, as well as employee assistance. Social aspects, directly associated with the impact on employee behavior and striving at work, are related to training and development, promotions, counseling and discipline.

The basic problems of staffing are: role defining of the newly employed, candidate working ability assessment and his/her simultaneous getting acquainted with job tasks, evaluation of the success rate of the job done, and, finally, criteria establishment. In any job dependent upon staff quality and competence, staffing has to achieve high standards. Thus, for example, it is upon a manager to ensure that vacancies are filled with people who are: capable of fulfilling their intended role successfully; willing to make necessary decisions and perform an assigned task; planning to remain at their place of work for a reasonably long period of time; and getting along well and cooperating with other employees at place of work.

Common mistakes in staffing are: lack of human resources planning, inadequate monitoring and insufficient staff training and promotion. It is important to stress that decision making related to organizational staffing, is often a neglected activity. Managers in health (and other fields, too) frequently spend much more time in making decisions on the introduction of a new apparatus (diagnostic and/or therapeutic) than on employees, their promotion, transfer to new working posts, or engaging new employees.

Leadership in management

Directing involves a process of influencing employees to do their best to achieve group goals by team work. A good manager accomplishes this role using different motivating methods knowing the value of true nature of communication as well as successful communication with different social structures. The importance of employees' motivation is unquestionable and over the recent years there has been a tendency to replace "directing" by "motivating" (5). However, a person with excellent motivation, interested in his/her job, still has a need to be directed in his/her activities, since many people, in certain circumstances, prefer clear "orders" to individual decision making. The styles of the most effective managers necessarily include perfection in employees' communicating and motivating skills (2-4,8,11).

A managerial style is a kind of behavior in which a leader influences other people's work. Most frequently mentioned basic managerial styles are (2,3):

- autocratic (with high managerial authority, commanding, not leaving space for interaction or participation of others in decision making),
- democratic (enabling permanent interactions between superiors and subordinates, employee participation in decision making and creativity) and
- laissez-faire style ("let (people) do (as they please)" style, based on complete individual freedom in decision making and work).

The style that manager will apply is considered to be dependent upon his/her situation, and is characterized by critical dimensions (2-4) such as:

- result significance – if a working activity has to be performed quickly, perhaps due to accidents or under conditions of crisis, health manager should adopt autocratic style;

- job nature – if the job is routine and requires temporary influence, a manager must be more autocratic than democratic in determining what, how and where it will be done, however, if the job is creative, flexible, with other departments being time independent from job completion, a manager should adopt a democratic style;
- employee qualities – their training, education, motivation and experience may determine adoption of a particular style; if employees are untrained and inexperienced, a manager must make most decisions and vice versa;
- personal managerial qualities – some managers because of their personality nature, prior experience, values or cultural features, function better adopting one style or another.

None of the styles mentioned is appropriate in all situations, although, nowadays, different forms of democratic style are regarded as more appropriate and, long-term, more efficient than the authoritarian styles. If only clinical practice and doctors as team managers including nurses, technicians and others are looked upon, it may be noticed that they usually utilize the autocratic style since they are held individually responsible for treatment. Different forms of democratic style are common for heads of departments and chiefs of staff.

Which style the manager will adopt, apart from the given situation, also depends upon a developmental level of an individual (2-4,11,13,15). He defines the developmental levels according to employees' work competence and sense of commitment:

- if persons are incompetent for the job, but hard-working and zealous, they should be directed: clearly told what they should do, how, where and when, and then carefully supervised.
- persons competent for the job, but lacking motivation or self-confidence are better suited to a supportive style: they should be listened to, encouraged, involved in problem solving and decision making.
- for those who are neither competent enough for the job nor devoted, an instructional style is the most convenient, providing support and directing.
- in highly competent and zealous workers, delegating is the best style. Little support and directing are implied – just to keep abreast of their work.

Among many attributes of effective managers cited as important are: high standard of personal honesty, firmness, ability to identify crucial problems, serenity, vitality, persuasiveness, decisiveness, consistency, personal integrity, enthusiasm, showing understanding for subordinates' attitudes and suggestions, anticipatory abilities and so on. Although the majority of remarkable leaders possess most of the personality traits outlined, there is no evidence that each one of them is really required. However, vanity, arrogance and breaking one's own rules are the least favorable attributes of managers.

Controlling in management

Controlling is a subsystem important for all the management components. It is most commonly defined as measuring and correcting the company's efficiency to ensure both achievement of goals and realization of plans (5). The controlling process involves: establishing standards, measuring efficiency, and comparing results against the established standards, correcting irregularities and timely informing. Controlling has to cover services functioning, health services provision costs, revenues, employees' discipline and informing (health care information system). Although necessarily pervading the whole managing process, the scope of controlling must not be large so that by using it a manager can pay attention to each individual, as well as to accept suggestion and understand the employees' existing problems.

The most varied types of control are: visual, automatic, control of exceptions, motivation-assisted control, budget control, daily charts, Gant's maps, network analysis, and computer use (5). In small organizations, personal control of all functions and all employees may be established. The higher is the organizational magnitude and complexity, the harder is the control. Today, a good informational system is considered to be the most powerful control means.

The importance of strategic control has been particularly emphasized at times of big economic crises and extraordinary circumstances. Since the controlling system provides a signal to a manager for failure correction, identification of explicit strategic control would prevent "falling through" of many long-term plans, which makes a typical problem of less developed countries. Some managers make mistakes believing that successful leadership means carrying out control by reviewing different routine reports. However, the essence of control is correcting deviations from the predetermined objectives.

Modern managing health services organizations is increasingly turning its attention to quality control in health care provision, too (14-16). It has been noticed that some managers are frightened and avoid applying quality control within a regular controlling system, being under impression that possible quality lacks might lead to additional, unnecessary expenditures. But, it is both in managers' ethical and commercial interest to minimize errors and incidents leading to patients' complaints and poor public reputation.

Exercises

Managing Health Services Organizations

The purpose of the exercise is to provide students with basic information on managing health services organizations and their functions (components), and also to find out how managerial skills may be mastered by learning and training.

Task 1: “Professional development (career) plan design”

Students work individually, by writing down their own goals in professional development for a ten-year period, as well as conditions required for their accomplishment. Several students present their reports. A teacher, after that, points out planning as one of the important functions of management being especially aggravated under conditions of critical environment. Also, the term “management” is defined, and its other functions quoted, such as: organizing, staffing, directing and controlling. Time: 30 minutes.

Task 2: “Case Problem: How is Group Work to be Maintained?”

The teacher introduces the topic by outlining possibilities of managerial skills training and stresses “case problem” solving as one of the ways of its achievement. Then, the supplemented practical case is read. Students, in groups of 5-6, discuss solutions, then each group presents its reports. The teacher, upon that, provides a summary with a suggested solution, unless the students have discussed all the possibilities. Time: 60 minutes.

Case problem

“How will you maintain group work?”

Dr. Branislava Petrovic, a newly appointed chief of staff in GP outpatient department of a health care centre, is worried about starting her new job properly. Just after several weeks at work, she noticed that the majority complained of being overworked. When she seemed to notice that one nurse was too slow in answering the telephone, Dr. Petrovic gloomily asked: “Why is it taking you so long to answer the phone? That is a very important thing for our service and I think it should be answered after the second ring!” The nurse answered: “We have so much work to do, I simply can not jump after hearing a ring.” As the others were also making similar remarks, that still did not convince Branislava that they were overworked. In fact, Branislava knew that the new health centre manager was seriously considering cutting down of staff in the outpatient department unless their working hours were truly totally spent.

Dr. Petrovic was particularly unhappy about the time wasted by many of her employees on coffee breaks. To quote her own words: “On Tuesday I came back from a meeting at 9.30 and offices were almost empty. The employees went for a coffee break and didn’t come back even after 45 minutes!” This made Branislava issue an order for both morning and afternoon coffee breaks to last no longer than 15 minutes; also, no more than two employees could have a coffee break at the same time. Employees remained at their places of work, but it seemed that it took even longer to carry out examinations, interventions and administrative work. Branislava noticed that several doctors and nurses spent quite a long time on making personal telephone calls, while the waiting rooms were full of patients.

In issuing her second order, Dr. Petrovic announced: “Personal telephone calls shall last 2 minutes at most and there are to be no more than two such calls daily. In addition, our work is too slow! We keep our patients waiting too long and prescribe too many drugs!” In spite of Dr. Petrovic’s efforts, there were no improvements in the work performance of the outpatient department. Only one nurse (Marija) started showing quite unpleasant manners towards her chief of staff. After the latest order, Marija told Dr. Petrovic: “You are really trying hard to make an impression, maybe wishing to be promoted to the Assistant Manager. When you leave, we shall be left with all these new changes: restricted drug prescriptions, patient referrals to specialists, sick leave reductions... All this, of course, unless we are fired beforehand!”

Branislava was very frustrated. She was aware that her employees were doing their jobs below their abilities, but did not know what to do.

Questions:

1. Suggest specific steps Dr. Petrovic should undertake to solve the problem.
2. What should Dr. Petrovic do if the suggested steps prove unhelpful?

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Recommended readings

1. Free Management Library: <http://www.managementhelp.org/>.
2. Management Science for Health: <http://www.msh.org>.
3. Change Management Learning Center: <http://www.change-management.com>.
4. Centre for Leadership Studies: <http://www.leadership-studies.com>.

HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title	Economic appraisal as a basis for decision making in health systems
Module: 1.36	ECTS (suggested): 0.75
Authors, degrees, institutions	Helmut Wenzel, M.A.S. Bajram Hysa, Prof. Dean of the Faculty of Medicine, Tirana, Albania.
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Keywords	Cost-benefit analysis, economic appraisal, efficiency, health economics, quality assurance.
Learning objectives	After completing this module, students and public health professionals should have an increased understanding of: <ul style="list-style-type: none"> • health economics as a scientific discipline and the relationship between evaluation and economic theory • the options to manage scarcity in health care systems • the key evaluation methods in health economics • setting up an evaluation • how to judge the quality of published economic evaluations
Abstract	This module gives a short overview on the basics of health economics. Economic appraisal is an instrument for Health Care decision making, which is influenced by many characters. There are three types of costs: direct, indirect and intangible. Costs and benefits can be calculated in a cost-benefit (CBA), cost-effectiveness (CEA), cost-utility analysis (CUA) etc., depending on society, patient, payer or provider' point of view. When comparing two alternatives, it is important to understand the additional costs and effects. Marginal analysis looks at the extra cost of extra effects in the same programme; incremental analysis looks at the differences between programmes. Alternative projects costs and benefits may occur at different points in time. In order to compare them in a money term, discounting is needed. A discount rate is a number relating the value of one year to the value in the next or previous year. Having unbiased economic evaluation is very important for quality of study. This led to the development of guidelines, which regulated many things, but aside of that every reader or decision-maker can make his quality, checking Drummond's "ten commandments" of good appraisal practice.
Teaching methods	After introductory lecture, students will work in small groups, in order to discuss efficiency as a prerequisite for an appropriate health care system. Basic skills like discounting and choosing a decision have to be trained. To do so, financial and mathematical exercises have to be solved (calculated). Students will be learned how to judge the quality of health economics publications that are delivered by teachers.
Specific recommendations for teachers	This module to be organized within 0.75 ECTS credit, out of which one third will be under the teacher supervision. It is recommended that mathematical calculations are prepared. Pocket calculators are obligatory. A selection of publications with different quality levels should be available to the students.
Assessment of students	Multiple choice questionnaire and written design proposal.

ECONOMIC APPRAISAL AS A BASIS FOR DECISION MAKING IN HEALTH SYSTEMS

Helmut Wenzel, Bajram Hysa

The aim of the module is to give a short overview on the basics of health economics and to provide more in depth information on economic evaluation tools (economic appraisal). Current problems of many health care systems, as well as approaches to solve those problems are described. Thereafter a short overview on the basics of health economics is given and in depth information on economic evaluation tools (economic appraisal) and their application is provided.

It would be wrong to suggest that health economics is identical with economic evaluation tools like cost-benefit analysis. These techniques are undoubtedly the most relevant and mostly known tools from health economics. This obviously leads to the misunderstanding on the true nature of health economics, then. Today, many health care professionals seem to be familiar with those tools. Nevertheless, it still remains the case that the underlying economic principles and theories are unknown to many. Therefore, the paper puts some stress on the economic background of economic evaluation.

Health Care and Limited Resources

All over the world, health policy is faced with an increasing demand and declining financing power at the same time.

Particularly decentralised health care systems are unable to describe the relationship between resources used and outcomes achieved, because the amount of money spent is known but the “health production” processes is unknown. Therefore, the efficiency³ of the health care delivery process cannot be controlled or influenced. Thus, this leads to rationing of services rather than to increasing productivity.

As a first step, politicians tend to cut down expenditures by different administrative means. This is followed by reducing the number of covered services (exclusion from reimbursement scheme, etc.), and different approaches to lower prices of products.

Health authorities right now are targeting more and more the productivity and the quality of the process of care (or production of health) by promoting evidence based medicine - and as an evaluation tool - outcomes research.

“Evidence based medicine is the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients. The practice of evidence based medicine means integrating individual clinical expertise with the best available external clinical evidence from systematic research” (1).

Outcomes research is defined as “assessment of the effect of a given product, procedure, or medical technology on health and/or cost outcomes” (2).

Disease Management (DM) can be described best as “a comprehensive, integrated approach to care and reimbursement based on the natural course of a disease, with treatment designed to address an illness with maximum effectiveness and efficiency (2). If DM concepts are implemented in a proper way, one can assume a less costly but even more effective health care system.

Allocation of Limited Resources

Are there alternatives to efficient health care systems? If there are more needs and wants than resources available, alternatively two administrative measures could be applied: **Rationing** and **Allocation of resources due to defined priorities**.

In modern democratic societies, some questions arise, then:

- Who will have the right to define the criteria for rationing or for any priority setting?
- What is the final ethical basis for those decision processes?
- Whose values are the final yardstick for setting up priorities?
- Is it not unethical to make those kinds of decisions?

First, it is unethical to spend money (resources) in such a way that we do not produce the best outcome in terms of care or - finally health. Overspending in one area (selected diseases, specific patient groups,

³ In economics, the term ‘efficiency’ is used when resources (e.g. medical services, drugs, diagnostics) are used in such a way that nothing is wasted. This means that, in an efficient situation, without adding any more resources, further products can only be produced by sacrificing a quantity of another product.

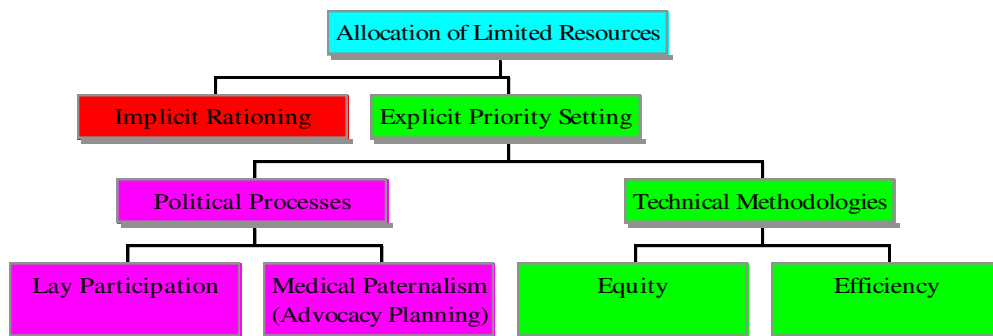
provision of care like prevention vs. cure) very often goes along with underspending in other areas. Therefore, it is an ethical must to deal with that problem.

Rationing is an ethical issue as well and ought to be based on the principal agreement of a population.

In an implicit rationing procedure, the decisions and the preferences are not revealed. From the viewpoint of modern societies, this is not acceptable. Explicit rationing is an outcome of political processes where the consent of society could be received by either lay participation in the decision processes or by the anticipation of the citizen needs by experts. In the late sixties, this kind of integrating as many citizen and their needs in any planning process was called advocacy planning. The basic idea was that experts (and politicians) should be able to anticipate the problems of those people that have not the ability to take part in political processes in an adequate way. This approach was not very successful.

For reaching the humanitarian goal of equity, and also more objective ways of comparing the alternative use of modest resources, technical solutions and evaluation tools are inevitable. Thus, health economics is coming into play.

Figure 1. Alternative ways of allocating limited resources (3)



Source: Coast J. et al., in: Priority Setting: The Health Care Debate, Wiley, 1996

Main Features of Health Economics

Economics is a discipline, a recognized body of thought and not just a set of tools. Consequently, health economics is the discipline of economics applied to the topic of health care, and deals with the factors that determine the individual's demand for health services. Health economics research tries to answer the question what kind of goods and services have to be offered in a health care system, what quality and quantity would be appropriate, and to what extent services and goods should be produced by public funds (see public goods, Welfare Theory). Moreover, health economics deals with the different ways of financing the health care system, and the system's interdependence with and interconnection to the other sectors of the National Economy. Research tools are coming from different disciplines like Epidemiology, Statistics, Medicine, Economy (OR, decision analysis, scenario techniques, Game Theory), and modelling.

Economic appraisal techniques (like cost-benefit analyses) are important instruments of this discipline. Those evaluation techniques are going through considerable methodological development, since efficiency gaps in the production of health services still exist. Expertise that comes from other scientific disciplines has been incorporated.

Looking at the very nature of health economics, our starting point is simple - scarcity of resources, and the issue of choice.

Taking a choice means that a decision has to be made not only about what to do, but also what to leave undone. The concept of cost in health economics is different to the concept of cost in accounting, which relates to cash outlays. Therefore, when economists argue that attention should be paid to efficiency in health care, they are implying that health care programs, treatments and procedures should be compared not only in terms of their relative benefits, but also in terms of their relative costs (i.e. benefits forgone).

Economic Appraisal as an Instrument for supporting Decision Making

As mentioned above, the core of health economics is **choice** and **decision-making**. To prepare decision-making, information is needed on the desirability of the choice, and the possible outcome in the future. The desirability (or anticipated satisfaction) of a good is described by its **value**. These values have to be put into an evaluation framework that - based on decision rules - recommends what should be done in order to improve the situation in a rational way.

Before explaining the different methods of economic evaluation, a short brush-up is given to introduce the economic concept of value, the theoretical background of deriving and describing value, and the concept of efficiency. These are underlying principles.

The Concept of Value and Efficiency

The value of an object reflects its importance with respect to the potential to satisfy the individual needs. This potential is called benefit, or sometimes utility. Economic theory believes in the rational nature of men (paradigm of homo oeconomicus). This further leads to the assumption that each individual wants to maximize its degree of satisfaction, which is measured in terms of benefits.

There are different ways to define and to measure those benefits. Some of those methods are based on the principles of welfare-theory, some are based only on the assumption that men are deciding in a rational way. Other methods incorporate the preferences of patients into the desirability of outcomes.

Generally, efficiency is measured by the relationship between the level of accomplishment of these goals (consequences) and the resources used.

There are two simplified viewpoints of efficiency:

- **Cost-efficiency:** product applications or intervention strategies which achieve a given health outcome at the lowest level of resource utilization are called efficient or economical.
- **Output-efficiency:** product applications or intervention strategies, which generate the best possible outcome or goal achievement for a given resource input, are called efficient or most productive.

Both perspectives of efficiency evaluation include an assessment of both resource input or costs and outcomes. Claiming that a medical intervention or a diagnostic / therapeutic procedure is efficient does not necessarily mean that it will lead to cost reduction; cost reduction and efficiency generally represent two different perspectives. Those diagnostic or therapeutic products which are more expensive than established alternatives - but which exhibit higher predictive value, greater effectiveness, more safety, fewer side-effects, etc. may be efficient.

Whereas private accounting is generally limited to factors measurable in monetary terms, classical economic analysis extends the examination to qualitative and intangible costs and consequences. It explicitly attempts to measure factors, which are difficult to evaluate in monetary terms.

Costs, Costing Problems and Outcomes

The measurement of all effects of an intervention strategy in terms of cost and outcome components (benefit, results, and consequences) is based on the distinction between the input of resources used by the intervention on one hand, and its positive and negative outcome effects on the other.

Generally, the three categories of direct, indirect, and intangible costs and consequences are differentiated.

Direct Costs: Direct costs are defined as the utilization of resources in the form of goods and services. This includes primarily the use of health care resources as pharmaceuticals, medical-technical services, lab work, medical consultation, hospital stays, etc. The consumption of resources in the individual patient's private sphere may also be included, such as transportation to and from health care institutions and special diet provisions.

Indirect Costs: Indirect costs are those associated with a loss production due to sick leave, disability, or premature death. Such losses can occur in the production process (persons gainfully employed) as well as in every day household tasks (uncompensated employment; e.g. housewives).

Intangible Costs: Intangible (direct or indirect) costs are those that are incurred by patients and their families because of illness or intervention and which are not measured in money terms. Examples are pain or grief levels associated with disability, morbidity, or death.

A fundamental difficulty in the assessment of costs is the absence of (meaningful) market prices for many health care goods and services. Generally, true market prices are available only for (some) direct cost and outcome components, due to third party payment. Thus, potential 'cost saving' or savings of health insurance expenditures with a new medical intervention may not be savings to the society. As an example, consider 'average costing' methods (total direct and overhead costs divided by number of patients). If a hospital bed is freed by a new effective treatment that allows early discharge of patients, the hospital overhead cost per patient is not saved but increased. If no one else fills the vacant hospital bed, accounting would eventually have to raise the overhead charge to the remaining patients.

The results or consequences of a medical intervention can be called its medical and economic outcome. This includes changes in life expectancy and the state-of-health of a patient cohort or population.

The evaluation is based on a comparison of alternative treatments, including non-treatment. The medical benefits are measured by different parameters, life expectancy and quality of life being the most important. Other medical outcome measures include progression of disease, patient compliance, frequency of complications and adverse events, etc.

The Methods of Economic Evaluation

In order to ensure the rational use of national income and resources, three basic types of evaluation were developed:

- Cost-benefit analysis,
- Cost-effectiveness analysis,
- Cost-utility analysis.

There are variations as well: Cost-Minimization Analysis, Cost-Consequence Analysis, and Cost-of-Illness Analysis. However, their potential to support decision making effectively is rather limited. Quality-of-Life studies are very important to describe the burden of illness or - in case of an intervention - the improvement of quality of life from the patient's point of view.

Study Types and Goals

Type of Study	Goal
Cost-Minimization Analysis	Determine the least expensive intervention strategy for accomplishing the same medical outcomes.
Cost-Effectiveness Analysis	Determine the more efficient intervention strategy for accomplishing the same type of medical results in terms of cost per medical outcome measures (cost per life years gained).
Cost-Utility Analysis	Determine the more efficient intervention strategy for accomplishing the same type of medical results in terms of cost per constructed summarizing unit of outcome (cost per Quality-Adjusted Life Years).
Cost-Benefit Analysis	Assessment in money terms of whether an intervention strategy is efficient, i.e. worth doing, and comparison with alternative intervention strategies to determine which is 'most' efficient.
Cost-Consequence Analysis	Determine a listing of the medical and economic consequences of alternative interventions - used to indicate their consequences without summarizing.
Cost-of -Illness	Determine of the cost of illness - used to indicate the need for treatment or the potential economic benefits from improved intervention strategies.
Quality-of-Life Study	Relative assessment of intervention strategies regarding patient health outcome. The health outcome is measured by disease specific health status parameters or general quality of life instruments.

Cost-Effectiveness Analysis

Cost-effectiveness analysis (CEA) is a practical way of assessing the usefulness of public projects. In USA, CEA is required by law and regulation throughout the federal government to decide among certain alternative policies and projects. It has been recently required in federal regulations designed to protect human health, safety, or the environment.

Cost-effectiveness analysis is the process of using theory, data, and models to examine both problem's relevant objectives and alternative means of achieving them. It is used to compare the costs, benefits, and risks of alternative solutions to a problem and to assist decision-makers in choosing among them.

Cost-effectiveness analysis is not limited to only one specific outcome effect. An intervention-specific group of effects may be used, too. In general, the various medical outcome effects of a treatment cannot be summed up like cost figures. This aggregation necessitates complicated procedures and (potentially problematic) evaluations of the multiple outcome effects of interventions.

Cost-Benefit Analysis

In a Cost-Benefit Analysis (CBA) all elements - on the input side as well as on the output side - have to be measured in terms of money and/or converted to money where costs are not directly observable (value of a life).

Sir William Petty in London possibly conducted the first CBA in health care in 1667. He tried to show the impact of fighting against plague. He found out that one £ invested gained 84 £. The value of a life was calculated based on a slave price (4).

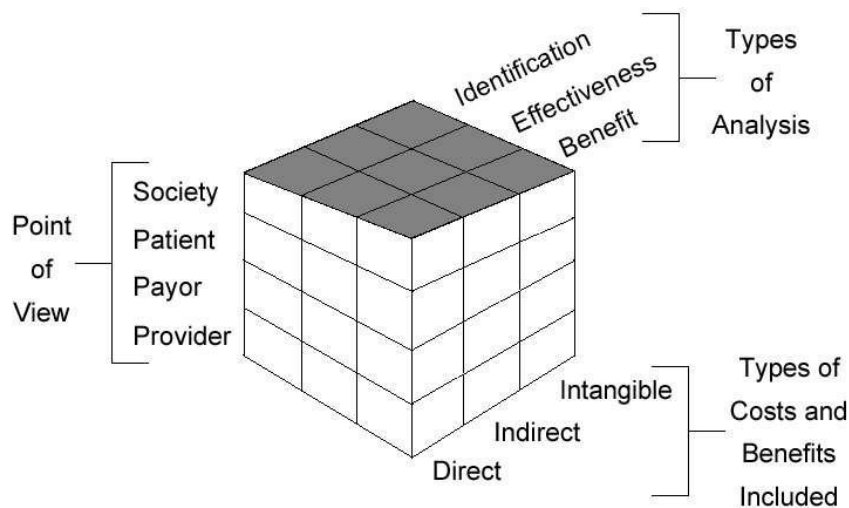
At that time CBAs were primarily conducted from a *society's viewpoint*. Using this perspective, we are interested to improve welfare of society. There have been a lot of discussions and theories how to define welfare and how to measure it. One important theory says that an alternative is better only when the winners compensate all the losers and there is still a net saving (potential Pareto-optimum).

We also have to keep in mind those beneficiaries and payers must not be the same. If we have a tax funded health care system (NHS) the societal viewpoint can be helpful. In the case of a contribution funded health care system, it's only the payer's perspective that really counts. The health insurance does not care for the pension funds problems.

Whether something is perceived as „useful“, depends on the objectives and guiding principles of that person/institution who makes the evaluation. Depending on the viewpoint, some elements might not be included because they are at no cost or the cost levels are different. E.g. in Germany one day in the hospital costs between 17 DM (patient's view) and 600 DM (sickness fund's view).

Therefore, there is not one single form of CBA, it is rather a complex combination based on the perspective taken, and the cost elements included.

Figure 2. Types of economic evaluation by type of analysis, viewpoint and effects included (5)



Source: Glick H, Economic Analysis of Health Care, 2.21.03, Available from <http://www.uphs.upenn.edu/dgimhsr/intec203.pd>; modified from Bombardier C and Eisenberg J (1985)

Cost-benefit analysis is not limited to one type of outcome effect. The results of the evaluation may be presented as an excess of benefits over costs or as an incremental ratio of benefits to costs (see decision rules). In the first case the result should be a positive number, in the latter case, it should be a number greater than 1. Otherwise, costs would exceed benefits. With a cost-benefit analysis, absolute efficiency can be measured.

The weak spot of cost-benefit analysis is found in its intention to express all the outcome effects of a medical intervention in monetary terms. This forces evaluation of medical and social aspects, human life, quality of life, etc. in monetary units. The sphere of reference is the entire economy. Cost-benefit analysis requires the most comprehensive information and is therefore typically a very large-scale project.

Multi-dimensional analyses and cost-consequences of interventions, which cannot be evaluated in monetary terms, classify the outcome effects into medical, social, and economic dimensions and register them by description only. There is no attempt made to aggregate all of the dimensions into one unit.

Quality of Life Analysis

Generally speaking, quality of life is a measure of the degree of satisfaction with living conditions. Here we refer to health-related quality of life. Quality of life is not an operational measure. It must be described in terms of relevant dimensions and measurement scales. The dimensions are defined according to the dimensions of health. The WHO in its 1948 definition describes health as the condition of 'total physical, psychological and social well-being and not as the lack of illness and frailty'. The three dimensions - physical activity, mental health, and social interaction together form the nucleus of health - related quality of life. The quality of life analysis covers those input and outcome elements of a medical intervention, which are relevant for the patient's ability to live a life unrestricted by health problems. 'Costs' are considered as far as they are reflected in the patient's quality of life (for example, an adverse effect on free-time activities, sexual life, ease of movement); 'benefits' are the advantages and improvements achieved within the same framework. Direct and

indirect money costs are ignored. Consequently, such analyses are not economic evaluations in the sense of efficiency assessment.

The effects of treatments on the quality of life cannot be measured directly. Only partial dimensions and their respective indicators can be determined and measured directly. A generalized measure of quality of life, which covers all health-related problems, does not exist. Which dimensions of quality of life are relevant for which indications, and which mixture of standardized or disease specific instruments are used for measurement, depends on the clinical picture, and on the pragmatic limitations of the outcome study.

To select an appropriate measure of Quality of Life Analysis the following choices might have to be made:

1st choice: Standardized or non-standardized assessment: Quality of measurement outcomes and ease of interpretation

2nd choice: Comparison with outcomes of other diseases: Global measure or disease specific measure needed? Age and/or sex specific? IQ requirements to be taken into account?

3rd choice: Acceptability: Instrument has been used in previous evaluations; Burden to the interviewee; Burden to the interviewer

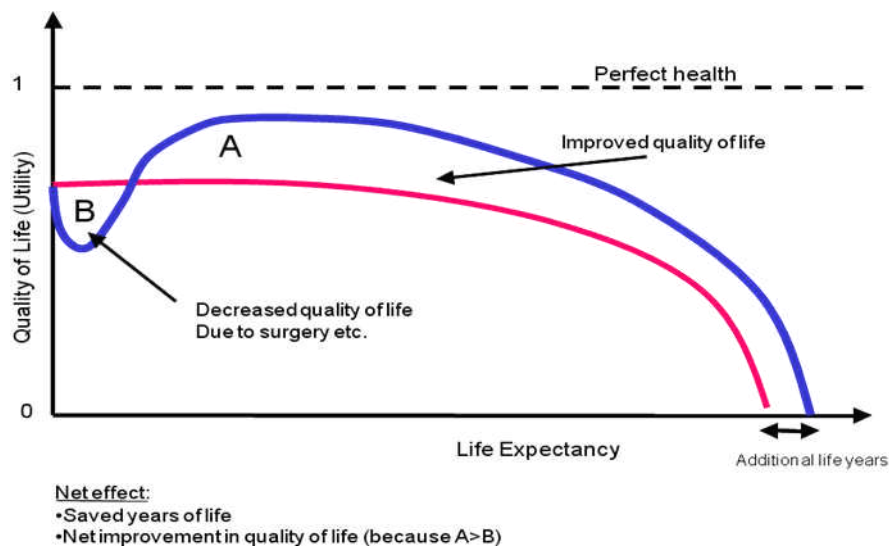
4th choice: Method of administration: Direct observation needed/possible; Face-to face interview; Telephone interview; Self-administered questionnaire

5th choice: Length and cost of administration

6th choice: Method of analysis and complexity of scoring

7th choice: Presentation of data and usefulness to decision-makers: interpretation of data; degree of certainty

Figure 3: The principle of quality adjusted life years



Unfortunately, there is a trade-off between comparability across diseases and the ability to detect even minor changes in different diseases. Depression might be very important in rheumatic arthritis and cancer, but maybe not so important in the case of a broken leg and confinement to bed. Here the impact of reduced mobility would be more important. Standardized tools like SF 36⁴ might not be first choice when we are aiming at detecting small changes.

An essential aspect of quality of life analysis is the fact that the evaluation of medical outcome effects are generally not derived from accepted medical endpoints (e.g. blood pressure), but made by the patient him/herself by self-assessment - a subjective view. These measurements are however supplemented in areas where the therapeutic progress is of a qualitative nature (i.e. suffering and/or pain relief, improvement in ease of movement, or subjective sense of well-being of the patient). The quality of life analysis identifies more efficient intervention strategies only if it measures the medical target and if costs are equal.

Cost-Utility Analysis

Utilities are measured for various possible health states. This can be done by asking patients who are in that particular health state at the time of measurement or by describing health states to subjects who may or may

⁴ The SF-36 is a multi-purpose, short-form health survey with only 36 questions.

not have had personal experience of the health state being measured. The health state utility is a cardinal number, usually between 0 and 1, associated with a particular health state.

The conventional way of using these utilities is to convert them into quality-adjusted life-years (QALYs). This is done by multiplying the utility value by the years spent in that health state. For example, 10 years in a health state with a utility value of 0.5 would result in 5 QALYs (i.e. equivalent to 5 years of perfect health).

Balancing or weighting of target effects is needed; for example with respect to life expectancy and quality of life. There may be a trade-off, i.e. a higher life expectancy implies a lower quality of life. Cost-utility analysis determines the effects of alternative therapies for each target parameter, and then rates them according to the degree of preference on a dimensionless scale, e.g. an ordinal scale from 0 to 1. The effects of each intervention strategy are classified according to their importance, and then they are attached to a one-dimensional number standing for the level of utility.

A special type of utility analysis is widely accepted, in which utility is measured by quality-adjusted life-years (QALYs) gained. This outcome measure may be used in a multi-dimensional cost-effectiveness analysis, which looks into the changes in ‘life expectancy’ and ‘quality of life’ and costs involved. The final result of this analysis is a statement about the cost of gaining one additional quality-adjusted life-year through the use of a medical intervention.

Cost of Illness Study

Cost-of illness studies focus on the general costs of a disease to society. Such studies are valuable to indicate the burden of illness by measuring the extent of resources lost due to illness.

Decision Rules: How to determine Efficiency?

The goal of any health economics evaluation is to determine efficiency. We can look at efficiency from different perspectives:

- If it is impossible to make any person better off without making someone else worse off, an allocation of factors of production is Pareto efficient. That is from a societal viewpoint.
- If the goods and services produced exactly what consumers want, an allocation of factors of production is allocatively efficient.
- If the goods and services are produced for the lowest possible cost, an allocation of resources is productively efficient. This is also referred to as technical efficiency.
- Product applications or intervention strategies which achieve a given health outcome at the lowest level of resource utilization are called cost-efficient or economical.
- Product applications or intervention strategies, which generate the best possible outcome or goal achievement for a given resource input, are called efficient or most productive. That is output-efficiency.

Most evaluations in outcomes research are done from the view of productive efficiency. Two fundamental options are available: ratios of costs and benefits, and differences, i.e. subtracting the cost from the benefits. By definition – because costs and benefits have to be both in monetary terms – the later can only be used in a cost-benefit analysis, only.

For decision-making purposes, data have to be summarized in an appropriate way. There are several indices available that will provide condensed information. The choice of an index has to be guided by two questions, then:

- What question has to be answered?
 1. Would undertaking the project be better than doing nothing?
 2. Which of two mutually exclusive projects should be undertaken?
- What are the strength and weaknesses associated with the different indices?

Ad 1. In the case of comparing a project to the option of “doing nothing”, cost-benefit analysis is the method of choice, displaying absolute efficiency.

Ad 2. Both CBA, CEA and CUA are applicable.

I. Ratios of costs and benefits

Index	Rules
$\text{Gross_BCR} := \frac{\sum \text{benefits}}{\sum \text{costs}}$	Cost and benefits are discounted when appropriate. An alternative with a higher BCR is more favourable <ul style="list-style-type: none"> • $\text{Gross_BCR} > 1$ The index is sensitive to enumeration of cost and benefits This ratio is applicable to a CEA or a CUA as well when benefits are measured in non-monetary terms, i.e. saved

$\text{Net_BCR} := \frac{\sum (\text{benefits} - \text{costs})}{\sum \text{costs}}$	years of life, QoL An alternative with a higher Gross BCR is more favourable An alternative with a higher BCR is more favourable <ul style="list-style-type: none"> • Net_BCR > 0
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II. Differences of costs and benefits

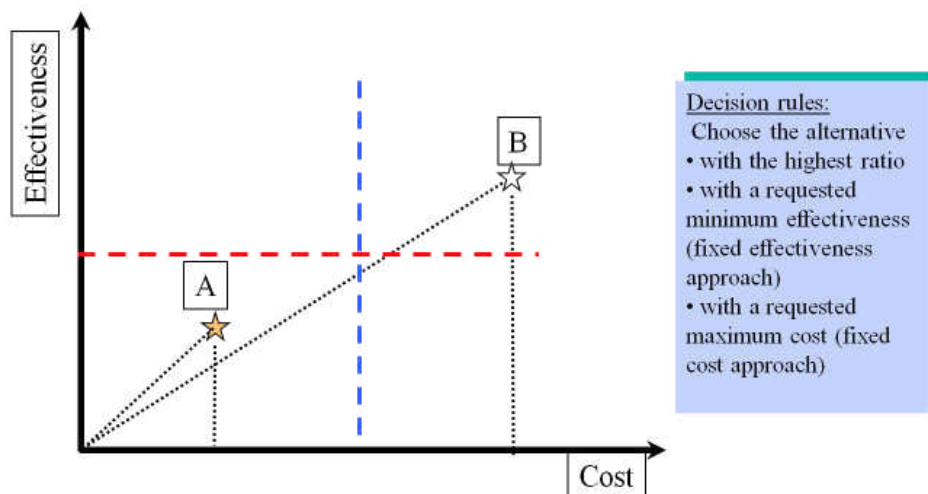
Index	Rules
$\text{Net_benefit} := \sum (\text{benefits} - \text{costs})$	Cost and benefits are discounted when appropriate. An alternative with a higher positive net benefit is more favourable <ul style="list-style-type: none"> • Net_BCR > 0
$\text{Net_present_value} := \sum_{i=0}^n \frac{(\text{benefits}_i - \text{costs}_i)}{(1+r)^n}$	An alternative with a higher net present value (NPV) is more favourable <ul style="list-style-type: none"> • NPV > 0 r = discount rate, n = number of years

How to make choices

In a CBA, both a ratio and a net benefit can be calculated. In a CEA or CUA, only ratios are applicable. Comparing two alternatives (A and B), the alternative with the biggest cost-benefit ratio (Gross BCR) should be chosen (see Figure 4). In this case, A would be better because the $\tan(\alpha) > \tan(\beta)$. This might not be convincing in any case. Sometimes we might expect a minimum effectiveness, which is marked by the red line parallel to the cost axis, or a solution within a budget limit (blue line). When solutions are ruled out by setting a minimum threshold, this is called fixed effectiveness approach. Whereas ruling out by a budget limit is called fixed cost approach. This makes the rules more flexible. Nevertheless, economists prefer an even closer look. Sometimes it is important to understand what are the additional cost and the additional effects when comparing two alternatives. This is called incremental analysis.

Figure 4. Decision rules using cost-benefit, cost-effectiveness or cost-utility ratios

Cost-Effectiveness Analysis



There are two notions: **incremental** and **marginal analysis**. These are no synonyms. Marginal analysis looks at the extra cost of extra effects in the same programme; incremental analysis looks at the differences between programmes. Decision based on average values (ratios) can be misleading.

A well-known example shows the importance of a marginal analysis. Neuhauser and Lewicki undertook a cost-effectiveness analysis (model calculation) to determine whether a six sequential stool guaiac

protocol for screening of colonic cancer was a reasonable strategy (6). In the mid-1970s, the American Cancer Society recommended such a protocol for cancer detection of the large bowels. Neuhauser and Lewicki analysed this policy based on the following assumptions:

- (1) a target population of 10,000; based on epidemiological studies 72 cases of cancer can be expected,
- (2) each test detects 91.67 percent of cases, which are undetected by the previous test. (The first test will, therefore, detect 91.67 percent of cases; the second test will detect 91.67 percent of the 8.33 percent of cases left undetected by the first test, and so on),
- (3) The authors estimated the cost of guaiac cards to be \$ 4 for the first test and \$ 1 for each subsequent test. Thus, as is shown in table 1, about 66 of the 72 cases are detected after the first round of testing, the cost of this being US\$ 1,175 per case detected. The second round of testing ensures that almost all cases are detected at an average cost of US\$ 1,507 per case detected. Six rounds of testing capture all cases at a cost of US\$ 2,451 per case detected.

Table 1. Cases detected, cost and cost-effectiveness of Guaiac test (6)

No. of tests	Total cases detected	Total costs (US\$)	Average costs (US\$)
1	65.0465	77,511	1175
2	71.4424	107,690	1507
3	71.9003	130,199	1811
4	71.9385	148,116	2059
5	71.9417	163,141	2268
6	71.9420	176,331	2451

Table 2. Results from an incremental analysis of Guaiac test (6)

No. of tests	Incremental cases detected	Incremental costs (US\$)	Marginal costs (US\$)
1	65.0465	77,511	1,175
2	5.4956	30,179	5,492
3	0.4580	22,509	49,150
4	0.0382	17,917	469,534
5	0.0032	15,024	4,724,695
6	0.0003	13,190	47,107,214

Source: Bombardier C and Eisenberg J (1984). in Glick H, Economic Analysis of Health Care, 2.21.03, Available from <http://www.uphs.upenn.edu/dgimhsr/intec203.pdf>

A closer look at the data, however, and comparing the extra costs incurred and the extra cases detected by each successive round of testing (see Table 2), is quite informative. Thus, two rounds of testing lead to extra 5.5 cases detected at an extra cost of US\$ 30,179, or US\$ 5,492 per extra case detected. Having six rounds of testing rather than five adds very little in terms of cases detected at an extra cost per extra case detected of over US\$ 47million.

Discounting of cost and benefits

Alternative projects' costs and benefits may occur at different points in time. Differences in the timing of costs and benefits are most obvious in preventive measures. An investment made today will yield most of its effects in the future. To make money flow comparable, the money has to be adjusted at one point in time – this is called calculating its present value. The process of transferring the values of any effect in one year to the corresponding values in a different year is called discounting.

There are two reasons why discounting is appropriate:

1. Marginal rate of time preference. People and authorities prefer benefits sooner than later and the reverse for costs. The strength of the time preference can be indicated by the size of the discount rate.

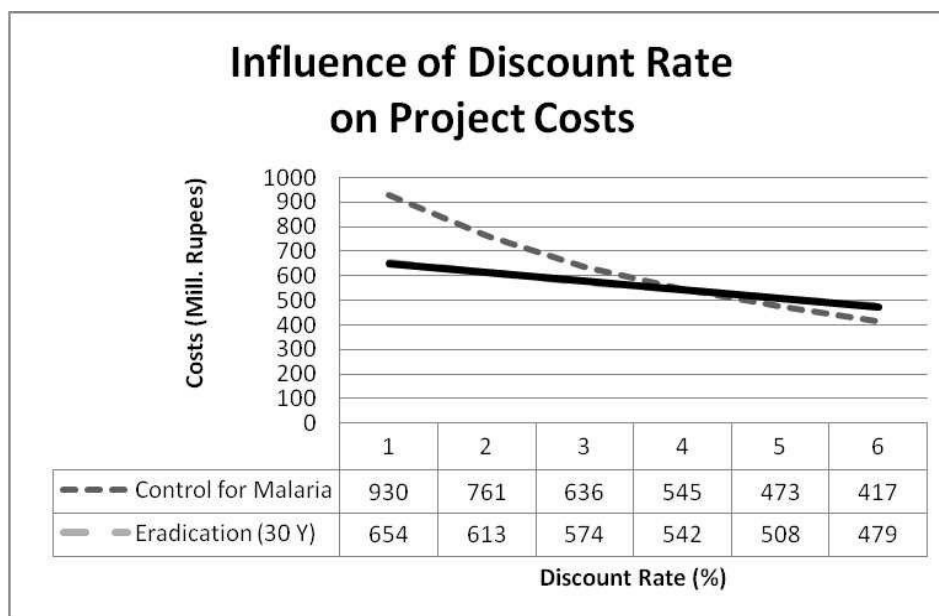
2. Opportunity cost of capital. To fund programs, money has to be taken away from other uses (in case of a public program, from the private sector). In the private sector, the money could have been invested and produced benefits. The benefits lost are indicated by the size of the discount rate, then. The more productive the money would have been, the higher the rate (7).

A discount rate is a number relating the value of one year to the value in the next or previous year. Discount rates may often be thought of as interest rates. At a discount rate of 10% € 1 today is equivalent to €

1.1 next year or € 0.91 one year ago. The effect of discounting on the preferability of an alternative is very high (see Figure 5).

A comparison of two projects to fight malaria (8) showed that eradication seems to be less costly than controlling malaria. The ranking changes when the discount rate is higher than 12%.

Figure 5. The effect of discount rate on the ranking of two projects (8)



Source: Cohn E, Assessing the Costs and Benefits of Anti-Malaria Programs, Public Health 63:1086, December 1973.

The lower the discount rate, the better are projects with benefits that occur far in the future. Therefore, the choice of the appropriate discount rate is an important issue and opens the possibility for manipulation. To prevent manipulation by selecting a “useful” discount rate, governments of various countries have set discount rates for the evaluation of public investment projects. In the USA, the rate for public investment projects is 10%, in the Netherlands 5%. This is based on the long-term rate of interest for government bond issues. In the various international guidelines on the economic evaluation of health services, the interest rates for discounting are usually set from 3 to 6%.

The only convincing way to control for manipulation is sensitivity analysis, where the effect of the discount rate on the outcomes and the ranking of alternatives are shown.

How to perform an Economic Appraisal?

As described above, health economics tries to answer the question by what criteria the worth of an object can be evaluated. How do we get the data needed for economic appraisal? Economic evaluation has to satisfy the scientific principles of unbiased research (9). Therefore, all principles and methods of scientific research are applicable. There is no specific way of setting up scientific study designs - except the consideration of economic principles and theories. Economic appraisal therefore benefits from developments in different research areas. In getting most useful data, techniques of experimental design are important. Statistical methods are needed to estimate program effects from diverse available data.

Once these and other disciplines in evaluation have yielded best estimates of program effects, the stage is set for cost-benefit analysis. Increasingly, program evaluators are not satisfied just to know that certain effects exist at specified levels of statistical significance. They also demand to know how various effects should be valued and how the different valued effects should be aggregated to facilitate program decisions. These decisions include:

- (1) comparing all the positive effects of programs (benefits) with all their negative effects to assess whether it is better to implement or not to implement a program;
- (2) determining which of alternative versions of programs are best; and
- (3) deciding what collection of programs or projects constitutes the best expenditure within a defined, overall budget limit.

These tasks are the main roles of cost-benefit analysis. Techniques of operations research and systems analysis may be invoked to ensure that the cost-benefit analysis is covering the full range of relevant alternatives. Organizational analysis and political science also play vital roles:

(1) helping to guide the appropriate assignment and aggregation of values for the cost-benefit analysis; and
(2) when the cost-benefit analysis is completed, applying it suitably within complex organizational and political structures” (10).

Stages in Economic Evaluation

Drummond (11) describes the process of planning an economic evaluation. He distinguishes three different areas that are connected by various interfaces.

- Area of technical appraisal - this is the description in terms of medical/technical criteria how a technique or product performs. It is the basis of the economic appraisal.
- Area of economic evaluation - this is the actual evaluation. It is divided into the following steps:
 - deciding upon the study question,
 - statement of alternatives to be appraised,
 - assessment of costs and benefits of the alternatives,
 - adjustment for timing and uncertainty,
 - decision rules.
- Area of decision-making - this is the where decision criteria, alternatives to be appraised and timing issues are determined.

Those interfaces are important. They make sure that the outcomes are relevant to the decision-maker.

The Research Question

The general objective of the evaluation study is expressed by the research question. A statement of the respective research question should be specified with respect to:

- the types of medical interventions or intervention strategies compared;
- the patient population considered;
- the range of medical resource inputs, clinical outcomes, and economic consequences analysed.

The Study Population

The study population should be representative for the population to whom the medical intervention strategy is applied in clinical practice, i.e. the target population. Depending on the intervention and its indication, this will be patients with a specific disease, stage, or duration of disease or with a certain medical history, risk or symptom profile. Often, cohorts defined by age and sex are analysed. In complex studies, the population will be defined by combinations of characteristics or strata.

The effectiveness of an intervention strategy will often depend on how narrower the indication and the corresponding study population is defined.

The Study Perspective

In the field of health care, there is a multitude of institutions and persons who are responsible for decisions concerning the availability and application of medical interventions.

The study perspective refers to the viewpoint from which the analysis is performed. Typically, four major viewpoints can be taken:

1. **Society**
2. **Third party payers** (government, health insurance, and health maintenance organizations, etc.)
3. **Health provider** (the hospital, physicians and other providers)
4. **Patients**

The perceptions of the study questions, the information needs, and the evaluations differ according to each viewpoint. What is cost-effective for one target group (e.g. from a hospital point of view), may not be cost-effective for a third party payer. Another group may ignore costs and consequences that are extremely relevant to one target group.

For example, the income of a health care provider is a cost to the health insurance, a benefit from one perspective is a cost from the other, and vice versa. The cost of one day in hospital from the patient’s perspective consists of his/her co-payment, whereas a for health insurance expert it constitutes per day rate, and public hospital funding authorities consider primarily their subsidies. The costs per hospital day to society may be more or less, but will certainly be different. Each of these points of view will be examined below:

1. The Societal Perspective: From this viewpoint, an evaluation would examine all social, medical, and economic effects of a new medical technology on all parts of society. This means a wide array of health outcomes and economic consequences incurred in hospital care, outpatient care, long-term care, home care, nursing homes, etc. regardless of when they incur or who pays for them. Moreover, a broad range of other ethical and social consequences might be examined.

New medical intervention strategies should be introduced and reimbursed if they improve social welfare. Not all new medical technologies warrant such a comprehensive assessment. Extremely expensive technologies, whose costs may shift relatively large amounts of resources from one area of the health sector to another, may justify such comprehensive study.

2. The Perspective of the Third Party Payer: Government agencies, public and private health insurance, and health maintenance organizations make decisions about the reimbursement or non-reimbursement of medical technologies. Therefore, these institutions are a prime target group of economic evaluation studies. In study practice, many studies are performed from the more limited perspective of the third party payer.

Often estimations of the annual budget impact are asked for. Information on the financial impact receives high attention especially in HMO and other managed care environments. Third party payers usually are not too much interested in indirect costs.

3. The Perspective of the Health Care Provider: The decision-makers on a micro level, such as physicians in outpatient care or hospital decision makers, often make their decisions under cost containment pressures and budget restrictions. Their perspective and information need generally concentrate on the impact of new intervention strategies on their budgets, and not on costs to other providers or to the society. The consequences of intervention strategies in other areas of the health care system are often ignored. For example, savings in the outpatient sector may have unanticipated economic consequences in the hospital sector and vice versa. Generally, the economic consequences of choosing medical intervention strategies on the national economy at large are often ignored. GPs or hospital decision makers generally do not regard indirect costs (losses or gains in production). The perception of a disease problem is rather focused on patient cases than population oriented.

4. The Patient's Perspective: From the viewpoint of the patient, costs that are not reimbursed and are out of pocket are most important. Costs borne by third party payers are widely ignored. For example, a co-payment for medication in outpatient treatment may represent higher out-of-pocket expenditures to the patient than fully reimbursed in-patient treatment.

The intervention related to quality of life is an important issue to patients, as well as the costs incurred due to the need for childcare or housekeeping help while receiving treatment. These costs have to be taken into account from the societal perspective too, but are ignored from other viewpoints.

Data Sources

Many times, there is no chance to run a study quickly enough to answer the information needs of decision-makers. Most data are coming from secondary statistics and expert opinion, then. Health Economists are primarily interested to compare a new technology with the existing standard in an everyday situation. Economic evaluation can be carried out on an empirical basis (primary research design) or on a modelling basis (secondary research design).

A highly appreciated design is a prospective study that proves effectiveness in a target population. This might be time consuming and costly, too. In specific situations where time for a follow-up would be very long, and data of routine care are available, a retrospective cohort study might be appropriate as well.

Quality Assurance

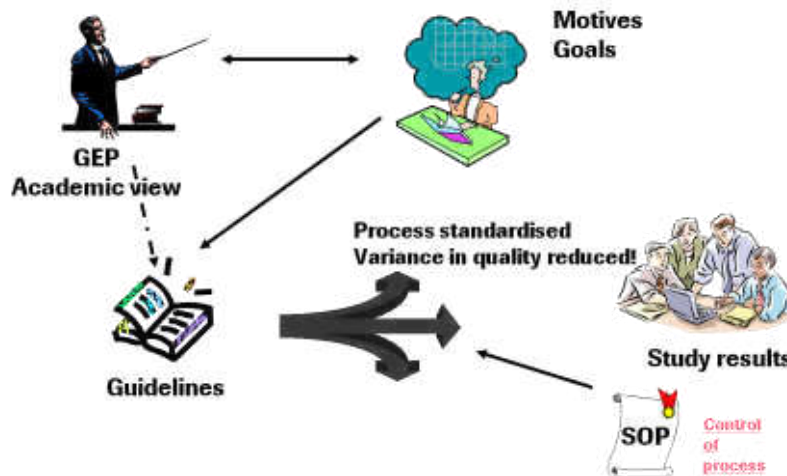
At times, where economic evaluations become more and more important, not only the underlying principles and theories are challenged but also the quality of studies is under debate. Figure 6 shows how different agents are working together.

Academics believed in unbiased studies only when sponsors (industry mostly) had no influence on the designs and the publication of study results (thus preventing publication bias, when results are not positive).

At the same time, representatives of governments and reimbursement authorities felt insecure and not well prepared to understand economic appraisal. This led to the development of guidelines (Australia was first), which goal was to create a kind of "cookbooks". Therefore, many things were regulated: the cost and benefits to be measured, the discounts rate, the quality of life measurement, etc. Unfortunately, this might be counterproductive in a situation where a very new and innovative technique (drug, intervention, screening strategy) has to be evaluated.

Whereas the cookbooks (guidelines) tried to standardize the body of knowledge - instead of encouraging a proper education of evaluators - the standardizing of the process has a great impact on the quality delivered.

Figure 6. The network of quality assurance
Quality Assurance in Outcomes Research



Aside of all the efforts to control the quality of both the body of knowledge and of the production processes, every reader or decision-maker can make his quality check by following the checklist of Drummond. His “ten commandments” of good appraisal practice suggest judging the following items (12):

1. **Was a well-defined question posed in answerable form?** Did the study examine both costs and effects of the service(s) or programmes)? Did the study involve a comparison of alternatives? Was a viewpoint for the analysis stated and was the study placed in any particular decision-making context? **Was a comprehensive description of the competing alternatives given? (i.e., can you tell who? did what? to whom? where? and how often?)** Were any important alternatives omitted? Was a do-nothing alternative considered?
2. **Was there evidence that the programmes' effectiveness had been established?** Has this been done through a randomized, controlled clinical trial? If not, how strong was the evidence of effectiveness?
3. **Were all the important and relevant costs and consequences for each alternative identified?** Was the range wide enough for the research question at hand? Did it cover all relevant viewpoints? (Possible viewpoints include the community or social viewpoint, and those of patients and third party payers. Other viewpoints may also be relevant depending upon the particular analysis). Were capital costs, as well as operating costs, included?
4. **Were costs and consequences measured accurately in appropriate physical units? (e.g., hours of nursing time, number of physician visits, lost workdays, gained life-years)** Were any of the identified items omitted from measurement? If so, does this mean that they carried no weight in the subsequent analysis? Were there any special circumstances (e.g., joint use of resources) that made measurement difficult? Were these circumstances handled appropriately?
5. **Were costs and consequences valued credibly?** Were the sources of all values clearly identified? (Possible sources include market values, patient or client preferences and views, policy-makers' views and health professionals' judgements). Were market values employed for changes involving resources gained or depleted? Where market values were absent (e.g., volunteer labour), or market values did not reflect actual values (such as clinic space donated at a reduced rate), were adjustments made to approximate market values? Was the valuation of consequences appropriate for the question posed? (i.e., has the appropriate type or types of analysis – CEA, CBA, CUA – been selected?)
6. **Were costs and consequences adjusted for differential timing?** Were costs and consequences, which occur in the future 'discounted' to their present values? Was any justification given for the discount rate used?
7. **Was an incremental analysis of costs and consequences of alternatives performed?** Were the additional (incremental) costs generated by one alternative over another compared to the additional effects, benefits or utilities generated?
8. **Was a sensitivity analysis performed?** Was justification provided for the ranges of values (for key study parameters) in the sensitivity analysis employed? Were study results sensitive to changes in the values (within the assumed range)?
9. **Did the presentation and discussion of study results include all issues of concern to users?** Were the conclusions of the analysis based on some overall index or ratio of costs to consequences (e.g., cost-

effectiveness ratio)? If so, was the index interpreted intelligently or in a mechanic fashion? Were the results compared with those of others who have investigated the same question? Did the study discuss the generalizability of the results to other settings and patient/client groups? Did the study allude to, or take account of, other important factors in the choice or decision under consideration (e.g., distribution of costs and consequences, or relevant ethical issues)? Did the study discuss issues of implementation, such as the feasibility of adopting the “preferred” programme given existing financial or other constraints, and whether any freed resources could be redeployed to other worthwhile programmes?

Exercises

Health Economics

Task 1: Health Care System and Efficiency

After introductory lecture, students will participate in small groups in order to work out the goals of health care systems. The working process will follow a brainstorming approach using meta-plan-technique. Based on the existing permanent shortage of resources, possible options of managing health care systems according to the identified goals will be discussed. Advantages and disadvantages of the different solutions will be evaluated. Efficiency as a prerequisite for an appropriate health care system will be analysed thoroughly and described according to the theoretical background of economics. Each group will nominate a person who will present the results in a plenary session, then. In a final discussion, the results will be evaluated by the teachers.

The assumed time span is about 90 minutes.

Task 2: Economic Evaluation and Techniques

The work will continue again in small working groups (up to 5 students). In this exercise, the key features of economic evaluation have to be deepened. Students will learn how the different evaluation techniques can be used best. Therefore, the process of setting up an evaluation has to be studied, and depending on the study question, the appropriate outcomes, the proposed design, and the evaluation technique have to be selected. Furthermore basic skills like discounting (and selecting the appropriate discount rate) and choosing a decision criterion have to be trained. To do so, financial and mathematical exercises have to be solved (calculated). Emphasis has to be laid on the understanding how the choice of a discount rate will eventually change the ranking order of efficient solutions and possibly prefer health effects in younger people.

For this exercise, additional 180 minutes are requested.

Task 3: Health Economic Publications

In this exercise, students will learn how to judge the quality of health economic publications. Students will work in small groups and prepare a quality check of different publications of different quality that are delivered by the teachers. The result of the judgement will be presented in a plenary session and evaluated by the teachers. It is recommended to use the guidelines from M. Drummond.

This exercise requires 90 minutes.

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3. Coast J. et al., in: Priority Setting: The Health Care Debate, Wiley, 1996.
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5. Glick H, Economic Analysis of Health Care, 2.21.03, Available from <http://www.uphs.upenn.edu/dgimhsr/intec203.pdf>.
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8. Cohn E. Assessing the Costs and Benefits of Anti-Malaria Programs, *Public Health* 63:1086, December 1973.
9. Drummond M, Stoddard GI, Torrance GW. “Most scientific work benefits from careful thought in the design stages, and economic appraisal is no exception”. *Methods for the economic evaluation of Health Care Programmes*, Oxford University Press, Oxford, New York, London, 1987.

10. Thompson MS. Benefit-Cost Analysis for Program Evaluation, Sage Publications, Beverly Hills, London, 1980. p. 2-3.
11. Drummond M. Principles of Economic Appraisal in Health Care. Oxford University Press, Oxford, New York, London, 1987. p 7.
12. Drummond M, Stoddard GI, Torrance GW. Methods for the economic evaluation of Health Care Programmes, Oxford University Press, Oxford, New York, London, 1987. p. 18.

Recommended reading

1. Gold MR, Siegel JE, Russell LB, Weinstein MC, editors. Cost-effectiveness in Health and Medicine, New York, Oxford University Press, 1996.

HEALTH: SYSTEMS – LIFESTYLES – POLICIES
A Handbook for Teachers, Researchers and Health Professionals

Title	Payment methods and regulation of providers
Module: 1.37	ECTS (suggested): 1.0
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Keywords	Budgeting, capitation, case-base payment, diagnosis related groups, fee-for-service, health payments, health planning, regulation of providers, South Eastern Europe.
Learning objectives	At the end of this module students and health professionals should be able to: <ul style="list-style-type: none"> • identify payment methods for regulation of providers; • methods of payment for doctors at the primary health care level; • payment and regulation of hospitals and other health facilities.
Abstract	Allocation mechanisms and provider payment methods refers to the ways in which money are distributed from a source of funds to an individual provider or to a health care facility. There are four main methods for payment for doctor's services: fee-for-service, capitation, performance payment and salary payment; and four basic methods for payment and regulation of hospitals and other health facilities: global budgeting, line item budgeting, per diem and case-based payment (DRGs). Each method of payment to providers has its own specificities, strengths and weaknesses, and each may be appropriate alone or in combination with other, which depends on various circumstances and environment.
Teaching methods	Teaching method will include combination of introductory lectures, group work and discussion followed by group report presentations and overall discussion, as well as practical individual work assignment.
Specific recommendations for teacher	This module to be organized within 1 ECTS credit. Beside supervised work, students, as a practical work assignment, should collect some specific indicators (HFA Database and other sources) and prepare a seminar paper about the allocation mechanisms and payment methods to providers in their respective countries.
Assessment of students	The final mark should be derived from assessment of the theoretical knowledge (oral exam), contribution to the group work and final discussion, and quality of the seminar paper.

PAYMENT METHODS AND REGULATION OF PROVIDERS

Doncho Donev, Luka Kovacic

Introduction

Resource allocation and provider payment methods in the health care system can have impact on provider's behavior, and therefore on the achievement of the objectives of the health care system (efficiency, equity, cost containment). The allocation of financial resources should reflect the outcomes achieved, and include incentives for improving the quality of care (1).

Provider payment method refers to the way in which money are distributed from a source of funds, such as the government, an insurance company or other payer (all also referred to as fund-holders), to a health care facility (hospital, PHC center, etc.) or to an individual provider (physician, nurse, etc.). Each provider payment method carries a set of incentives that encourage providers to behave in specific ways in terms of types, amounts, and quality of services they offer (2). It means that the payment system should be directed to provide the right incentives (or disincentives) in order to promote (or discourage) certain types of behavior, and therefore to improve the efficiency and the quality of health services and to provide equitable financial access to care with the use of existing resources effectively.

It is not easy to develop a payment system and to provide right incentives (or disincentives) and to measure related performance. In general, health outcomes are problematic to measure, and may not be directly attributable to the performance of the individual health care provider, but rather to their team or other determinants of health status. It is also difficult to measure the behavioral response of providers to changes in payment systems (3).

Provider payment reform is often linked to government efforts to improve the efficacy of the health care system through various means, among others:

- decentralizing the management of the health system;
- separating health financing functions from the institution providing care;
- contracting for public health services with private sector providers and non-governmental organizations;
- developing or reforming public or private health insurance to expand coverage of the population;
- promoting primary and preventive care over reliance on expensive curative and hospital-based care;
- improving hospital management and quality of care (2).

Incentives and disincentives for efficient care include how providers and facilities are paid, and how services are organized.

Resource allocation according to needs

The evidence suggests that a strategic approach to resource allocation and priority-setting is needed, in order to coordinate decision-making at different levels, and this should start with a discussion and a decision on the values and principles to be applied when determining need and selecting priorities. A debate (involving government, health service and care providers, the public and patients) on the ethical, political and social questions that need to be addressed must precede any decision on the rationing of resources. The term "funding" is used to describe allocating the revenues, that have been already raised, to health care organizations and to alternative activities within the health care sector, usually through budgets or payments to providers, public not-for-profit and for-profit institutions and firms (3). Any rationing of access to necessary services should be preceded by a thorough scrutiny of the overall organization and of the cost and effectiveness of the services and care provided.

Needs-based resource allocation formulae have been introduced into some countries in the western part of Europe and are now being developed in some countries in the eastern part, in particular regarding the geographical allocation of resources and services.

Contracting is a mechanism that offers an alternative to traditional models of resource allocation, binding third-party payers and providers to explicit commitments and generating the economic motivation to meet these commitments. Four major reasons have been put forward for introducing contractual relationships into tax-based systems, based on the long experience of health insurance systems: to encourage decentralization; to improve the performance of providers; to improve the planning of health service and care development and to improve management (2).

Contracts can support equity if, through needs assessment, resources are allocated as a priority explicitly to disadvantaged population groups. The role of governments should be to ensure equity, in order to avoid over-emphasizing profitable, rather than effective, services.

Basic arrangements for resource allocation

Health service pay is the top of the political and media agenda in many countries. A fundamental decision is whether to focus on measures of process or outcome. In general, each country is grappling with how to pay healthcare professionals, particularly doctors, and how to pay hospitals and other healthcare facilities.

There are three different basic arrangements by which to distribute revenue to health care providers:

1. the reimbursement model;
2. the contract model; and
3. the vertically integrated model.

Combined, there are thus at least eight major payment methods or alternative ways for payment to health care providers (2-10).

Payment for doctors at the primary health care level

Payment systems for the primary health care (PHC) providers are aimed to contribute to achievement of the best possible health outcomes. An optimum payment system for PHC providers should also ensure the following: financial management of the different components of PHC within a country's total health care expenditure: a balanced package of health promotion, disease prevention, treatment, and rehabilitative services; a free choice of health care provider for all individuals; a structure of fair rewards for practitioners which recognizes workload and professional merit; acceptance of health care provider's responsibility for and accountability to the population and responsiveness to the needs of the community, the family and the individual; promotion of close collaboration among health care providers; and a democratic system of decision-making. Finally, the system should allow purposeful, flexible management aimed at achieving continuous quality development and greater cost-effectiveness (1).

The main methods of remuneration or paying doctors and other health care professionals for their labor, first of all at PHC level, are: fee-for service, capitation, salary and payment for performance, or some combination of these methods. Each of them has its historical roots, advantages and disadvantages, and the incentives they create for providers, payers and consumers (Table 1) (1,2,5-10).

Fee-for-service is payment for each unit of service or intervention provided (visit to doctors office for counseling, testing or treatment, prescription, intervention or surgical procedure), which can be paid directly by the patient (user charges) or by the third party payer (insurer or government). Fee-for-service is a common method of payment for doctor's services in many countries, such as Germany, USA, Canada and other countries (5,8).

In most countries fee-for-service payment is regulated by a prospectively fixed fee schedule, negotiated by the fund-holders and the provider's representative.

Because of incomplete information and so called information asymmetry as a result of superior knowledge of the health care providers, doctor helps the patient to make choices and patient may be unable to judge the performance of the doctor, before or even after the intervention. Disadvantage of this method of payment is that provider might neglect codes of medical ethics in protecting the consumer's best interests and to influence patient's demand for health care, especially for more expensive kinds of care, including surgery, for the providers' own self-interest (income). This creates potential incentives for inappropriate services and over-treatment (over-servicing), in excess of real needs, especially when the patient is fully covered by health insurance and when the specific actions undertaken by the physician cannot be monitored, measured, or well understood. That is known as supplier induced demands. Fee-for-service and other retrospective forms of payment result in an input-intensive, gold-plated form of service that often extensively expends resources. On the other side, fee-for-service method of payment discourages provision of care not defined as a service in the fee schedule (because a "covered" service is the unit of payment) (3,6,7).

Some fund-holders introduce participation of the user in the cost of service (user fees or charges), which is called co-payment. In fact, co-payment is the portion of covered health care cost for which the person insured has the responsibility to pay, usually based on a fixed percentage. The method of co-payment is a regulative mechanism for rationing the health care, in order to prevent consumers to seek unnecessary care, as well as a source for additional funds for health care (financial input). Co-payment often is an issue for political debate (hot potato) because the opponents argue that user fees affect the poorer strata of the population disproportionately and discourage preventive care services/activities (3,5).

Case-based payment to physicians at primary level is not common, but might be popular prospective form of payment for specialty physicians and for hospital outpatient services builds on the episode-of-illness payment methodology. This type of payment could be understood as more comprehensive, but fee-for-services type of payment. That is payment per case-rates or episode of illness i.e. for obstetrical care as a complete service including prenatal care and delivery, or certain surgical, cardiologic, etc. package of care over an illness

or period of care, usually on a monthly basis (fee for the preoperative/pre-intervention workup, the procedure itself, and postoperative monitoring) (5,6).

Table 1. Four major payment methods for doctors: advantages and disadvantages

Evaluation criteria	Fee-for service	Capitation	Salary	Payment for performance
Unit of Payment	Per unit of service or intervention provided	Per person per year (month)	Payment to providers, usually on a monthly basis.	Reached goal or target as defined in the program
Prospective, or retrospective	Retrospective	Prospective	Retrospective	Retrospective
Description	Separate fees for different service item, e.g. medicines, consultation, tests, surgical procedures.	A payment made by fix sum of money directly to health care provider for each individual enrolled with that provider for a defined period of time. The payment covers the costs of a defined package of services for a specified period of time. In some instances, the provider may then purchase services which it cannot (or choose not to) provide itself from other providers.	Individual payment to doctor and other health worker, in accordance with the age/experience, grade/level of education and responsibilities of the provider, for his/her performance for defined period of time (week, month).	Payment per reached goal or target of the program (e.g. payment is done when contracted % of vaccinated or screened persons is reached); Providers under this arrangement are rewarded for meeting pre-established targets for delivery of healthcare services.
Method efficiency	+ Flexibility in resource use - Tendency for provider to increase number of services in order to increase revenue (supplier induced demands)	+ Flexibility in resource use with good cash flow and less lost-costs + The more services included in the package the less the scope for cost shifting + Resources closely linked to size of population served and their health needs + Good case management	- Little flexibility in resource use - Usually not linked to performance indicators (e.g. volume, quality) - Gives incentives to under-treat and undermined productivity	- The long term effects and risks of pay for performance are unknown ± Preliminary evaluations of the quality and outcomes framework show benefits and adverse consequences
Quality and Equity	+ Payment is directly related to intensity of service required; - There is a tendency to over-service or provide unnecessary interventions.	- Providers may sacrifice quality in order to contain costs - Rationing may occur if capitation is too low (narrow scope practice) - May encourage providers to enroll healthier patients (adverse selection) - Patient choice of provider is generally restricted + Adjusters in capitation formula can adjust payment to special population groups by age/sex	Payment is fixed and stable; No incentives for physicians to improve quality of care and scope of services (gatekeepers); Traffic-policeman role with tendency to over-referral and shift costs.	Increase the use, quality and efficiency of health care services; Increase the coverage of services and over-service or provide unnecessary interventions
Management and information systems	Providers must record and bill for each medical service transaction.	Management system required to ensure that each beneficiary registers with one provider and primarily uses that provider. Utilization management and quality assurance programs are essential to prevent under-servicing. If payment covers primary and secondary services, providers at different levels of the system must establish contractual links with each other in order to prevent over-referral.	Relatively simple	Added administrative requirements are needed; Detailed guidelines for designing and implementing programs are needed.
Financial risk	Provider = LOW Payer = HIGH	Provider = HIGH Payer = LOW	Provider = LOW Payer = LOW	Provider = LOW Payer = HIGH

Capitation for doctor's services is advanced payment by a fixed sum of money for the persons registered for care with the physician for a defined period of time. It means that capitation is prepayment for services on per member per month (per year) basis by some amount of money every month (year) for a member regardless of whether that member receives services and regardless of how expensive those services are. This method of payment provides good cash flow, less lost-costs and applied and good case management, and can be for a comprehensive health services or for general practitioner services. In the UK, for example, around 60% of general practitioners' income is derived from an annual fee paid by the National Health Service (NHS) for each patient/citizen on a GP's list. The costs might be predicted because the fee depends on the age and sex of the patient/citizen (age/sex adjustment of physician capitation rates), and the level of the deprivation of the area. Capitation payment put risk on provider and has the advantage for utilization control because it does not contain incentives for provider to over-treat the patient. There is some incentive for the doctor to maintain quality of

care in order to attract and retain patients, even if this is limited by information problems. Providers are also motivated to undertake health promotion and preventive care as this may reduce costs later in the health care process. Main weaknesses might be to adjust capitation payment adequately to reflect the diversity in disease severity among patients, which leads to incentives for adverse selection and patient dumping, difficulties to determine break-even point (volume), avoiding high-risk and high-cost patients or reducing treatment for them, inappropriate under-utilization (narrow scope practice), and misunderstanding of the meaning of capitation by provider. There may be incentives to under-treat (subject to keeping patients happy and therefore retaining them), and to shift costs to elsewhere in the health care system (for example from primary to secondary care). The interaction among payment mechanisms (capitation at primary level and fee-for-service payment at secondary level) might provide incentive for over-referral and convert primary care physicians into triage agents (3,5,6).

Salary payment for doctors and other health workers is the final payment mechanism in form of salary, where doctors are paid to provide a certain amount of their time to carry out specified responsibilities for an organization and to perform a defined role, usually being available to provide needed health care services at specified times (and places). The salary level is likely to be negotiated between the professional associations (or Health Workers Trade Unions) and fund-holders (Government, insurance company or managed care organization), and will vary according to the age, experience, grades or levels of education and responsibilities of the health workers. The advantage for providers is predictability and stability of income, and it gives less incentive to over-treat, but may contain incentives to under-treat or shift costs from primary to higher levels. In addition, a hospital doctor paid a salary may choose, with a given availability of beds, to have a longer average length of stay (reducing overall workload) rather than faster throughput (which would increase work without increasing income). In general, salary payment undermines productivity, condones on-the-job leisure and fosters a bureaucratic mentality. It means that provider might consider that every procedure is someone else's problem because payment is based on minimally meeting responsibilities (to retain one's position) (3,6,8). That is why salary payment is often combined with incentive payments for additional services.

Wage is a payment mechanism whereby a provider receives a pre-specified sum of money for each hour of work they provide to an organization. It can be used only for remuneration. Although the wage is normally pre-set, the total payments depend on the number of hours worked. The incentives are similar to salary, except that payment is even more closely tied to time spent at the workplace (8).

The type of payment system depends of the financing of the health care system and the public-private mix of financing, as well as of the provision and the desired activity levels of physicians and other health workers. Payment systems are therefore likely to involve a mix of methods. Increasingly mixed systems of payment are emerging, with capitation as a predominant method at the primary health care level (5).

Performance payment can be defined as a payment or financial incentive (e.g. a bonus) associated with achieving defined and measurable goals related to care processes and outcomes, patient experience, resource use, and other factors (7,9,10). Health care providers are rewarded for meeting pre-established targets for delivery of healthcare services. This type of payment is very often used in industry, business and other areas. In health care, UK and USA were the initiators. In order to improve the performance, in UK were introduced incentive fees for full immunization and screening programs in these areas. A fundamental criticism of performance-related pay is that the performance of a complex job as a whole is reduced to a simple, often single measure of performance. The types of care best suited for pay for performance are services for which metrics already exist including management of some chronic conditions (e.g., diabetes, asthma, heart failure) and certain surgeries. Although most schemes focus on quality, performance objectives could cover a wide range of variables including volume, equity, patient satisfaction, patient safety, and cost effectiveness. Rewards could be targeted at individual clinicians, clinical teams, or larger organizational units. There is insufficient evidence to understand what works, under what circumstances, and with what intended and unintended consequences. Emerging evidence suggests that pay for performance may help shape high performance delivery systems, but there are also big pitfalls and risks that such schemes will cost much and deliver little (7,9,10).

Methods for payment and regulation of hospitals and other health facilities

There are four main mechanisms for paying hospitals and other health care facilities: global budgeting, line item budgeting, per diem or flat rate per patient-day, and Diagnosis Related Groups (DRGs). Each method create different incentives for the service provider and different effects in relation to the objectives of equity, quality of care, efficiency and cost control/cost containment (Table 2) (3,5-8).

It is not easy to measure efficiency and outcomes of health care in the hospital sector. Efficiency should be measured through input (resources used in delivering care), process (method of delivering care, day cases and inpatient cases, length of stay etc.), and outcome indicators (the result of care – whether or not it has been of benefit to the patient). Measuring outcomes of health care is often attempted to estimate process and hospital

activity through some indicators (average length of stay, bed occupancy and turnover rate), which have uncertain relationships with cost, patient outcomes and efficiency.

If activity measures are used in payment systems for providers, they should be good proxies for outcome. Rewarding turnover of patients may give incentives for discharging patients “quicker but sicker”. Nevertheless, too many indicators can create confusion and dilute incentives. Prospective budgeting has evident merits: it limits expenditure to funding a given level of service provision that is determined in advance for a defined period. A prospective budgeting system can be recommended if it incorporates the use of case-mix controls and output measures. Classification systems based on diagnosis or on the characteristics of the patients can be used to better analyze cost structures, evaluate hospital performance and quality of care, and make comparisons between hospitals in terms of costs and quality, as well as in negotiating contracts between hospitals and those purchasing services. Alternatively, a volume-based approach can be made to work by using prospective pricing and contracting or planning agreements for agreed levels of service provision. In this way, hospitals can be obligated to achieve specific objectives of cost control and effective resource utilization, stimulating them to review and adjust their current organization, staffing levels and internal resource allocation (1,3).

Global budgeting is defined as a total payment, almost always prospectively, fixed in advance as a constraint on providers to limit the price and the quantity of services, to be provided in a specified period of time. Global budgets are difficult to amend over the budget period, but some end-of-year adjustments may be allowed. It means that the global budget becomes a financial plan (and resource constraint) within which the hospital or other health facility has to operate. Resource allocation decisions are made among the many diverse, but interdependent activities and programs of the health care providers. The global or operating budget is always for a specified period, usually one year (calendar or fiscal), although it might be a biennial or a semi-annual budget (5,8,11).

Various formulas can be used for establishing a global budget for a hospital or other health facility. Because global budgets do not contain incentives for good performance, it is important to specify either the volume of activity or the price of each of the services included within the budget. In order to prevent the provider to minimize the number of patients treated and the amount of care given to each patient, since the money received will be the same, it is necessary to determine the scope of services included, patients eligible for treatment and methods of care delivery (i.e. inpatient, outpatient, day case, diagnostic testing). The global budget may reflect the anticipated volume of activity and services derived from the utilization rates for the previous year or to be based on per capita rates with various adjustments (age, sex). Global budgeting usually relates the level of resources provided (the budget) to the level of activity to be undertaken, and is therefore focused on inputs and not on outputs. Because the determination of the delivery process of care is left to the provider, who tends to maximize profits (by undertaking the required activity for easy cases as cheaply as possible, with potential for cost shifting and the quality to be compromised), additional regulation is needed for quality to be maintained and clear quality standards to be specified by global budgeting agreements/contracts between purchaser and provider. The global budget can include also some capital costs if necessary to build/broaden or renovate the capacities or purchase some capital/costly equipment (3,5,12).

The main advantage of a global budget for cost-containment is that the cost paid by the fund-holder/purchaser is fixed, and therefore the financial risk is transferred to the provider, assuming that there are “good” and well-constructed activity targets. The advantage for local managers is flexibility about the use of resources and the methods of undertaking care within the budget limits. Disadvantage of global budgets is that it provides incentives to skim on quality of care, engage in risk-selection, and provides few incentives to improve micro-efficiency despite helping contain costs. There is no control of quality inherent in global budget framework. Furthermore, global budgets provide incentives for hospitals to avoid complicated cases and seek out simple ones. In order to address these problems, activity targets including expected case-mix is important (3,8).

Line Item Budgeting is a variant of global budgeting with subdivision of the budget allocated according to specific input categories of resources or functions (salaries, medicines, equipment, food, maintenance etc.). This method of hospital budgeting process and contracting methodology is generally similar to that for global budgeting, but more complex and more difficult to monitor with much more details, since each item of expenditure might be subject to an individual contract and possibly a service specification (3,5,8).

Initial step of the budgeting process is gathering retrospective data and financial information including all expenses and revenues, units of services (case mix index), staffing information including a breakdown by job code and type of working day-time hours (e.g. base staffing, overtime, non-productive), and current year projections with detailed analysis and evaluation. The second step relate to determining the units of services and expected changes in number of patients, which is driving force for changes in both revenues and certain types of expenses. Special attention should be paid to the inpatient routine units of services – patient days, discharges (or admissions), adjustments for intensity of care, as well as to ancillary units of services. The third step of the budgeting process relates to staffing and payroll, which is the most important, high time-consuming and the

single largest portion of the budget. Special attention should be paid to the base staffing and payroll, overtime, other budgeted hours, contract codes, pay increases, occurred vs. paid staffing and payroll, and productive vs. non-productive time. The next separate categories of the budget are the fringe benefits (social security, pension and retirement, health insurance, disability, unemployment and life insurance, tuition reimbursement, etc.). Special category of the budget is non-salary fixed and variable expenses (medical/ surgical suppliers, drugs and pharmaceuticals, general suppliers, professional and physician fees, insurance, interest and depreciation, purchased services, travel costs, and utilities. And, the last category of the budget are revenues and allowances: gross and net patient revenue, rate charges, allowances and deductions from revenue, contractual allowances and other operating and non-operating revenue (3,5,8).

Line item budgeting, in general, offers similar incentives as global budgeting, with the exception of limited or no possibility of resources' reallocation between cost units/categories. That might be a limitation for hospitals for efficient methods of service delivery because of few incentives for efficient production of health services, and little flexibility of managers (2). Advanced budgeting, as an alternative method of variance reporting and adjustment of revenues and expenses based on increases or decreases in unit services, is more flexible budgeting. Reports on advanced budgeting cover flexible budget as compared to actual and fixed (static) budget. Main strengths of advanced budgeting are that budget can be adjusted in order to reflect actual activity level; it is easier to obtain meaningful variance analysis, and to generate a more enthusiastic acceptance by department managers.

In the budgeting line item the recurrent (operational) costs should be separated from capital costs, too.

Per diem, or flat rate per patient-day is a retrospective method for payment of hospital activity. This method, as well as other retrospective methods of payment (fee-for-service or per procedure, course of treatment, per admission or cost-per-case based payment) encourages hospitals to maximize income by maximizing the volume of activity. Per diem method gives incentives to hospitals to increase the number of admissions to hospital for diagnostic tests or care that could be provided in alternative and less costly ways (ambulatory or day care services), to hospitalize and provide prolonged care for a relatively well patient and to avoid or refer the sicker patient to other hospital/university clinic (cost shifting), or to prolong length of stay, particularly as the cost per day of care declines as length of stay increases (3,8).

Fee-for-service payment for each service, procedure or course of treatment in hospitals, as well as cost-per-case based payment (per admission), favors unnecessary marginal care, long lengths of stay, high admission rates, and provision of duplicative or unnecessary services (5).

Per-diem payment and other retrospective methods of payment provide no direct incentives to ensure quality of care, efficiency and cost-containment.

Diagnosis Related Groups (DRGs) is a prospective method for payment of hospitals by predefined charge per case, within the payment rates for each type of case being determined in advance. Patients/diagnoses should be categorized into disease categories, so called Diagnosis Related Groups, in order to facilitate billing and reimbursement by estimate cost of individual treatment. Reimbursement rates are negotiated between purchaser and provider and they are set to reflect the expected average cost for particular DRG. Reimbursement payments are divided into four major components: 1. room and board, 2. professional service, 3. diagnostic tests and special therapies, and 4. consumables and drugs (5,8).

The number of DRGs varies from 470, or even more, in USA (introduced in early 1980s for the Medicare Program for elderly) to around 20 diagnostic groups in Chile, which greatly simplifies the classification process and accounting around 60 percent of inpatient care expenditures. The remaining 40 percent of procedures are covered under management contracts and prospective budgets. During the 1990s, this method of prospective payment to hospitals was introduced in Norway (1991), Sweden and Ireland (1992), Hungary (1987-1993), United Kingdom (1993), Italy (1994), Germany, Belgium and Spain (1995), Czech Republic (1996), and then in some other countries (Canada, Denmark, Australia and Philippines). Anyhow, for implementation of this method of payment should be available a reliable patient information system in order to record diagnoses, procedures, and important items of resource use such as diagnostic testing and length of stay (3,5).

DRG payment method has advantages of reducing incentives to over-treat, permitting cost containment and generating data and information. There are also some limitations and adverse effects in using DRGs payment method: 1) incomplete coverage of DRGs (they do not cover psychiatry, outpatients or physician fees for the uncovered items); 2) promoting technological changes (day case surgery), which might be beneficial but in many cases are with unproven efficiency; 3) sticky prices, once fixed, are difficult to change, regardless of advances in technology and falling unit costs, and therefore offer providers increasing profits over time; 4) DRG creep - activity of classifying patients into the most remunerative DRGs possible through undertaking additional diagnostic tests and identifying additional health defects and problems; 5) data requirements can limit the use of DRGs in countries with insufficiently developed health information system, particularly in developing countries (3,8).

The main objective of DRGs prospective payment is to control costs by motivating providers to deliver care as cheaply as possible. Hospitals have incentives to improve performance and to reduce expenditure by reducing length of stay, cutting out unnecessary tests and avoiding duplication. The tendency of hospitals to reduce costs sometimes may compromise the quality of services provided and health outcomes to be worsened, i.e. earlier discharge could lead to higher rates of mortality, morbidity and readmission to hospital – a “quicker – sicker” problem. DRGs with fixed prices across all providers stimulate competition based on non-price factors, notably on the quality of services, short waiting times and the quality of the hospital environment. Quality competition is likely for profitable patients, i.e. those whose treatment is expected to cost less than the DRG reimbursement level. Perverse incentives for providers appear when case-mix selection is allowed and hospitals may select the patients they treat. It means that hospitals have incentive to avoid and not to treat patients who are older, sicker or more likely to have complications because the treatment costs for them will probably be in excess of the DRG average (adverse selection). Such hospitals would prefer to treat simple cases and to minimize costs and maximize profit (cream-skim phenomenon) (3,5,8).

Case mix selection can occur as problem and needs regulation if providers are allowed to select the patients they treat. This is important because even within DRGs, some patients may be older, sicker, or more likely to have a treatment cost in excess of the DRG average. If payments are made on the basis of DRG average cost, profit-maximizing hospitals have an incentive not to treat these patients. Such hospitals would prefer to cream-skim treating simple cases, minimizing costs and retaining any excess of income over expenditure. To avoid cream skinning there must be adequate case-mix adjustment within DRGs, which can be complex. Case-mix can be measured based on patient's diagnoses or the severity of their illnesses, the utilization of services, and the characteristics of a hospital. Case-mix influences the average length of stay, cost, and scope of services provided by hospital (3,8).

Conclusions

There are four main methods for paying doctors: fee for service, capitation, salary and payment for performance, and four main methods for paying hospitals: global budget, line-item budget, per diem and case based payment (DRGs). The practice shows that there is no ideal method for payment of providers. Resource allocation decisions should be made among the many diverse, but interdependent activities and programs of the health care providers, and because of that the reimbursement or budgeting is a complex process, usually involving input from many sources. Anyhow, the creation and maintaining of a detailed operating budget is an important component of cost control. It means that each method for payment to providers has strengths and weaknesses, and each may be appropriate alone or in combination with other, which depends on various circumstances and environment. Nevertheless, many health care systems have moved away from fee-for-service as predominant payment. Mixed payment systems, with a prospective component based on capitation together with fee-for-service for selected items, seem to be more successful in controlling costs at the macro level, while ensuring both patient and provider satisfaction and achieving efficiency and quality at the micro level. The tools available for management include the use of different incentives to influence patterns of care (e.g. to offer more preventive services) and ensure equitable distribution of primary care providers throughout the country (1,12-17).

Reimbursement of the hospital providers is complex, and depends on specialization or complexity of hospital services. For example, to use a global budget might be appropriate for well-defined care, such as maternal services. But, when services are more complex and variable, such as oncology or trauma, payment through global budget might be less appropriate. Choice of payment method for health care providers is a long, complex and detailed process including appropriate devising of incentives and contract specifications in order to achieve health care objectives (efficiency, quality, equity and cost-containment, as well as consumer satisfaction. Difficulties in selection of the method for reimbursement of providers are springing out from the specific subject and product - thousands of different illnesses and treatments, and, for the same illness, treatment patterns can be substantially different for different physicians and providers. From the other side, the quality of health care services and outcomes is very difficult to quantify and measure. Projection of net revenue is difficult to determine because of different payers and payment methods, and because of rapidly changing of payment methods. When a third party payer (insurance agency) contracts with providers to pay for the care of covered patients by health insurance, it is recommended for each of the payment methods to be accompanied by some payment out of pocket of the patient (1-3,5,12).

Each payment method should be supported by legal framework and management information system, effective referral system, and financial and management autonomy of the providers.

The main characteristics and differences, as well as the distribution of the financial risk between payers/purchasers and providers, are summarized in the attached table 1 and table 2 (1-3,5-10).

Table 2. Four Major Payment Methods for Hospitals: Advantages and Disadvantages

Evaluation criteria	Global Budget	Line item Budget	Per diem	Case-based payment (DRGs)
Unit of payment	Health facility: hospital, clinic, health center	Functional budget categories, usually on an annual basis	Per day for different hospital departments	Per case or episode
Prospective, or Retrospective	Prospective	Either	Retrospective	Prospective
Description	Total payment fixed in advance to cover a specified period of time. Some end-of-year adjustments may be allowed. Various formulas can be used: historical trends, per capita rates with various adjustments (age, sex), utilization rates for the previous year/s.	Budget is allocated according to specific input categories of resources or functions, usually on an annual basis. Budget categories include: salaries, medicines, equipment, food, overhead, administration.	An aggregate payment covering all expenses incurred during one inpatient day.	A fixed payment covering all services for a specified case or illness. Patient classification systems (such as DRGs) group patients according to diagnoses and major procedures performed. Most frequently applied to inpatient services, although outpatient groups are being developed.
Method efficiency	<ul style="list-style-type: none"> + Flexibility in resource use - Spending set artificially rather than through market forces - Not always linked to performance indicators (e.g. volume, quality, case-mix), low micro-efficiency - Cost-shifting possible if global budget covers limited services; one provider may refer patient to another who is outside purview of global budget to minimize expenditures under global budget 	<ul style="list-style-type: none"> - Little flexibility in resource use - Tendency to spend entire budget even if unnecessary, to ensure that level of budget support is maintained 	<ul style="list-style-type: none"> + Flexibility in resource use - Tendency for hospitals to increase admissions and length of stay in order to increase revenue 	<ul style="list-style-type: none"> + Flexibility in resource use - Tendency for hospitals to increase cases (by increasing admissions or double-counting admissions) + No incentives to over-treat + Permitting cost-containment
Quality and Equity	<ul style="list-style-type: none"> - Rationing may occur if budget is too low; - If rationing occurs more complex cases may be referred elsewhere; + Case-mix adjustments in global formulas link budget amounts to complexity of cases; Other adjustors may be used to adjust payment for special population groups. 	<ul style="list-style-type: none"> - Rationing may occur if budget is too low; - More complex cases may be avoided or referred elsewhere 	<ul style="list-style-type: none"> + Per diem rates allow longer stays for more complex cases; - Prolonged care for relatively well cases; - Avoid or refer the sicker patients. 	<ul style="list-style-type: none"> + Case-based payment links payment directly to the complexity of cases; + Generating data and information; - Shortening length of stay by earlier discharging of patients (quicker-sicker); - Adverse selection and "cream-skim".
Management and information systems	Requires ability to track efficiency and effectiveness of resource use in different departments, and mechanisms to switch resources to most effective uses.	More complex and more difficult to monitor with much more details	Need to track inpatient days by department and ensure costs are covered.	Providers need reliable patient information system and ability to record and bill by defined case, which generally entails collecting a large volume of relevant information on patient characteristics, diagnoses and procedures.
Financial risk	Provider = HIGH Payer = LOW	Provider = LOW Payer = LOW	Provider = LOW Payer = HIGH	Provider = MODERATE Payer = MODERATE

Exercise

Financing of Health Care and Regulation of Providers

Seminar Paper: Students should use additional recommended readings in order to increase their knowledge and understanding of allocation mechanisms and payment methods for regulation of providers. As output, students should write a seminar paper, stressing the importance of different payment methods for regulation of providers.

Students ought to be able to investigate the ways in which revenues are pooled and how they are distributed to health providers (much more could be found at local level).

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title	Components of a Public Health strategy
Module: 1.38	ECTS (suggested): 0.5
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Keywords	Action plan, health determinants, health status, health strategy, priority setting, situation analysis.
Learning objectives	At the end of this exercise, students should: - be able to document a public health strategy - be able to draft the strategic public health directions - be able to design an action plan
Abstract	Generally, the Health Policy provides the foundation for the Health Strategy. The Public Health Strategy provides a framework for planning and strengthening public health activities, programmes and services. It guides in working with the community, non-government agencies, local government councils and other government departments. The Public Health Strategy sets the platform for the Governments' action on health. It identifies the priority areas and aims to ensure that health services are directed toward those areas that will ensure the highest health benefits for the population. There is no general template to fill-in to facilitate the development of a public health strategy. However, there are some common components that can be noticed in almost all health strategies at European level: <ul style="list-style-type: none"> • review of international and national health policies • situational analysis • goal and objectives (general and specific) • proposed action plan (activities, responsibilities, budgets, timeframe, expected results and follow-up indicators for each objective)
Teaching methods	Lectures, group discussions, group assignments.
Specific recommendations for teachers	This module takes: 3 hours lecture, 4 hours supervised group discussion, and 8 hours group work on the assignment. A working group will have no more than 6 students.
Assessment of students	Each group will present the main strategic areas and objectives for their national public health strategy.

COMPONENTS OF A PUBLIC HEALTH STRATEGY

Adriana Galan, Oleg Lozan, Nicolae Jelamschi

There is no general template to fill-in to facilitate the development of a public health strategy. However, there are some common components that can be noticed in almost all health strategies developed at European level:

- Review of international and national health policies;
- Situational analysis:
 - **List of health problems:** population health status assessment (non-communicable and communicable diseases, maternal and child health, environmental health, main health determinants, etc.);
 - **List of critical issues:** health system status assessment (organisation, financing, existence of health insurance system, workforce, etc.);
 - Discussions on alternative dimensions for target-setting – such as diagnostic groups, determinants of diseases, target groups and arenas for action;
 - Evaluation of available resources (managerial, technical, financial, political, mechanisms of inter-sectoral co-operation at national, regional and international level);
 - Guiding ethical values and principles (solidarity, universality, subsidiarity, equity, quality, health in all policies approach etc.);
 - Political will and support, driving forces (national policies and legislation, external support);
- Goals and objectives (general and specific);
- Proposed action plan (activities, responsibilities, budgets, timeframe, expected results and M&E indicators for each objective).

Proposals for a health strategy produced by expert groups are not yet political documents and need to undergo a process of political negotiation and public debate, which often results in substantial revisions of the original document or rejection of the proposals altogether.

The success of any public health strategy depends greatly on the process by which it has been developed (1). The process leading to the establishment of national goals is just as important as the goals by themselves. It is crucial for a successful strategy to be formulated through a democratic process, involving a continuous dialogue with those who will be subject to the strategy, all interested stakeholders, as well as those who will have responsibility for its implementation.

Review of international and national health policies

Achieving good health is not an issue for Health Ministers and health systems alone. Health is closely interconnected with economic growth and sustainable development.

The EU 2020 strategy

Even if there are no specific health objectives mentioned within the goals and priorities of EU 2020 strategy, there are though health impacts. The European Commission (EC) DG for Health & Consumers, DG SANCO, has recently presented its synopsis of the interaction between its health responsibilities and the 2020 strategy (2).

Key elements identified include:

- The European Innovation Partnership (EIP) for Active and Healthy Ageing
- The Horizon 2020 Research programme
- The Platform against Poverty and Social Exclusion
- The Post 2013 Cohesion Policies including Structural and Social Funds
- A new programme to replace the Health Action Programme, provisionally entitled Health for Growth 2014-2020.

Since the EC has widely recognized that health is a cross cutting issue, the main driving principle of EU health policy is the Health in All Policies (HiAP) approach. HiAP is a horizontal, complementary policy-related strategy with a high potential for contributing to population health (3). The core of HiAP is to examine determinants of health, which can be influenced to improve health, but are mainly controlled by policies of sectors other than health.

It should be emphasized that HiAP is also addressing policies in the context of policy-making at all levels of governance, including European, national, regional and local levels of policies and governance. To

conclude, HiAP highlight the need to integrate health considerations into other policies and sectors beyond the health sector. A fundamental theory of Health in All Policies is that it is possible to predict the health consequences of policies. Health impact assessment is an approach, which supports policy-makers by predicting the consequences and clarifying the various trade-offs that have to be made.

Together with Member States the EC is carrying out a Reflection Process on sustainable health systems within this context. Decisions on implementation of new programmes currently await inter-institutional agreement on the multi-annual funding framework (MFF) 2014–2020 but are expected to be introduced within coming months.

Following EU decisions on economic and financial measures generally and in specific EU member States, the EC has adopted a Social Inclusion Package (SIP) of measures in 2013 to support Member States in addressing priority needs in social fields. The SIP:

- Guides EU countries in using their social budgets more efficiently and effectively to ensure adequate and sustainable social protection;
- Seeks to strengthen people's current and future capacities, and improve their opportunities to participate in society and the labour market;
- Focuses on integrated packages of benefits and services that help people throughout their lives and achieve lasting positive social outcomes.
- Stresses prevention rather than cure, by reducing the need for benefits; That way, when people do need support, society can afford to help;
- Calls for investing in children and young people to increase their opportunities in life (4).

The specific health content focuses on:

- Sustainable health systems;
- Promotion and prevention;
- Health inequalities
- Use of EU instruments

WHO European Policy for Health - Health 2020

In September 2012 the 53 Member States of the WHO European Region together with partner organizations such as EU, OECD, Council of Europe, Civil Society and Professional Associations, adopted the Health 2020 document, representing the main WHO policy by the year 2020 and beyond (5).

Health 2020 strategy aims to significantly improve the health and well-being of populations, reduce health inequalities, strengthen public health and ensure sustainable people-centred health systems that are universal, equitable, sustainable and of high quality.

To achieve this goal, the strategy proposed two main strategic goals:

- Improving health for all and reducing health inequalities;
- Improving leadership and participatory governance for health.

The Health 2020 policy framework proposes four priority areas for policy action:

- Investing in health through a life-course approach and empowering people;
- Tackling Europe's major health challenges of non-communicable and communicable diseases;
- Strengthening people-centred health systems, public health capacity and emergency preparedness, surveillance and response;
- Creating resilient communities and supportive environments.

European Action Plan for Strengthening Public Health Capacities and Services

WHO Regional Office for Europe adopted at the 62nd Session of its Regional committee the European Action Plan for Strengthening Public Health Capacities and Services, a key pillar of the policy framework, Health 2020 (6).

WHO Europe has based the Action Plan on ten essential public health operations (EPHOs) and the ten respective avenues for action identified in the European Action Plan, underlining the voluntary nature of the essential public health operations:

- Surveillance of population health and well-being;
- Monitoring and response to health hazards and emergencies;
- Health protection including environmental, occupational, food safety and others;
- Health promotion including action to address social determinants and health inequity;
- Disease prevention, including early detection of illness;
- Assuring governance for health and well-being;
- Assuring a sufficient and competent public health workforce;

- Assuring sustainable organizational structures and financing;
- Advocacy, communication and social mobilization for health;
- Advancing public health research to inform policy and practice.

National health policy also provides the foundation for the national health strategy. The Public Health Strategy provides a framework for planning and strengthening public health activities, programmes and services. It guides in working with the community, non-government agencies, local government councils and other government departments. The Public Health Strategy sets the platform for the Governments' action on health. It identifies the priority areas and aims to ensure that health services are directed toward those areas that will ensure the highest health benefits for the population.

Situation analysis

Besides the review of international and national health policies, situational analysis represents an important step of the pre-planning phase for strategy development. It consists of an assessment of the profile of a population's health situation (can be a "target" population) and of the health care system in relation with the internal and external environment. The assessment can be done if there is available an appropriately defined and maintained set of health indicators.

The main goal of this step is to identify priority health problems based on valid criteria. Another important goal is to provide data and information necessary to design goals and objectives for the strategy. Data and information collected during this step cover the following domains (7):

- Assess the internal and external environment (review of economic, social and health objectives and policies) – SWOT analysis;
- Health status and related determinants assessment (mortality and morbidity rates, disability, burden of disease, life expectancy, lifestyle indicators, trends etc.);
- Health system assessment (public/private institutions, accessibility for health care, health inequalities, population coverage with services, patient flow within the health care system, etc.);
- Resources – human, physical, IT and financial.

Table 1 presents a very suggestive proposal for a comprehensive health situation analysis. This method of assessment is used by Pan American Health Organization/WHO (8).

Table 1. Examples of indicators used for the health situation analysis

Environmental determinants	Health status indicators
Indicators include: population with access to services such as drinking water, sewerage and excreta disposal, percent of acceptable water analysis	Perceived health <ul style="list-style-type: none"> •Satisfaction: % of the population 15 and over that report being dissatisfied with their social life •Quality of life: % of the population that report perceiving themselves in fair or poor health
Social determinants	
Demographic indicators Population by age and sex, crude birth rate, fertility rate, urban population, life expectancy at birth	Objective health <ul style="list-style-type: none"> •Mortality Maternal mortality, infant mortality, mortality rates from communicable/non-communicable diseases •Morbidity AIDS annual incidence rate, cancer incidence rate, measles incidence rate •Disability Prevalence of different types of disability in a given population, average number of days per year lost to school, work, home-making for a defined population
Socioeconomic indicators Literate population (15+ years old), annual GDP growth rate, highest 20% / lowest 20% income ration, calories availability	
Behavioural determinants	
Indicators include: proportion of regular smokers, contraceptive use	
Health system-related determinants	
Indicators include: human resources per 10,000 population, immunisation coverage in infants under 1 year old (%)	

Source: Epidemiological Bulletin / PAHO, Vol. 22, No. 4 (2001) (9).

If there is a functional and valid information system, health indicators constitute a fundamental tool that generates evidence on the status and trends of the health situation in the population. This means also documentation of inequalities in health, which may - in turn - serve as basis for the determination of population

groups with the greatest health needs and identification of critical areas. If existing, health indicators facilitate further monitoring of health objectives and goals set up by a strategy or program.

The main output of this step is represented by a comprehensive background to document the strategy, offering a comprehensive picture of the existing situation. Data obtained through the situation analysis also provide a benchmark against which to measure future trends.

There are several methods described in the literature for problem identification. R.Pineault (7) has described three categories of approaches:

- based on existing health system indicators
- based on special surveys
- based on consensus research

In order to judge the identification of one problem, several criteria can be used:

- *problem's dimension* (usually its frequency within a population)
- *problem's severity* (usually measured by premature deaths, potential years of life lost, disability)
- trends

Priority setting process

Priority setting builds on the foundation created by the situational analysis and means to select those identified problems that can be the object of an intervention. It is actually a process of comparisons and decision-making, based on special methods and techniques for ranking the identified problems according to their importance. Limited resources require priority setting to address competing demands across health system.

Three main criteria are commonly used in order to prioritise the identified problems:

- *problem's dimension* (incidence/prevalence, premature deaths, avoidable deaths, burden of disease, the size of the population at risk, the impact on medical services, family, society, etc.)
- intervention capacity (knowledge on the disease/associated risk factors, prevention possibilities)
- existing resources for intervention (existing services, qualified personnel, population accessibility to health services)

R. Pineault has grouped the priority setting (ranking) tools into two categories (7):

- **specific methods for health planning**
 - Grid Analysis
 - Hanlon Method
- **general ranking methods**
 - Anchored rating scale
 - Paired comparison
 - Pooled rank

Goals and objectives

A goal represents a general aim towards which to strive; a statement of a desired future state, condition, or purpose. A goal has usually a broader deadline, and generally being long-range rather than short range. A goal should really represent the solution to an identified problem, being realistic at the same time. Goals should be directed toward the vision and principles generally accepted; something the health system wants and expects to accomplish in the future.

An objective is: a measurable condition or level of achievement at each stage of progression toward a goal. Objectives carry with them a relevant timeframe within which they should be met.

If goal statements are generally vague, a well-designed objective will be Specific, Measurable, Attainable/Achievable, Realistic and Time-bound (SMART):

- **Specific** - an objective should address a specific target or accomplishment;
- **Measurable** - a metric (usually an indicator) should be established to indicate that an objective has been met;
- **Attainable/Achievable** - if an objective cannot be achieved, then it's probably a dream;
- **Realistic** - limit objectives to what can realistically be done with available resources;
- **Time-bound** - achieve objectives within a specified time frame.

Action Plan

The Action Plan sets out the strategic direction and actions for improving (health) outcomes. The action plan contains besides goals and principles, specific objectives and appropriate actions. It also includes an appendix with a description and assessment of general instruments that can be used, such as administrative system structure, regulations and supervision, monitoring, advisement, economics, etc. The plan also includes

areas of common interest to the health and other authorities, and where better integration or co-operation is needed.

An Action Plan is a written outline that defines:

1. What needs to be done
2. What resources are necessary to achieve the stated goals and objectives
3. Who needs to do what
4. A timeline for accomplishing the goals
5. Estimated budgets

Exercises

Task 1: Students should work in small groups (4-6 students). They will review the “Analysis of Public Health Operations, Services and Activities in the Republic of Moldova” (available at: <http://www.euro.who.int/en/where-we-work/member-states/republic-of-moldova/publications2/health-policy-paper-series-no.-8-analysis-of-public-health-operations,-services-and-activities-in-the-republic-of-moldova>) and discuss what are the main problems described in this document and what would be the necessary strategic areas/interventions to be included in a National Public Health Strategy. Written conclusions will be presented by the whole group.

Task 2: The students will work in small groups (4-6 students). They are asked to draft the main strategic areas, goal and objectives of a public health strategy for their country, based on the knowledge they have gained during this module.

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title	Health legislation: Procedures towards adoption
Module: 1.39	ECTS (suggested): 0.1
Author(s), degrees, institution(s)	Lijana Zaletel-Kragelj, MD, PhD, Associate Professor Faculty of Medicine, University of Ljubljana, Slovenia; Maja Kragelj, L.L.B. Chair of Public Health, Faculty of Medicine, University of Ljubljana, Slovenia.
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Keywords	Legal acts, legal rules, legislative procedure.
Learning objectives	This module is aiming at students to get familiar with the classification of legal acts as well as the legislative procedure. At the end of this module the students should: <ul style="list-style-type: none"> • be familiar with different types of legal rules and they should recognise the differences among them, • be familiar with different types of legal acts and they should recognise the differences among them, • be familiar with legal procedure in their country, • know the media by which the adopted laws (acts) and other adopted legal acts come into operation.
Abstract	The public health professionals should be at least roughly familiar with different types of legal acts and the procedures for adopting them. Their possible professional role could be among others also to propose a new law or other legal act to an appropriate legislative body, which is responsible to adopt it or to propose the amendments or changes to already adopted laws or other legal regulations. This module is aiming at students to get familiar with the classification of legal rules and acts as well as the legislative procedure (the Republic of Slovenia example).
Teaching methods	Teaching methods include introductory lecture, case study, small group discussions, and the whole group discussion (snowball method). After the introductory lecture students actively search for different legal acts in the special database on legal acts. They find out the rough history of the selected acts, the structure of the legal rules of which the selected acts are composed, etc. Afterwards they need to answer the questions and discuss the issue - first in small groups and afterwards in a whole group of students.
Specific recommendations for teachers	<ul style="list-style-type: none"> • work under teacher supervision/individual work proportion: 30%/70%; • facilities: a lecture room, a computer room; • equipment: computers (1 computer on 2-3 students), LCD projection, access to the Internet; • training materials: recommended readings or other related readings; • target audience: master degree students according to Bologna scheme.
Assessment of students	The final mark should be derived from assessment of practical work and from assessment of theoretical knowledge of the student.

HEALTH LEGISLATION: PROCEDURES TOWARDS ADOPTION

Lijana Zaletel-Kragelj, Maja Kragelj

Theoretical background

Introduction

The health legislation is the common term for all legal regulations, which serve to human health. The areas, which are regulated by them, are very different. In one side for example we have the regulations, which refers to control various diseases and on the other side the financing of various activities related to human health. The function of health legal regulations is thus heterogeneous. The main function is to prohibit people's activities which are injurious to the human health (for example dumping of toxic chemicals in the environment or spreading the infectious diseases), to authorize health programmes and health services (for example authorizing of health services for mothers and children), to regulate the production of resources for health care (for example financing the construction of outpatient departments or hospitals), to provide the financing of health care (health insurance) and to authorize surveillance over the quality of health care (minimum standards for health personnel and facilities) (1). But with no regard to the content of specific legal regulation, all regulations and the procedures for adopting them are subject to common principles.

The modern public health professionals should be active and creative also in this field, regardless of their basic profession. Their possible professional role could be among others, for example also to propose a new law or other legal regulation to an appropriate legislative body, which is responsible to adopt it or to propose the amendments or changes to already adopted laws or other legal regulations. This module thus focuses to the basic knowledge on legal regulations with special emphasis on health matters.

Legal rules

Classifications of legal rules

The legal rules could be classified depending on different characteristics. Most commonly they are classified in (2): general and individual legal rules, abstract and concrete legal rules, and commanding and forbidding legal rules, and legal rules that empower.

General vs. individual legal rules

Depending whether the entity of the legal treatment is a specific (an individual), or the number is not fixed or determinable in advance, legal rules can be divided in:

- General legal rules – the rules that don't define the number of the entities of the legal treatment in advance. The entity could be anonymous ("whoever") or more identifiable ("official", "national", "medical doctor", etc.);
- Individual legal rules - the rules referring to the entity of the legal treatment that is specific and exactly defined.

Abstract vs. concrete legal rules

Depending on whether the rule is relating to the future imaginary situations that may or may not occur, or to the actual circumstances, the legal rules are divided into:

- Abstract legal rules – the rules relating to the future imaginary situations (for example: "who allow a person under 18 years of age, drinking alcoholic beverages in a public place or being offered alcohol in a public place, or otherwise allow it to drink an alcoholic beverage in a public place... - it is predicted in advance that somebody will do this);
- Concrete legal rules – the rules relating to the existent actual concrete circumstances in which the legal subjects should behave and act in a certain specific way (for example, "...which allowed a person under 18 years of age, drinking alcoholic beverages in a public place).

Commanding vs. forbidding legal rules vs. legal rules that empower

Legal rules are further divided into the content of behaviour or conduct prescribed by them:

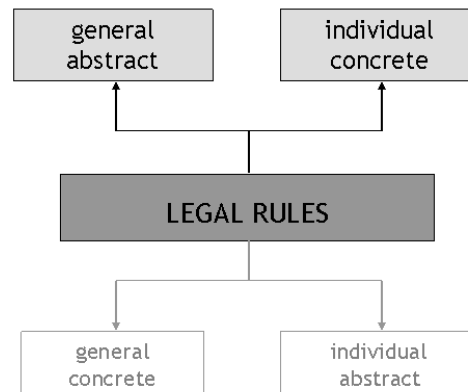
- Commanding legal rules – the rules that dictate certain behaviour or conduct;
- Forbidding legal rules – the rules prohibit certain behaviour or conduct;
- Legal rules that empower – the rules that authorize a particular behaviour or conduct;

However, there also exist legal norms without sanctions, so called legal principles (for example, customers are obliged to conclude a contract in accordance with the principles).

Standard legal rules

The classifications on general and individual legal rules, and abstract and concrete legal rules, are commonly combined. There could be four combinations: general abstract legal rules, general concrete legal rules, individual abstract legal rules, and individual concrete legal rules (Figure 1).

Figure 1. Possible combinations of legal rules basing on classifications on general and individual legal rules, and abstract and concrete legal rules



However, two combinations are predominant. The concept of an abstract legal rule usually relates to the concept of the general legal rule, and the concept of a concrete legal rule to the concept of the individual legal rule (Figure 1). Therefore, there are two fundamental types of legal rules - general abstract legal rules and individual concrete legal rules. On other words, general abstract and individual concrete legal rules are recognized as basic types of legal rules or standard legal rules:

- General abstract legal rules – general abstract legal rules are standard legal rules that are designed to achieve an appropriate social behaviour. As such, they are based on an unspecified number of entities and an undetermined number of future imaginary situations (Medical Chamber may suspend or withdraw the license due to technical deficiency or professional procedural misconduct to any physician);
- Individual concrete legal rules – individual concrete legal rules specify how the specific legal entity (a subject) should behave in a concrete situation (due to greater professional procedural misconduct, which resulted in the death of a patient, the accused NN is permanently disbarred from practicing medicine in the country).

Regarding two remaining combinations - one combination, being general concrete is very rare, while one combination, being individual abstract legal rules, is practically non-existent.

The general abstract, as well as individual concrete legal rules can be commanding and forbidding legal rules, as well as legal rules that empower.

Legal acts

Definition and purpose

The legal act (regulation) is an official document composed of several legal rules on certain specific issue.

On one side the essence of these acts is to build on the acquis in the country. Examples of this type of legal acts are a constitution and the laws. On the other side there are the legal acts concerning the concrete individuals. Examples of this type of legal acts are the judgements and the administrative decisions.

Effective system of legal rules and legal principles built into a system of legal acts governing the vital behavior and handling of residents is called the law or the acquis. Legal rules and principles are basic elements of the acquis.

The hierarchy of legal acts

The principle of hierarchy of legal acts is very important because it creates the the conditions for the unity of the acquis of the country. The characteristics are:

- the hierarchy of legal acts issued by public authorities mainly corresponds to the hierarchy of the latter. For example, legal acts adopted by the National Assembly are above the legal acts adopted by the government;
- general legal acts have higher level of legal force than the individual legal acts
- if one legal act is adopted based on the other legal act, the later has higher level of legal force.

Types and hierarchy of general abstract legal acts

As previously mentioned, the general abstract rules are the most common and thus the general abstract legal acts as well. Types of general abstract legal acts are (2).

1. Constitution:
Constitution is the most fundamental regulation that regulates the substance that is of essential importance for the certain country and its society. It is adopted by Parliament (National Assembly)
2. Laws:
The laws are general legal regulations that regulate the substance that is principal and fundamental for the certain legal system. But at the same time the substance is not so important to be regulated by the Constitution. They are adopted by Parliament (National Assembly)
3. Statutes/subordinate implementing (executive) legal acts:
These legal acts are the acts with lower level of legal force than the laws. There exist several types of statutes. The following ones are listed by the order of legislative body that adopts the particular statute:
 - Decree – regulates and analyzes relations that are defined by the law. It is adopted by the government;
 - Ordinance – regulates individual issues and stipulates provisions that have a general meaning (is more detailed than a decree). It is also adopted by the government;
 - Regulation – regulates the organisation of the operation or the method of the proceeding of the specific body. It is adopted by the minister;
 - Order – intended for the implementation of the individual provisions - it orders or interdicts the operation that has a general meaning. It is adopted also by the minister;
 - Rules/guidelines - recommend practices that allow some discretion with their interpretation and use;
 - Instruction – it regulates the method of proceeding of the administrative body that executes individual provisions of the law or the statute. It is adopted also by the minister.

The legislative procedure

The legal regulations are adopted by the official procedures, regulated by special legal acts, which regulates functioning of particular country. These procedures are more or less similar for majority of the countries. As an example of such a procedure a procedure for adopting a law will be described in continuation of the module, as laws are the main legal regulations immediately after the constitution.

The process of a law becoming official is called “enactment”. Also the law that has been passed by the official procedures (for example in a parliament of a country) is called no longer “a law” but “an act”.

Case studies

Case study 1: The procedure for enacting a law in Slovenia

In Slovenia, the procedure for enacting a law is regulated by the rules of procedure of the National Assembly of the Republic of Slovenia (the Parliament of Slovenia), officially entitled The National Assembly of Slovenia Rules of Procedure (3). This procedure can be a regular one, a shortened one, or an urgent one. Also every law can be reconsidered as well as an obligatory explanation of every single law can be made.

Different possible procedures for enacting a law

Regular procedure

The regular procedure has several phases: proposal of law, first reading of a proposed law, second reading of a proposed law, third reading of a proposed law and voting on a law.

In following section of the module the most important parts of single phase of this procedure are described:

1. Proposal of a law:
A proposal of a law may be sent to the President of the National Assembly by the Government, a deputy, the National Council, or at least 5,000 voters.
The proposal of the law must contain the title of the law, an introduction, the text and an explanation. It must contain the reason/s for enacting the specific law, its goals and principles, an estimation of the financial burden for the national budget, required for its enactment.
It is to be sent to the president of the National Assembly. If the proposal does not contain the required information, the President of the National Assembly calls upon the proposer to supplement the draft law. If the proposer fails to supplement the draft law within 15 days from being called upon to do so by the President of the National Assembly, it is deemed that the draft law has not been tabled.
The president afterwards forwards the proposed law to deputies, to the National Council and to the government, when the latter is not the proposer of the law.
The draft law is published in the gazette of the National Assembly.
A proposed law is then discussed by the National Assembly in several readings.

2. Preliminary reading:
The proposer of the law may propose that a preliminary reading be held regarding the basic issues and social relations that need to be regulated by the proposed law. If the Council accepts the proposal, the President of the National Assembly determines in which working body the reading will be held. The procedure is described in details in The National Assembly of Slovenia Rules of Procedure (3).

3. First reading:
The first reading of a draft law begins when the draft law is forwarded to the deputies. During this reading of a proposed law, its presentation in the National Assembly and then a debate on the reasons demanding its enactment and also on the principles and goals is held.
Within 15 days of the draft law being forwarded to the deputies, at least ten deputies may request that the National Assembly hold a debate on the reasons that require the adoption of the law and on the principles, goals, and basic solutions of the draft law (the general debate).

After the general debate, the National Assembly decides on whether the draft law is appropriate for further reading. If it decides that the draft law is appropriate for further reading, the legislative procedure continues. If it decides that the draft law is not appropriate for further reading, the legislative procedure is terminated.
The President of the National Assembly determines the working body responsible and refers the draft law to it for discussion immediately after the conclusion of the general debate and the adoption of the decision that the draft law is appropriate for further reading.
The procedure is described in details in The National Assembly of Slovenia Rules of Procedure (3).

4. Second reading:
In this reading, individual articles or parts of the draft law are debated and voted on.
Amendments to a draft law may be tabled in this reading by deputies, a deputy group, the working body concerned, and the working body, as well as the Government where it is not itself the proposer of the law. Modifications of or supplements to an individual article or title of a law may be proposed by amendments. New articles containing solutions which derive from the goals and principles of the draft law as well as the deletion of an individual article may also be proposed by amendments.
The second reading of a draft law is first held within the working body responsible and then, pursuant to the report of the working body responsible, at a session of the National Assembly.
After the discussion on amendments and articles, a supplemented draft law is drawn up by including all the adopted amendments in the draft law prepared for the second reading. The supplemented draft law is part of a report drawn up for the second reading of the draft law by the working body responsible.
The report drawn up for the second reading of the draft law by the working body responsible and the opinion that the Legislative and Legal Service may deliver on the supplemented draft law are published in the gazette of the National Assembly. In continuation, the procedure is as follows:
 - If amendments to more than a tenth of the articles of the supplemented draft law have been adopted, after the second reading the text of the draft law is subject to legal editing and prepared for the third reading on the basis of the amendments adopted;
 - If the law is proposed by the Government, the National Assembly may, in the case referred to in the preceding paragraph, decide that the Government prepares the text of the draft law for the third reading;
 - If the Legislative and Legal Service or the Government establishes that after the adoption of amendments in the second reading, individual provisions of the draft law are mutually inconsistent, not in conformity with the Constitution, or inconsistent with other laws, it draws the attention of the National Assembly to such fact and proposes possible solutions;
 - If in the second reading amendments have been adopted to less than a tenth of the articles of the supplemented draft law, the National Assembly may decide on the proposal of the proposer to hold the third reading of the draft law at the same session, unless more than one third of the deputies present oppose such;
 - If no amendment to the supplemented draft law is adopted in the second reading, the National Assembly proceeds to a vote on the law at the same session.
The procedure is described in details in The National Assembly of Slovenia Rules of Procedure (3).

5. Third reading:
In the third reading, the National Assembly debates and votes on the draft law in its entirety. A discussion of individual articles of the draft law is only held on those articles to which amendments have been tabled. As a general rule, the third reading of a draft law is held at the first session following the discussion of the draft law in the second reading. The procedure is described in details in The National Assembly of Slovenia Rules of Procedure (3).

Shortened procedure

In certain circumstances it is also possible to enact a law by using the shortened procedure. These circumstances are minor amendments to a law, the cessation of the validity of an individual law or individual provisions thereof, less demanding harmonisation of the law with other laws or with the law of the European Union, or amendments to laws related to proceedings of the decisions of the Constitutional Court. In the case of the shortened procedure, the second and third readings are held at the same session. In such event the second reading begins with the discussion of the draft law by the working body responsible pursuant to the provisions of these Rules of Procedure on the second reading. Amendments may be tabled directly at the session up until the beginning of the third reading of the draft law. The procedure is described in details in The National Assembly of Slovenia Rules of Procedure (3).

Urgent procedure

In certain special circumstances (in the circumstances when the security of the state is in danger, or in order to eliminate the consequences of natural disasters, or to prevent consequences regarding the functioning of the state that would be difficult to remedy) it is also possible to enact a law by using the urgent procedure. It is the Government that may propose that a law be adopted by the urgent procedure, and it must provide specifically grounded reasons for adopting a law by this procedure. In the urgent procedure for the adoption of a law, amendments may also be proposed orally at the session until the end of the debate on the parts or articles of the law. Orally proposed amendments must be submitted in writing to the chairperson prior to voting at a meeting of the working body responsible or session of the National Assembly, together with a statement of reasons. The procedure is described in details in The National Assembly of Slovenia Rules of Procedure (3).

Reconsideration of a law

Before the official proclamation of the law, the National Council can impose to the National Assembly its reconsideration. In this case the National Assembly decides again on such law. The President of the National Assembly sends the request of the National Council to the working body responsible, the Legislative and Legal Service, the proposer of the law, and to the Government in order to obtain their opinions. The procedure is described in details in The National Assembly of Slovenia Rules of Procedure (3).

Procedure for adopting an authentic interpretation of the law

For every law an authentic interpretation of the law also could be made. A proposal to adopt an authentic interpretation of a law may be presented by any proposer who can propose a law.

The working body responsible first discusses whether it is necessary to adopt an authentic interpretation of the law. If the working body responsible believes that such is necessary, it also discusses the proposed text of the authentic interpretation. Amendments to the text of the proposed authentic interpretation of the law may only be proposed by the working body responsible.

The procedure is described in details in The National Assembly of Slovenia Rules of Procedure (3).

Amending the Acts

Laws are not static, but rather dynamic documents. Change is often not only tolerable, but may be even necessary. In this case the Act Amending the Act is adopted. These Acts get the same name as the original Act, but different extension for which letters of the alphabet (upper case) are used.

After each amendment to the Act, the Legislative and Legal Service of the National Assembly should prepare a consolidated text (consolidated version or consolidate wording) of the Act approved by the National Assembly without a debate.

The release and the enforcement of the Acts

In Slovenia, all legal regulations (laws and executive regulations) should be published in the Official Gazette of the Republic of Slovenia after the adoption by the competent bodies. However, they do not take effect immediately after the release in the Official Gazette of the Republic of Slovenia (4). This usually happens 15 days after the release.

Access to legislation

Access to the legal regulations in the process of adoption

Prior to the adoption every legal regulation in Slovenia could be found in a special database, attainable at the National Assembly Website (5-7). The Bills database contains bills in the current phase which are in parliamentary procedure in the National Assembly.

Access to already adopted legal regulations

The adopted laws and other adopted legal regulations as well as the authentic interpretations are published in Slovenia in the Official Gazette of the Republic of Slovenia (Uradni list Republike Slovenije). All newly adopted regulations are added to a

Register of Regulations of the Republic of Slovenia which is constantly updated (8). The register is divided into 11 sections. One of them is the section of labor, and health and social care law. One subsection of this section is a health care subsection. It covers most of the legal acts in the field of health care.

Posts of electronic version of adopted laws and their subordinate legislation can also be found at the National Assembly Website (9,10) and at the Official Gazette of the Republic of Slovenia Website (4), accessible directly or through the Register of Regulations of the Republic of Slovenia Website (8).

Case study 2: The restriction of the use of tobacco products act of the Republic of Slovenia dynamics

For the illustration of the dynamics of a legal act, the case of Restriction of the Use of Tobacco Products Act of the Republic of Slovenia is presented (11). In doing so, we will not focus on the content of the law, but on its development and dynamics in the legal sense. For the purposes of this module it is enough to know that this Act provides the measures to limit the use of tobacco products and measures to prevent its harmful effects on health in Slovenia.

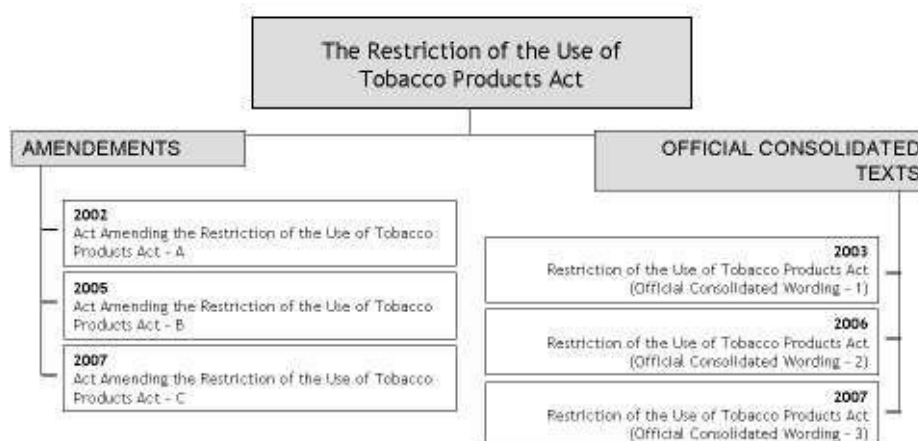
The enactment

The Restriction of the Use of Tobacco Products was adopted in 1996 (12). It was adopted on October 02, 1996, released on October 19, 1996, and became effective on November 18, 1996. The authority responsible for the preparation of The Restriction of the Use of Tobacco Products Act in Slovenia was the Ministry of Health, while the authorities responsible for implementing this regulation is Market Inspectorate of Republic of Slovenia.

The amendments

From the adoption until now the Restriction of the Use of Tobacco Products Act was amended three times (13): in 2002 (14), in 2005 (15), and in 2007 (16). Also, three times the official consolidated wording was adopted (13): in 2003 (17), in 2006 (18), and in 2007 (11) (Figure 2).

Figure 2. The dynamics of the Slovene Restriction of the Use of Tobacco Products Act amendments and official consolidated texts



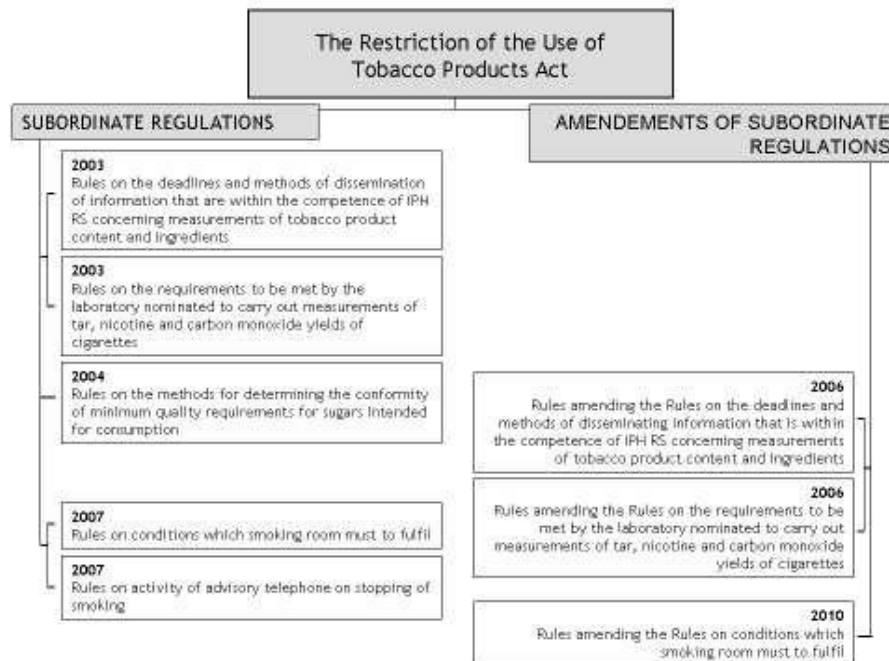
The subordinate implementing regulations

The Restriction of the Use of Tobacco Products Act has so far 8 subordinate implementing regulations (13), being (Figure 3).

- Rules on the deadlines and methods of dissemination of information that are within the competence of IPH RS concerning measurements of tobacco product content and ingredients (19),
- Rules on the requirements to be met by the laboratory nominated to carry out measurements of tar, nicotine and carbon monoxide yields of cigarettes (20),
- Rules on the methods for determining the conformity of minimum quality requirements for sugars intended for consumption (21),
- Rules amending the Rules on the deadlines and methods of disseminating information that is within the competence of IPH RS concerning measurements of tobacco product content and ingredients (22),
- Rules amending the Rules on the requirements to be met by the laboratory nominated to carry out measurements of tar, nicotine and carbon monoxide yields of cigarettes (23),
- Rules on conditions which smoking areas must fulfil (24),
- Rules on activity of advisory telephone on stopping of smoking (25),
- Rules amending the Rules on “conditions which smoking areas must fulfil” (26).

All of implementing regulations subordinate to the Restriction of the Use of Tobacco Products Act are rules. Five of them are new rules, while the rest of them are amendments (Rules amending the Rules).

Figure 3. The dynamics of the Slovene Restriction of the Use of Tobacco Products Act subordinate implementing regulations



Exercises

Task 1

In the Register of Regulations of the Republic of Slovenia (8) select an Act enacted in the section Labor, health and social care law, subsection Health care, which has at least 5 subordinate implementing regulations. Find out:

- when it was adopted;
- was it amended;
- how many times it was amended and when;
- how many consolidated text were adopted and when;
- how many of subordinate implementing regulations have been adopted on the basis of this Act;
- draw the diagram of amendments and consolidated, and the diagram of subordinate implementing regulations.

Task 2

In the Act selected in the Task 1, find:

- at least one commanding legal rule;
- at least one forbidding legal rule;
- at least one legal rule that empower.

Task 3

In the National Assembly of the Republic of Slovenia Database of Proposals of Laws (6), choose a law that is in a regular process of adoption, and find out in which phase is the process being currently.

Task 4

For the Act chosen in Task 1, go to the Official Gazette official website (4). Choose the direct way (4), or the way through the Register of Regulations of the Republic of Slovenia website (8). Open the PDF version of the issue of the Official Gazette in which the Act was released.

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title:	Socioeconomic factors – Key determinants of health
Module: 1.40	ECTS (suggested): 0.25
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Keywords	Education, income, inequalities, health, socio-economic.
Learning objectives	At the end of the module, students should be able to: <ul style="list-style-type: none"> • Critically appraise the differential toll of ill-health across populations and population sub-groups; • Understand the impact of socio-economic environment on health; • Assess the main socio-economic determinants of health in their own populations: education, income, occupation, absolute (material) deprivation, and relative deprivation.
Abstract	There is a considerable body of literature indicating a consistent relationship between socio-economic factors and health. The principal measures of socio-economic status have been education, income, and occupation. Education has been the most frequent measure as it does not usually change (as income or occupation might) after early adulthood. Information about education can be obtained easily and it is unlikely that poor health in adulthood influences level of education. Recent research undertaken in former communist countries has developed specific instruments for assessment of individual socio-economic circumstances or conditions. These include “material deprivation” and “amenities at three levels” (self-perceived deprivation, an important psycho-social pathway to ill-health). Assessment of socio-economic environment is important in order to understand ill-health differences across population sub-groups.
Teaching methods	<ul style="list-style-type: none"> ▪ Introductory lectures; ▪ Small-group seminars, during which students are assigned different tasks.
Specific recommendations for teachers	This module should be assigned 0.25 ECTS.
Assessment of Students	<ul style="list-style-type: none"> ▪ Group assignment (5-7 students): development of instruments/tools to assess socio-economic factors. Students are expected to come up with consensual/group questionnaires, which will help them develop a “team spirit”. This is an important issue to regulate the fragmented learning and working dimension, which is rather problematic in SEE countries due to an inherited “Soviet” teaching style. From this point of view, group assignments are recommended to account for 40% of the overall grade of the module. ▪ Individual assignment: take home essay (up to 3000 words, references excluded). Students are expected to provide a comprehensive literature review about socio-economic determinants of health, and critically appraise the major socio-economic factors linked with ill-health on their own populations. Individual assignments are recommended to account for 60% of the overall grade of the module.

SOCIOECONOMIC FACTORS – KEY DETERMINANTS OF HEALTH

Genc Burazeri, Iris Mone, Lidia Georgieva, Ulrich Laaser

Introduction – What accounts for the health gap between and within countries?

It has been argued that differences in availability, accessibility and affordability of medical care services account for a considerable proportion of ill-health differences across different sub-groups of populations (1,2). From this point of view, health inequalities arise from inequalities in health care.

However, medical care fails to address the social gradient in the onset of new cases of diseases, which are not issues of medical care per se, or inequalities in mortality from diseases which are not amenable to medical services (or at least, whose avoidance is questionable) (3). Moreover, the main contributor to the mortality gap observed between Eastern and Western countries (coronary heart disease), is believed not to be amenable to medical care (4,5). Furthermore, childhood circumstances, work environment, unemployment, patterns of social relationships, social exclusion, as well as engagement in unhealthy behaviour cannot be accounted for by lack of access to good-quality medical care.

In addition, although individual risk partly explains the variation in occurrence of diseases, it fails to explain marked differences in morbidity/mortality in line with differences in socio-economic status over short periods of time (where genetic predisposition to disease is assumed not to change substantially) (6,7). It is also worth making a distinction between individual risk factors and environmental causes of disease, since attempts to explain ill-health differences across populations based only on an individual risk-factor approach has been persuasively criticized (8).

Besides the partial variation in occurrence of disease, it has proved difficult to modify individual risk factors by trying to persuade individuals to change their behaviour. Notwithstanding successes achieved with individuals in groups at high risk (e.g. drug treatment for hypertension and/or high cholesterol levels), it makes a limited contribution to reducing disease rates in the whole population (7,8). As Geoffrey Rose has suggested, the cause(s) of individual differences in disease may be different from the cause(s) of differences between populations (9). Therefore, social determinants play a key role in explaining the ill-health gap between populations and within population sub-groups.

Socio-economic circumstances: *Absolute and relative deprivation*

In attempting to account for the health gap between and within countries, a considerable part of the research conducted in the last decades, has linked observed differences in ill-health between and within countries with a whole array of elements, which shape the socio-economic environment in different countries.

The following phenomena concerning the socio-economic circumstances are evident in different countries depending on the Gross National Product (GNP) structure:

- There is a clear relationship between income and life expectancy (LE) between countries (10). In poor countries, even small increases in GNP (per capita) are associated with relatively large increases in LE, which is due mainly to malnutrition and/or infectious diseases. Hence, the absolute material deprivation is an important determinant, which explains the differential toll of morbidity and mortality between poor and rich countries. From this perspective, for the poor countries of the world, an increase in living standards that reduces malnutrition and infectious diseases will make a major contribution to improving health.
- In countries with a GNP (per capita) of >\$5000, the relationship between GNP and LE is weak (10). The implication of such relationship is that, above a certain level of income, even large differences in income between wealthy countries are associated with negligible differences in respective LE.
- For countries with similar levels of income, there is a strong relation between income inequality and LE (10,11). This is termed “relative deprivation”, which is arguably considered as a major determinant of ill-health in “rich” countries, as opposed to the absolute deprivation which accounts for a considerable proportion of morbidity/mortality in poor countries. Income inequality reflects the social environment and the way societies are organized. From this point of view, there is a developing research area that relates disease patterns to the organization of society and the way society invests in its human capital. In recent years, it is soundly being argued that many classical risk factors (such as hypertension, alcohol consumption, smoking, or lack of exercise) have clear social determinants (7,11). Therefore, the excess morbidity and mortality not explained by the absolute deprivation in rich countries has been linked to the psycho-social concept (referred to as relative deprivation). A striking example comes from the Whitehall study (British civil servants), which documented large differences in CHD mortality patterns associated with the perceived

(relative) deprivation (12). From this perspective, for the rich countries of the world, reduction in socio-economic inequalities will make a major contribution to improving health.

Social position and health status: *Selection or causation?*

Plausibly, observed differences in disease rates relate more to characteristics of the social environment. The causal direction, therefore, is likely to be from social environment to illness, and not the other way (7). Nevertheless, it has been intriguingly argued that health status may determine both socio-economic position as well as social circumstances that affect health (13,14). From this point of view, health could be a major determinant of life chances/opportunities. This phenomenon has been termed “health selection”. The implication of such a phenomenon is that health may “select” people into different social strata (layers) (13,14). Accordingly, sick individuals are more likely to lose their jobs and/or remain unemployed than healthy people. This might bear important implications as to the direction of causality of the relationship between social position and health. This would lead to the argument that poor health leads to lower position in the social hierarchy, social exclusion, increased risk of unemployment and job insecurity, less participation in social networks, unhealthy behaviour (diet, smoking, alcohol and drug addiction, as well as lack of physical activity) (13,14). However, such a question of “egg and chicken” can be convincingly addressed in longitudinal (cohort) studies only. So far, current evidence (albeit limited to few prospective studies) suggests the casual direction to be from social environment to illness and not vice-versa (15,16).

Assessment of socio-economic factors in countries of South East Europe

Education

Education is the most widely used measure of socio-economic status in most of research conducted anywhere in the world (17). The advantage of employing such a variable (education) as a measure of socio-economic position is related to the relatively simple/straightforward questions, which usually generate a high response rate (17,18). Furthermore, as educational attainment is usually stable after young adulthood, it is little affected by poor health developed later in life among adults of both sexes (17,18). However, engagement of education as a measure of socio-economic position has also some disadvantages, which should be taken into consideration, especially in countries of South Eastern Europe, or more broadly former communist countries. For example, in Albania there are huge birth cohort differences in levels of education, so as psychological and behavioural patterns of a given level of education are different for different cohorts. In addition, poor illness in childhood may affect the level of education attained in young adulthood. Nevertheless, due to its simplicity, comparability between countries and especially the difficult endeavour of measurement of income level, educational attainment is frequently used as the key measure of social ranking in most of societies.

Most of the research conducted in Eastern European and former Soviet countries has classified individual educational attainment into the following four categories: primary or below, vocational (apprenticeship), secondary (or an equivalent level), and university degree (19-22). Nonetheless, this classification is contingent on: a) specific educational systems in each country, and b) the relative value each society assigns to the development of its human resources.

Income

Income like education is another widely used measure of socio-economic position (17,18). However, beside difficulties in assessment of such a variable (e.g. high non-response rates), a low income level may reflect impaired health (13,14). From this perspective, contrary to education, income maybe directly affected by health status in adulthood, therefore pointing to differential life chances/opportunities in adulthood associated with state of health (13,14). Furthermore, measurement of income is rather complex in all societies; it encompasses not only individual wages, but also other sources of income such as real estate/property or non-cash benefits (food stamps, free access to medical care, etc.). Therefore, it may be more useful to measure the total assets of individuals, which commonly is termed “wealth” (17). However, such measurements are is a rather difficult job to pursue.

Things get even more complicated in former communist countries where transition towards a free market system in the last decade is associated with a high degree of distrust/hostility and negative feelings/affection by large segments of populations, which does not permit a reliable estimate of “real” individual income/wealth in these countries.

In attempting to measure income level among undergraduate university students in Tirana last fall, we employed the following instrument/question: “How would you rate your monthly family income including wages, allowances, family businesses, and other sources of income, subtracting the rent your family might be paying for the apartment or house?” (23,24). However, we got the lowest response rate for this question (80%), even though we asked for more confidential/sensitive information (sexual behaviour and practices, for which the

overall response rate was 87%). Therefore, other proxy measures should be engaged in parallel with the self-reported income in order to capture the array of socio-economic position of individuals in Eastern European countries.

Occupation

Occupation is another variable commonly employed for assessment of socio-economic ranking of individuals in all societies (17,18). However, the use of such a measure (occupation) usually involves some categorization. Two famous examples to mention with this regard are the Registrar General of Great Britain (used since 1911) (25) and the US Bureau of Census (used since 1897) (26), which are roughly comparable. Occupation is an important characteristic in modern societies linked with prestige and social status. However, use of occupation as a measure of socio-economic position bears several disadvantages. As for income, current occupation for certain individuals may reflect the impact of disease/poor health (13,14). Furthermore, modern research has focused on the decision latitude, time pressure and social support in the work place rather than the classical categorization of occupations/professions. Thus, the Whitehall study (conducted among British civil servants) (12) in addition to Karasek's pioneering evidence (27,28), has arguably linked a higher risk of coronary events and its related mortality with work environment/characteristics.

In former communist countries, the employment of current occupation/profession for assessment of social position is even more difficult. The orientation towards a free-market system in the last decade has been associated with tremendous changes in employment rates and occupational/professional shifting. Besides the exceptionally high unemployment rates, it has not been uncommon for physicians or other conventional "white-collar" professionals to have moved into manual occupations and/or questionable businesses. On the other hand, former "blue-collar" (with no university degree) employed currently in the most prestigious positions are even less uncommon. Furthermore, the overwhelming rapid socio-economic transition is driving large segments of populations into a multi-occupational fashion (part-time jobs rather than a permanent full-time position). Therefore, assessment of occupation/profession in countries of South Eastern Europe must clearly address the following issue: *assessment of current or "habitual" occupation?* From this perspective, use of current occupation/profession is rather questionable in these countries. Nonetheless, authoritative research conducted in former communist countries has, to a certain extent, matched successfully current occupation as a measure of socio-economic position. Occupation in these studies was classified into three broad categories: managerial/supervisor, other employment and self-employment (19-22).

Assessment of absolute and relative deprivation in former communist countries

Recent research undertaken in former communist countries has developed specific instruments for assessment of individual socio-economic circumstances. Thereof, a concept of "material deprivation" (19,21,22,29) and a concept of "relative deprivation" (30) were developed.

Material deprivation

Material deprivation was used as an index of absolute deprivation in former communist countries. It is assessed by three questions about how often the individuals' household has difficulties to buy enough food or clothes and to pay bills for housing, heating and electricity (19,21,22). Possible answers to these questions (never/almost never, sometimes, often, always) are coded and a deprivation score is derived as the sum, based on which individuals are classified into two categories: low material deprivation and high material deprivation. This rather simple instrument has resulted valid in prediction of poor health in vulnerable sub-groups (i.e. individuals with low socio-economic status) (19,21,22,29).

Relative deprivation: amenities at three levels

In attempting to assess the relative (self-perceived) deprivation as an important psycho-social pathway to ill-health, individuals in Hungary were asked to report on household items that they possessed (30). According to this approach, household items are classified as follows:

- Basic items: washing machine, refrigerator, microwave, telephone.
- Socially oriented items: colour television, radio cassette recorder, car, motorcycle.
- Luxury items: cable television, air conditioner, dishwasher, personal computer, summer house, garden.

Nevertheless, application of this classification should be regarded with caution, as different items might fall into different categories depending on the specific socio-economic environment of each country. For example, in Albania microwave and car ownership would be better placed into the 3rd category (i.e. luxury items). However, such a practical classification of amenities may be useful and worth adopting by all SEE countries in order to assess the health impact of both, absolute and relative deprivation.

Therefore, postgraduate public health students are encouraged to adapt and validate these instruments (material deprivation and amenities at three levels) for their specific settings/environments.

Exercises

Task 1: Students are required to develop tools for assessing socio-economic position based on three main components engaged in research studies worldwide (education, income and occupation/profession). Students should design a simple, but comprehensive questionnaire in order to capture the array of social position (social ranking) of individuals in their own settings. In different countries/cultures, education, profession and income bear different socio-economic connotations. Therefore, students are expected to design such a tool which would best capture the array of social standing for individuals pertinent to their societies.

Task 2: Students are required to develop a tool for assessing material deprivation based on the questionnaire designed by Bobak M et al (19,21,22). This questionnaire, however, should be adapted/amended in line with specific socio-economic environments of students' own societies.

Task 3: Students are required to provide the means for assessing relative deprivation based on measurement of amenities at three levels, as described by Marmot M et al (30). Same consideration as above (i.e. questionnaires should be designed in a "setting-specific" fashion).

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title	Health policy analysis and development
Module: 1.41	ECTS (suggested): 0.5
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Keywords	Health policy, health priorities.
Learning objectives	After completing this module students and public health professionals should: <ul style="list-style-type: none"> • Understand the steps in creating a health policy (problem identification, research design, research plan, and/or policy paper); • Compare and contrast alternative approaches to health policy development; • Explain the concept and process of health policy development; • Define and illustrate elements of the health policy; • Learn how to assess, in real-life situations, the need for change and the scope for change; • Prepare policy brief/policy paper for arguing certain health policy issue.
Abstract	This module examines the health policy development and in particular the functions of health policy analysis in the policy-making process. The module starts with a short overview of the historical background of policy analysis, which shows that the aim of policy analysis, today as in the past, has been to provide policymakers with information that can be used to solve practical problems. The module continues with a description of the policy development process in the health sector. Although policy analysis is an intellectual activity, it is also embedded in a social and political process known as policymaking. Health policies are important because it is what gives content to the practices of the health sector. Policies are expressed in a whole series of practices, statements, regulations and even laws, which are the result of decisions about how we will do things. This module contrasts and compares several models of health policy development, each capturing an important aspect of the complex process of policymaking.
Teaching methods	An introductory lecture gives the students first insight in elements and process of health policy analysis and development. The theoretical knowledge is illustrated by a case study. Before/after introductory lectures students carefully read the recommended advanced readings. Afterwards they discuss the elements of health policy and the process of HP development with other students, especially the designing and planning phase (problem identification, policy options, etc.). In continuation, they need to identify a policy issue, find published materials (e.g. papers), write a short assignment/seminar paper (policy brief, including all its elements) and present their findings to other students.
Specific recommendations for teachers	<ul style="list-style-type: none"> • Work under teacher supervision/individual students’ work proportion: 40%/60%; • Facilities: lecture room; • Equipment: LCD projection equipment; • Training materials: recommended readings or other related readings; • Target audience: master degree students according to Bologna scheme.
Assessment of students	Structured essay (policy brief with all elements).

HEALTH POLICY ANALYSIS AND DEVELOPMENT

Neda Milevska-Kostova, Elisaveta Stikova, Doncho Donev

Theoretical background

Policy analysis in the policy making process

Public policy and policy analysis

The roots of the policy as science and the policy analysis lay in the political sciences. Even though, the public policy has developed in a separate scientific discipline over the past several decades, with policy analysis as its tool aimed at providing policymakers with information that can be used to solve practical problems.

The main purpose of policy analysis is to improve the efficiency of the policy making process. This is not an easy task, especially when we consider that many of the most important policy changes are gradual, disjointed and incremental; large discontinuous changes are relatively rare and they stem from shocks that are exogenous to the policy-making process, not from a relatively marginal influence of analyses conducted within the process (1).

Among the policy analysts there is an unwritten rule that good policy analysis often yields better policies. Furthermore, if combined with evidence from research, it indisputably contributes to a meaningful policy cycle of implementable and effective policies.

In order to make good policy analysis, it is essential to know its rules, elements and procedures that combine it. This module essentially deals with the elements and procedures, but also with the whole context in which the policy analysis would take its place in a most efficient way to give informed and timely positions and opinions to the policy-makers during the process of decision making.

Policy-making and the policy cycle

The process of policy-making is often solely related to the actions of preparation, adoption and implementation of policies; it is associated with policy makers or decision makers as the ultimate power holders to adopt political decisions. But, this complex process is much more than a "galvanistic twitch" (2) - it embraces some hidden aspects of agenda setting through a systematic approach as well as through mobilization of interest groups around particular issue; it involves advocacy and lobbying for stakeholders' most preferred policy alternative at one, and the evaluation and monitoring of the implementation at the other end of the spectrum.

Some authors describe the policymaking as a reiterative process often called policy cycle. The policy cycle has defined steps which can be repeated, depending on the level of achievement of the goals or satisfaction of the stakeholders; it can also be repeated as many times as the policy process requires in order to establish effective policy, which in reality does happen, even though it is not resource-wise an efficient way of policy making.

Elements of the policy cycle

In search for geometric and logical explanation of the otherwise fairly intuitive process, the researchers have proposed a model of policy cycle with defined steps that are the milestones of effective policy making.

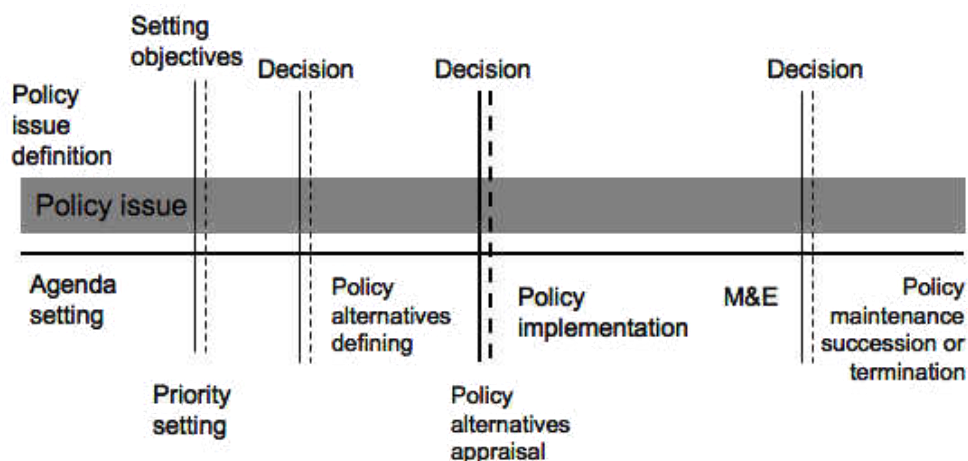
Basically, the policy cycle consists of 4 to 6 steps, depending on the level of fragmentation of the steps by various authors. The cycle opens with: a) policy agenda setting; b) issue identification; c) formulation/specification of the policy alternatives; d) decision on the most acceptable/optimal policy alternative; e) policy implementation; and f) monitoring and evaluation of the (policy implementation) results and goals achieved. Additionally, some authors (3) propose that the segment of policy maintenance, succession or termination be separated from the last step, as it is recognized as very important part embedding another round of decision making.

But, the cycle does not have to start at the agenda setting; it can also commence at the stage of the evaluation of a previous policy, or it can continue from any given point at which the process has once stopped for various internal or external reasons. Thus, it is very important to understand that policy cycle is a "messy order" of events and actions that eventually lead to applicable solution of the policy problem that is being addressed.

Policy agenda setting

The policy agenda setting is by far the most delicate step of all in the policy making process; here, all stakeholders have an open arena for putting forward issues, alternatives and solutions in front of the political power holders. It is often thought that this step is closed and exclusive to the decision makers, but in reality we experience much more interference from other, usually very influential parties, such as the business sector or strong civil society movements.

Figure 1. Policy process stages - simplified timeline



The importance of this step in furthering one's policy issue higher on the agenda is closely related to the significance of the timing chosen for pushing certain policy issue; there are more and less suitable times for introduction and advocating for certain policy issue. For example, it is very unlikely that the pro-abortion policy will be adopted during a conservative party ruling; it is highly inefficient to push an environmental issue during a nation-wide security crisis at the border, etc. Thus, it is up to the advocates of the policy issue/alternative to assess and wait for an appropriate time to seed it and to expect fertile soil for their position to be grown. These so-called policy windows are times when we can expect wide acceptance from both politics and general public, and those are judged and forecasted by experienced policy analysts.

Public interest alone does not guarantee that an issue will be placed on the policy agenda. To be placed on the agenda, policy makers must consider the issue within the purview of government action and deserving of public attention. Many different approaches are used to place an issue at the forefront of the policy agenda.

Enormous influence in the process of agenda setting can be expected from the powerful business sector, depending on the relevance of the issue to their operation(s). However, one should not underestimate the power of the opinion leaders in the society; those are sometimes influential researchers and professionals, think-tank organizations, international community, and of course - the media. As a major source of political information, the media help shape the public's perception of the reality. These perceptions constitute a basis for the public's political activity.

It is very important to emphasise that political parties serve as linkages or intermediaries between the citizens and their government. As Edmund Burke said in 1770 (4), a party is a body of men united, for promoting by their endeavours the national interest, upon some particular principle in which they are all agreed. Regarding his statement, officially and unofficially political parties have a major role in the agenda setting process. Party leaders have major role in determining the agenda of the party in advance of an election and than balancing the conflict priorities of various interest groups between elections (5).

Issue identification/specification

Once the issue is set sufficiently high on the political agenda, policy makers must develop a broad policy agenda into specific policy option. It is the process of policy formulation. Policy formulation involves developing alternative proposals and then collecting, analysing and communicating the information necessary to assess the alternatives and begin to persuade people to support one proposal or another. Policy formulation involves compromising and bargaining in order to satisfy various interests and build a coalition of support. The decision makers are themselves becoming the moving force for solving the policy problem; they seek analyses, opinions and advice from their own or external sources that they find relevant and reliable. It is not unusual for the policy and decision makers to look for several positions before making a decision. Even

though, in the newer democracies this process is often ended by selection of the issue among the peers of the ruling government.

This is also a stage at which researchers and professionals should exhibit their views and findings, as the issue identification and its formulation can give way to proper or improper understanding or misleading outcome for the policy.

However, in recent years, there has been an extensive debate over the successfulness of the utilization of research to inform healthcare policy and decision makers (6,7); in the process of summarizing the clinical research findings the context-dependent nature should be taken into consideration (6), in order to give answer to policy makers' questions which are observant of a far broader spectrum of issues related not only to the health outcomes of the population, but also to the implications on the healthcare systems as a whole (7). Thus, in this step of the policy cycle, it is important to also engage synthesis techniques for translating research findings into policy language, on which ample literature is available (8,9).

In policy formulation, information is assembled, arguments developed, and alternatives shaped towards winning the approval of policy makers.

Analysis and specification of policy alternatives

Issue identification or problem formulation/identification requires tough decision by the decision makers; the policy analysis and specification of policy alternatives puts this burden on the shoulders of policy analysts and researchers. Any given issue can be solved in an infinite number of ways, which are dependent on different social, economic, but also political factors. This part of the policy process is very much relying on understanding of the national context and specificities, legal framework and economic potentials of the country, as well as on the degree of political will, mentality of the people and readiness of the social and physical infrastructure.

For example, there may be a significant political will to introduce a smoking ban in the country, but other factors may impede its implementation, such as the willingness of people to understand and accept, potentials of the commercial sector to adapt to the needed standards, and sufficiency of the inspection services to implement the measures so that the policy will become fully effective. Since, if any of the given factors and pre-conditions are not met, the created leak of policy will lead to further anarchical behaviour, lined with diminishing of trust in the government institutions and disbelief in their capacity to implement any policy in the future.

Another important factor when choosing the most optimal policy alternatives to be presented to the decision makers is the forecasted or calculated (in case of sufficient data) fiscal implication of the alternative. It is highly unlikely that the decision makers will choose even a more effective policy solution that places big budgetary burden over another, maybe not as effective but which requires minimal or no budget spending for implementation.

Choosing the most suitable/optimal policy alternative

Any decision maker would not like to be placed in front of one policy solution that has to be taken for granted, based on the judgement of the policy analyst(s). Knowing this, experienced policy researchers will often present at least 2 - most often 3 - policy options on the table; of them, almost without exception the "zero" alternative or the "status quo" policy option is one, as it shows what would happen if the situation of the selected policy remains unaltered, while other circumstances inevitably change with time. An illustrative example would be the analysis of the introduction of electronic health cards, in which the zero option of continuing the practice of paper health records is matched against the developing IT society, in terms of funds consumed by paper use, possibilities for abuse of data, time consumption for communicating health data among institutions, storage space, etc.

In this part of the work, as can be seen from the example, the analysts offer social, economic and political analysis (and forecast!) to the decision makers for each offered policy alternative, while at the end proposing the most preferable one against all mentioned criteria.

In the real world, however, sometimes it happens that the decision makers already have their own preferred solution, even before the analysis is done or simply ignore or abuse the research evidence and results. This kind of "pre-commissioned" work is referred to as garbage bin policy approach (1), in which the solution is known before the problem is identified, or simply - the solution is attached to a problem, for reasons such as political image building, pushing certain group's vested interests instead of public interests, etc. Once the policy has been formulated, statements of government policies and programmes are promulgated.

Policy implementation

After another round of difficult decision-making, finally the policy comes to the stage of implementation. Here, the decision makers should be aware (and maybe made aware by the policy analysts)

of the necessary infrastructure for proper implementation, or the actions that should be taken to strengthen or enlarge it. Those actions become priority and take immediate execution. This is the test for both the political willingness and the potentials for success of the selected policy alternative.

Implementation involves three activities directed towards putting a policy into effect. The three activities required for implementation are: (i) interpretation, (ii) organization and (iii) application.

Interpretation means the translation of the programmatic language into acceptable and feasible administrative directives. These can be laws, regulations, decisions and resource allocation.

Organization requires the establishment of administrative units and methods necessary to put a programme into effect. Resources like money, building, staff, equipment are important for implementation of the formulated policy issues.

Application requires the services to be routinely administered.

The process of interpreting and organization to implement policy goals it is often termed strategic planning, that must be followed by operational planning and management as part of the application phase of the implementation.

Yet, putting certain policy in the daylight should go hand in hand with its monitoring and evaluation - for the simple reason of knowing its effects, but also gaps and challenges, as well as possibilities for improvement, once they are identified. The policy analyst, again, plays crucial role in walking hand-in-hand with the decision makers, using its forecasting and policy adaptation skills.

Monitoring and evaluation

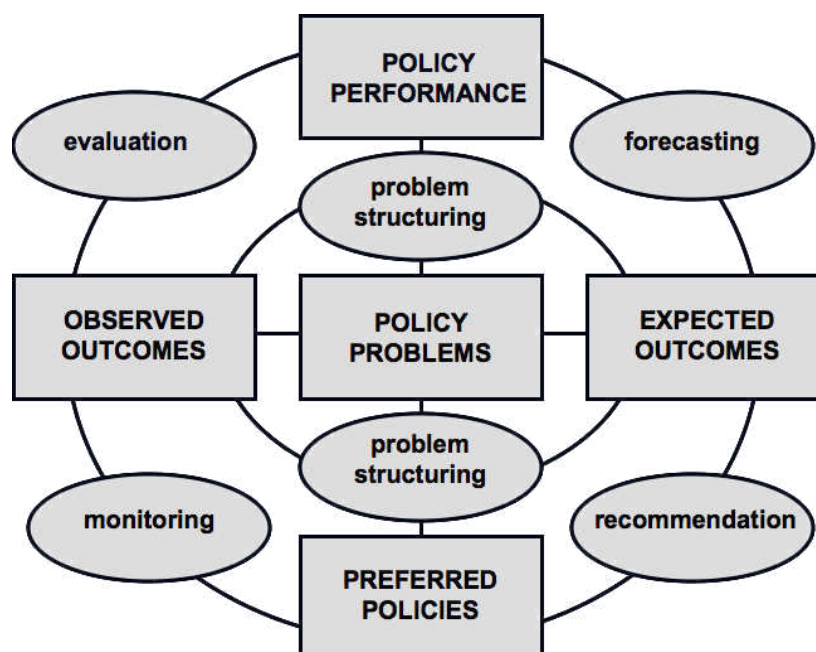
Authorities should consider monitoring and evaluation as an integral part of the policy making, both in terms of resource availability as well as its effectiveness. This is often not the case in the newer democracies, where even good policies sometimes have poor implementation, as a result of a lack of proper alert or corrective mechanisms aimed at identifying the faults in the system.

Essential part of the monitoring is setting realistic performance indicators, measuring and evaluating each one of them against the expected outcomes of the policy, set during the issue identification and policy analysis stages. The results obtained should be shaped to serve as a feed into the next step, which could be fairly easy to perform, once the necessary decision-making data is in place.

Deciding the policy fate: maintenance, succession or termination?

Under the condition that the monitoring and evaluation stages have been properly performed (and this is not to be considered a one-time action!), the decision on whether the chosen policy alternative is to be continued, modified or completely ceased is relatively easy to adopt - if, of course, other political interests are not interfering with the decision. As the later is often the case, the role of monitoring and evaluation is thus more important, as it can strengthen the position against the decision made solely on the bases of unilateral political (or even partisan!) interests.

Figure 2. The Process of policy analysis (adapted from Dunn W.N, 2004)



Health policy development

Health policy agenda

In the health sector, the ultimate goal of the policy and decision makers is expected to be the wellbeing of the population, universal access to health services and/or providing better healthcare at optimal budget spending. As this is a very broad definition of a mission of the health authorities, it includes infinite number of issues that need to be solved, addressed or improved. So, it is of quite an importance the order by which they are addressed, or the timing at which they are put onto the table. For example, the issue of propagating breastfeeding is not an unimportant one, but it has lower priority over providing health access to the whole population (including the rural areas); not that the healthy diet and nutrition programs are less important, but the vaccination preventive program will certainly be given a higher priority on the government policy agenda; etc. Yet, one should be aware that sometimes some apparently “less important” issues are put on the agenda for different reasons (among which e.g. the political rating improvement), and those policy windows should be used to push forward particular policy alternative(s), ideally optimal for the general public or the vast majority of population.

Major role in setting the health policy agenda is played by the international community, especially in the developing countries. This very noble intention, can sometimes be motivated by the objectives of solving the macroeconomic situation in the country, rather than by the goals of establishing a good system that would provide high quality healthcare; other times, it is related to a trend in the world, that would not necessarily be of high value if applied to an unprepared national context. Thus, it is very important to judge the source of the policy agenda setting, in order to be able to react upon it according to the national priorities and needs in this very sensitive social service sector.

Health policy analysis

In a not much different way from other areas in the society, the health policy analysis is using the methods and procedures as explained above for informing health policy-makers and decision-makers. The political consensus over the importance of a certain issue is much easier to obtain in the health sector rather than, for example in the sphere of national security; thus, here a much bigger challenge is the issue selection, together with the choice of the preferred policy alternative. Health sector being one of those in which there is always relatively higher demand than supply, or much bigger need than resources available, the choice is often difficult to make from the aspect of financial or human resources and infrastructure availability. For example, there is no government that will not agree with the importance of providing equal access to high quality healthcare for all citizens, but the financial limitations will certainly play crucial role in navigating the process.

To this end, the key criteria for the health policy analysis are bound to financial constraints of the country's economy, and overcoming these constraints is elaborated below and in the case study, given at the end of this module.

Key criteria in setting priorities, health policy formulation and alternatives

As said before, one of the key criteria in health policy making is related to the financial constraints or possibilities of the country's economy. Taking into consideration the fact that the health sector is still predominantly perceived as “resource spending” (spending on healthcare) rather than “resource generating” (building a healthy workforce), this criterion will have the last word in deciding the most optimal health policy alternative (Box 1).

Other not less important criteria that most of the policy makers would like to see in the policy analysis is the outreach and the scope of population that would benefit from the given policy. Each policy maker that considers fulfilment of the mission of his/her organization would ask about the magnitude and effects of the policy if applied; s/he will certainly understand a comparison between a policy on drug abuse prevention and vaccination, for example. Choosing one over the other will have to give good arguments and justification for making such choice, in terms of holding themselves accountable in front of the citizens that voted for them.

Last but not least important is the timeframe of achievement of results or visibility of the policy implementation. Short-term objectives are always preferred, but a good argumentation of long-term and strategic goals can lead to choice of a far better solution over just another “headline for this month's journal”.

Box 1. Criteria for setting priorities in health policy and planning

Medical criteria:

- ♦ Frequency of the disease (prevalence and incidence)
- ♦ Disease duration
- ♦ Importance of the disease (consequences, complications)
- ♦ Disease lethality and fatality (rabies, AIDS, tetanus)
- ♦ Needs for problem solving according to professionals' evaluation

Economic criteria:

- ♦ Financial expenses regarding the disease (service delivery, medications, rehabilitation etc.);
- ♦ Permanent incapability for work (disability);
- ♦ Temporary incapability for work (absenteeism);
- ♦ Economic rationality and sustainability of the investment (e.g. construction of water supply and drainage systems, immunization);
- ♦ Financial constraints or possibilities of the country's economy

Social criteria:

- ♦ Particular socio-medical importance of certain population groups (children, youth, women, workers, elderly people etc.);
- ♦ Possibilities for practical solution of the problem;
- ♦ Possibility for encompassing certain population groups (homogeneity of the group, e.g. school children, workers);
- ♦ How much the solution of one problem is independent from solving another problems;
- ♦ Timeframe of achievement of results and visibility of the policy implementation

Human criteria:

- ♦ Number of people to benefit from the solution of a problem or given health policy;
 - ♦ Population's requests for finding solution of certain problem;
 - ♦ The effects to be achieved when the problem is resolved (more effects together).
-

Major players in health policy formulation

Regardless of the efforts of governments in developing countries, it is an often seen scenario that the major players in setting the policy agenda and health policy formulation are the governments of developed countries or the international community. This is sometimes deliberate, but many times also unintended outcome of bilateral or multilateral agreements and relationships. Offering international or own solutions for local problems heavily bound to national contexts is a common practice among different health sector consultants, projects or programs. Even though made with good intentions, such applications of unadjusted policy solutions can lead to major healthcare system mishaps - and, as health sector is vitally dealing with human lives, such mishaps by faulty health policy decisions can have unforeseeable consequences to the nation's economy as well.

Thus, it is very important that the health policy is created and structured by researchers and analysts that have profound knowledge of the national context and specificities; imported solutions may be a good base for change, but only if matched against the local background, needs and possibilities.

Advocating health policy

In every policy issue or problem there are a number of stakeholders that have their positions, interests and knowledge or information, and therefore an environment of different pressures is created. In the case of health policy, not only the pressure from the professional community or government can be very high, but also the patients or users of the health system can have strong positions about a certain case, since the health policy is directly influencing their life, lifestyle or living standard.

In the process of advocating for certain health policy, in most of the cases, the first issue that should be addressed is the common misunderstanding of the standing of the patients and medical professionals within the system; as often seen, the medical profession finds itself opposed to the patients, and in fact this is major misinterpretation of the roles of both; the doctors and the patients are on the same side of the coin, as they both work and aim at - better health and prolongation of human life - each in their own role and own way. Once having planted for this, through the selected health issue that is advocated for, the health policy process will much easier move through the labyrinths of its own development.

There are different ways of doing advocacy; it can be formal and/or informal, with or without written documents. It can take several months to several years, depending on the readiness of the stakeholders to take into account the opinion of others and listen to their arguments. But, whichever pathway is selected, the key to successful advocacy are the readiness to give up the ownership of the idea (something not very typical in the scientific and research community) preparedness to accept others advocating for the idea (which helps the

process, as it shows acceptance and raised awareness on the issue) and openness for dialogue objectively accepting other positions and alternatives.

Case study: Patients rights as policy issue – the case of Macedonia

Introduction

In most countries of South Eastern Europe prior to the transition, there was no single legislation regulating the rights of patients, but those rights were stipulated in several healthcare and healthcare insurance laws and bylaw documents. One of the activities of some of the new EU member-states during the process of preparation for accession in the EU was the adjustment of the health care legislation towards the European legislation and standards. Such was the case with Hungary that in 1997 enacted the New Health Care Act, in which most of the patients' rights are regulated, such as: the right to healthcare, right to be treated with dignity, right to information, right to refuse treatment, right to information privacy, right to leave the health care institution, right to complaint, right to die with dignity, right to participation in decision-making in health care, etc. (10).

Further, the dramatic changes that have taken place in the past two decades in Central and Eastern Europe, have caused the large inequalities in health to grow even bigger, not only between but also within the countries in the region. This statement can be well backed up with the national health statistics, which "give a stark illustration of the effect of economic crisis and widespread pollution of the environment on the health of whole populations are revealing a growing health divide" (11).

The process was driven by the common health and social policy in the EU, which despite national health systems' differences embodies the same rights of patients, consumers, family members, weak populations and ordinary people at risk. As described in the Preamble of the European Charter of Patients' Rights, "financial constraints, however justified, cannot legitimize denying or compromising patients' rights. The Nice Charter of Fundamental Rights will soon be part of the new European constitution. It is the basis of the declaration of the fourteen concrete patients' rights currently at risk: the right to preventive measures, access, information, consent, free choice, privacy and confidentiality, respect of patients' time, observance of quality standards, safety, innovation, avoidance of unnecessary suffering and pain and personalized treatment, and the right to complain and to receive compensation" (12).

As this process has not been completely undergone by the candidate countries for EU membership, among which Macedonia, we have decided to start the process of preparation of the terrain for endorsement of a single legislative document that would consolidate all existing and newly introduced rights.

The process

Prior to the transition, in Macedonia there was no single legislation regulating the rights of patients, but those rights were stipulated in several healthcare and health insurance laws and bylaw documents.

The previous healthcare legislation (Law on Healthcare of 1970, 1983 and 1991) has regulated the patients' rights and duties to certain extent. The Law on Healthcare (1991) was more extensive in regulating these rights. However not all of the rights described in the European Charter of Patient's rights have been regulated.

The Health Care Act of 2013, regulates the functioning of the healthcare system in the country, and consists of the following chapters: (a) the health insurance; (b) rights and responsibilities of the healthcare users; (c) the rights and responsibilities of the healthcare providers; (d) organizational structure of the healthcare system, and (e) financing of the healthcare (13). According to the existing legislation, 8 of the 14 rights were regulated, in one of the mentioned documents.

However, the analysis of the existing legislation regarding the exercising of rights and duties of the patients and of the implementation practices in the country, the following conditions have been identified (10):

- Lack of appropriate and systematized legislation directly regulating patients' rights;
- Insufficient level of implementation of the existing legislation;
- Lack of knowledge and ignorance of patients regarding their rights;
- Non-transparent attitude of the healthcare authorities regarding information of the citizens for their rights (but also duties) as patients;
- Lack of technical support in the healthcare facilities for complete implementation of certain rights of patients, such as the right to privacy and confidentiality of personal and medical data.

The team decided that a health policy in Macedonia should be developed following the identified conditions.

Methodology

The first step taken after the situation analysis in Macedonia in 2005 was desktop research of legislation and practices in the neighbouring and EU countries. Similar laws adopted in these countries have been taken as samples to start the drafting process of the law.

The questionnaire was prepared based on several sample questionnaires used for surveying of patients' satisfaction in different healthcare facilities. Bearing in mind the local mentality, practices and the level of trust in the institutions, a number of general questions have been put in the first part of the questionnaire, in order to get the patients' confidence and sense of real involvement in the survey. In order to collect more data for construction of case studies database of this project, the participants have been interviewed by a group of trained interviewers (10).

The sampling was done by using combined cluster-random technique, where random sample of patients (visiting on the day of the survey) was selected from a cluster of healthcare facilities, pre-selected based on geographic location and target group.

Results

Despite the different but very high levels of regulation of patients' rights in the legislation, the implementation levels have been poor and expectedly similar. The interviews reported a situation with the physician-patient relationship even expressed as "the father-physician taking care of the child-patient".

The reasons can be searched in the previous system, but can also be found in the ignorance of the patients regarding their rights. The survey (conducted in Macedonia on 282 individuals) shows that over 80% of the interviewed are not aware of the benefits from or the mere existence of most of the patients' rights. The most commonly heard of (but not often exercised) is the right to compensation for treatment received abroad; next to it is the right to compensation/reimbursement for the medications on the positive list that have been purchased at out-of-pocket expense. The main reason why 85.8% of interviewees were not exercising these rights is the complicated and lengthy procedures administered by the Health Insurance Fund, as well as the unclear method of reimbursement.

Apart from these two, the other rights are mostly looked at as obligations. For example, the right to free choice of physician in the primary healthcare (the so-called "maticen lekar", with similar functions as the family physician) is considered an obligation imposed by the law; closely resembling to this is the attitude for signing the informed consent, which for over half of the interviewed patients is just another "administrative procedure".

The survey has confirmed the general notion and the acceptance by the patients of the paternalistic approach in the physician-patient relationship. Among the interviewees, 90.8% are satisfied (56% very and 34.8% averagely) from the services received; over 60% have never intentionally been to another physician or asked for a second opinion. Furthermore, 86.5% are convinced that the physician is prescribing them the best possible medications/therapy that they need, and 93.6% comply, as much as they can afford, with the recommendations and advices given by the doctor.

Even though the right to complain is guaranteed by the legislation, an astonishing 85% have never had any questions or complaints regarding the health services received or healthcare facility procedures undergone. The background to this is more likely the decreased confidence in the institutions, or ignorance regarding the mechanisms and institutions where legal advice or cure can be sought.

The reasons for such high level of satisfaction may be partly related to the structure of the interviewed group; namely, 60.9% have no official job or no job at all, of which 92.2% are covered with basic health insurance through the unemployed benefits system - the basic health insurance which is in no way different than what a regularly employed person receives by regular payment of taxes and payroll contributions to the state budget and to the single Health Insurance Fund (Note: the Macedonian system of health insurance still being in a very initial stage of healthcare reforms, does not have different health insurance policies and health insurance institutions which employees or employers can choose from for better health care coverage).

The comparative analysis of the legislation and regulative instruments in the SEE countries and the survey of the implementation of legislation and policies in Macedonia, two approaches for improvement of protection and promotion of the patients' rights impose, both involving changes in the legal environment (either improved implementation of existing or introduction of new instruments and mechanisms), combined with other advocacy and public awareness raising activities.

Alternatives

Following the health policy development process, the results of the health policy analysis were then transformed into policy alternatives that were offered to the policy maker - the Ministry of Health.

Alternative 1: Improved implementation of the current legislation

This alternative includes changes of existing implementation mechanisms, but also awareness raising activities. One of the main components for protection of patients' rights is the understanding of their violation by the patient, the physician and the institution.

Moreover, as the patients are usually treated by a team of physicians, nurses, and technicians in a complex, unfamiliar, and sometimes frightening setting, they often feel treated as non-person and develop feelings of anonymity and isolation. Thus, the institution-patient relationship is almost equally important as the doctor-patient relationship.

Significant aspect in the improvement of the implementation of the legislation is the enhanced knowledge and perception of the general public but of the health professionals as well, in which the civil sector is expected to play major role - through awareness raising campaigns, offering legal advices and assistance in understanding and utilizing the mechanisms of the system.

The main portion of the costs for implementing this alternative will be related to the public awareness raising campaigns. Yet, a significant portion shall be considered for providing technical support (computers, database servers, software development) for enabling the implementation of certain rights, such as the right to confidentiality, but also the right to information about the medical condition of the patient.

Alternative 2: Improvement of the legislation

A far more complex alternative is the one requiring changes in the current legislation. This means restructuring of the existing healthcare acts for better presentation of the patients' rights in one place (commonly in one chapter of a single law), but possibly introduction of new mechanisms for implementation and monitoring of the level of exercising of patients' rights.

One such idea, vastly debated in the health and legal professional communities is the introduction of a separate system of Healthcare Ombudsman, under which patients can sought legal advice and assistance through recommendations for the institutions of the judiciary system. In some countries, like Hungary, Serbia and Montenegro, each health care setting has an appointed "advocates" responsible for advising upon patients' claims or complaints. This approach provides first-hand legal aid on the existing mechanisms, but also serves as a filter for the unjustified claims, contributing for more efficient implementation of the legislation, especially within the justice system.

The financial implications of this alternative arise from setting-up and maintaining the new institutional settings and mechanisms; however, in this alternative as well, some public health education campaigns are required, mostly in the direction of increasing the knowledge and awareness of the general public both of the existing rights but of the novelty in the system as well. With the current level of reforms in the healthcare system, but in the judiciary as well, it is hard to expect that additional funds can be provided for the implementation of this alternative. Rather, the existing Ombudsman office and its infrastructure can be used for engagement of a specialized health law professional. Also, another low-cost intervention is the public reporting of the Ombudsman about the number and types of claims, which will encourage patients in a more aware way to accept and exercise their rights, but duties as patients as well.

The process - continued

Based on the results of this initiative, the alternatives offered and the EU directives, in November 2006 the Ministry of Health established a Task Force for preparation of Law on protection of patients' rights, inviting key experts, government and professional community representatives, NGOs and patients' organizations, as well as media representatives to participate in this process.

After almost one year of polishing the differences in the stakeholders' opinions and positions, in November 2007 the Government adopted the Law and passed it on to the Parliament for final endorsement. In the Parliament, more than 100 amendments were made by the MPs; the relevant ones were adopted, and those in collision with other legislation were rejected with sufficient and justified explanation. In February 2008, the Draft-Law entered the Parliament and the procedure for voting was completed in July 2008 when the Law came to power (14). Some changes and amendments were adopted in 2009 and 2011 (15).

Advocating Health Policy

The process of advocacy for this health policy was not very different from the one explained in the theoretical part of this module. The issue was perceived as such, that it required strong commitment from the government, but also large support from the professional community; the level of understanding patients' rights and duties to a point of being able to convert them as the rights and duties of the health professionals was not present, and this needed to be advocated for. Instruments such as policy briefs, informal communication with Doctors' Chamber, Medical Association and other professional organizations were made, together with formal presentations of the concept at scientific meetings.

However, the end result of this health policy development is not the endorsement of the law itself; the policy cycle continues with monitoring of its implementation, evaluation of its effectiveness against fiscal

implications it may have. In other words, this and any other health policy is a continuing process with constant need of evaluation and adjustment according to the changing needs and demands of the society and all its segments.

Exercises

Task 1: Read the recommended readings before the class. In-class exercise will be to discuss the case study and to determine which part represents which element of the policy cycle.

Task 2: Based on the case study above, select a similar issue on which you might like to make a case for development of health policy. Write a policy paper that would include all elements of the policy cycle. The teacher will use this paper for student assessment.

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title	Politics, policies and health
Module: 1.42	ECTS (suggested): 0.25
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Keywords	Health determinants, health inequalities, policy, politics.
Learning objectives	After completing this module students and public health professionals should be able: <ul style="list-style-type: none"> • To understand ‘health’ and its different meanings. • To increase their knowledge of health policy; • To understand and describe the relationships between health and politics.
Abstract	This paper describes the relationships between health and politics, how politics act on health, and the political implications of public health. It is particularly relevant to those attracted by new social movements promoting health and based on shared values of equity, sustainability and the common good. Given the diverse backgrounds of current and potential new practitioners of public health, it is useful to define key terms so as to develop shared knowledge and understanding. We review key terms and highlight problems in their meaning and application. We explain our rationale as to why health is political and explore possible reasons why it has been depoliticised and why it should be repoliticised now. We suggest that the politics of health in society should be defined as one of the main topics of government and that health should be seen as a key product of social and economic development.
Teaching methods	Teaching methods include lectures, individual self-directed learning, interactive methods as in small group discussions, seminars etc.
Specific recommendations for teachers	Three lectures (60 minutes), 3 seminars or small group discussions, and 15 hours individual work.
Assessment of students	Case problem presentations.

POLITICS, POLICIES AND HEALTH

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“...and at least I know this, that if a man is overworked in any degree he cannot enjoy the sort of health I am speaking of; nor can he if he is continually chained to one dull round of mechanical work, with no hope at the other end of it; nor if he lives in continual sordid anxiety for his livelihood, nor if he is ill housed, nor if he is deprived of all enjoyment of the natural beauty of the world, nor if he has no amusement to quicken the flow of his spirits from time to time: all these things, which touch more or less directly on his bodily condition, are born of the claim I make to live in good health.” (1)

“As anyone who has lived among villagers or slum-dwellers knows only too well, the health of the people is influenced far more by politics and power groups and by the distribution of land and wealth than it is by the prevention and treatment of disease” (2)

“It is ultimately profit, rather than a concern to improve overall living standards, which is the most important determinant of economic and social decision-making in capitalist society, this will be reflected in various ways in patterns of health and illness” (3)

Introduction

It is profoundly paradoxical that, in a period when the importance of politics and public policy as determinants of health is routinely acknowledged at the highest political levels, there remains a continuing absence of serious debate about the ways in which political power, relations and ideology influence people's health (4). While to some extent the unhealthy policies of the Thatcher government acted as a stimulus to such debate in the UK, as early as the mid-1980s the introduction of the World Health Organisation's Health For All strategy (and, more recently, the election of the New Labour government in 1997) created the illusion that these issues had finally - and adequately - been acknowledged. Such views can and very clearly should be challenged.

There is an evident need for discussion and development of the theoretical issues relating to the impact of power and ideology on the public health, and to advocacy and campaigning around these issues. Freire suggests that 'Action to translate the vision into reality is set in motion by relating the pattern of society it envisages to the historical circumstances of the context, in which objective and subjective conditions stand in a dialectical and not mechanical relationship to one another...the vision should be capable of being translated into reality and the steps to bring this about should be possible in the concrete conditions in which they find themselves' (5).

Health

Definitions of health have changed over time: its etymological roots lie in the Old English for 'whole'. The Old English implies that a person who was healthy was 'whole'. The World Health Organisation attempts to encompass this in its 1946 definition of health as 'a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity'. This definition is itself a political statement, as Navarro (6) notes in his discussion of the origins of Brotherton, Evans and Stampar's influential WHO formulation, which lie in the anti-fascist struggles of World War 2. In contemporary Western societies, several competing theories of health co-exist (7):

- Health as an ideal state;
- Health as a personal strength or ability;
- Health as physical and mental fitness to do socialised tasks;
- Health as a commodity;
- Health as the foundation for achievement of potentials.

Health has also been defined as the ability to adapt positively to challenges (8); as a narrative and as a metaphor (9-12) that is expressed in the everyday language we use and the mental maps we construct to guide us on our journey through life (13,14), and as spiritual strength (15). In Western societies the notion of spirituality has been the province of organised religion and viewed separately from physical and psychological well-being; however, in this context it is used to refer to a sense of the sacred and a search for wholeness.

The understanding of health and its determinants also varies by culture. For example, in several central African languages the word for health is the same as the word for life (in the sense of 'all that is necessary to live a fulfilling life') (16). Whilst similar in meaning to the old English 'hael' the underlying concept of contemporary Western notions of health is quite different to non-Western traditional thought.

Health is therefore what Gallie (17) calls a contested concept, as 'there is no one clearly definable general use of any (concept)... which can be set up as the correct standard use'. To understand 'health', we need to explore the political, social, cultural, temporal and spatial context within which the meaning of health is created and the processes that promote or stifle particular courses of action.

Given what we already know about the diversity of health and its determinants, it would be easy to accept as adequate, contemporary discourse on action for health gain (for example, what actions are considered effective measures to promote and protect health; the legitimacy of different 'types' of evidence, and levels of 'measurability') that follow from debates on soft science vs hard science, objectivity vs subjectivity, and reductionism vs holism. However, such simplistic polarisations render invisible the underlying values and processes that propagate one idea over another: hence the need to explore the relevance of politics, ideology, power and hegemony in relation to health.

Politics

The definition of politics is in itself a political act (18). The nature and scope of the political is, like health, a contested concept, as the naming of the key elements itself constitutes a political choice. This is evident in the divergent conceptualisations of the political that have been utilised both over time and by different political ideologies. Following Heywood (19), a broad four-fold classification is possible:

- Politics as government - Politics is primarily associated with the art of government and the activities of the state.
- Politics as public life - Politics is primarily concerned with the conduct and management of community affairs.
- Politics as conflict resolution - Politics is concerned with the expression and resolution of conflicts through compromise, conciliation, negotiation and other strategies.
- Politics as power - Politics is the process through which the production, distribution and use of scarce resources is determined in all areas of social existence.

This classification shows a large variation in the conceptualisation of politics; for example, the first concept is very narrow and the last is very broad. The first concept, which is the most prevalent definition within mainstream political discourse in the UK, places very restrictive boundaries around what politics is - the activities of governments, elites and state agencies - and therefore also restricts who is political and who can engage in politics (ie, the members of governments, state agencies and other elite organisations). It is a 'top-down' approach that essentially separates politics from the community. This should be contrasted with the last definition, which offers a much more encompassing view of politics: politics is everything. Politics is a term that can be used to describe any 'power-structured relationship or arrangement whereby one group of persons is controlled by another' (20). This is a 'bottom-up' approach, as any and every issue is political and likewise anyone and everyone can engage in a political act.

These competing definitions have also permeated the contemporary academic discipline of political science where the different schools of thought similarly operate divergent conceptualisations:

- Behaviouralism - Politics is the processes associated with mainstream politics and government
- Rational choice theory - Politics is the conditions for collective action in the mainstream political world
- Institutionalism - Politics is the institutional arrangements within the mainstream political world
- Feminism - Politics is a process and the personal can be political
- Anti-foundationalism - Politics is a narrative contest that can take place in a variety of settings
- Marxism - Politics is the struggle between social groups: in particular, social classes (21)

The definition of politics utilised by the various different schools of political science underpins their entire approach to the study of political life. The definition of politics that is employed by an individual, a group, an organisation or a society is of vital importance as it sets the parameters that determine which issues are considered as political. Political issues enter into the political discourse and are the subject of public discussion and debate; issues that are regarded as non-political or apolitical are marginalised or ignored.

Ideology

“...sooner or later, it is ideas, not vested interests, which are dangerous for good or evil» (Keynes, cited in Marquand, 1996).” (22)

Ideology, like health, politics or power, is an amorphous and difficult concept that encompasses many different meanings such as false ideas (Marx and Engels), class struggle (Lenin), or societal ‘cement’ (Gramsci, Althusser). However, perhaps a more generic and workable - if a little simple - definition for this paper would be that ideology is a system of inter-related ideas and concepts that reflect and promote the political, economic and cultural values and interests of a particular societal group. Ideologies, like societal groups, are therefore often conflicting and the dominance of one particular ideology within a society to a large extent reflects the power of the group it represents. So, for example, the dominance of liberal democratic ideology with its emphasis on the individual, the market and the neutral state, can be seen as a reflection of the power of organised capital within our society.

Understanding ideology and how it functions is crucial in understanding how it can be used to manipulate the interests of the many in favour of the power and privileges of the few (5).

Power

Power is a key political concept which underlies public decision-making and the allocation of goods and services. It is crucial to the understanding of relations within health and health services and to the content and form of healthy public policies.

In his influential book, Lukes (23) outlines three dimensions of power:

- The first dimension is the power of A to influence the behaviour of B. This exercise of power is observable and is tied to public conflicts over interests (such as access to resources-education, decent housing, health care etc). It is performed in the public arena as part of decision-making processes.
- The second dimension is the power of A to define the agenda, preventing B from voicing their interests in public (policy) decision-making processes. Potential issues and conflicts are kept off the agenda to the advantage of A and to the detriment of B. The use of this type of power can be obvious or concealed.
- The third dimension is the power of A to define the values and beliefs B ought to hold (for example what counts as fair, or who gets what). B's perceptions and preferences are moulded by A in such a way that B accepts that these are the norm. This dimension of power is played out, for example, in processes of socialisation, the control of information, and the control of the mass media. The latter dimension is akin to Gramsci's notion of ‘hegemony’ - discussed below.

Lukes' conceptual analysis allows for power in the form of 'want manipulation'. If someone's wants are being manipulated, then their actions may either be indicative of a genuine want in the real interests of that individual, or the result of some form of want manipulation. The recent expose of the ‘newly constructed’ female sexual dysfunction condition, whereby drug companies have developed a pharmacological ‘cure’ for a condition grounded in social (gendered) relations, appears to be a good example of hegemonic manipulation by biomedical elites (24).

It seems self-evident that the power to shape people's thoughts and desires is the most effective kind of power since it anticipates areas of potential conflict and even pre-empts an awareness of possible conflicts. Those that don't conform to the norm may be blatantly portrayed (and therefore perceived) as deviants and self-righteously excluded socially, legitimising reactionary notions of ‘the feckless habits of the poor’.

What is needed then is a framework or concept that would help us understand the processes by which power is exercised and that can be used to identify contradictions that are ‘sold as real, natural, logical, common sense’ (5). As Ledwith points out, without such a framework we remain ‘trapped within a dominant ideological discourse’. Hegemony is such a concept.

Hegemony

“...an order in which a certain way of life and thought is dominant, in which one concept of reality is diffused throughout society in all its institutional and private manifestations, informing with its spirit all taste, morality, customs, religious and political principle, and all social relations, particularly in their intellectual and moral connotations.” (25)

Hegemony is a difficult and complex concept made up of a number of different elements. Essentially, it can be seen as the overwhelming and insidious predominance within a society of a particular political,

economic, social and cultural world-view. Margaret Thatcher's famous comment on her neo-liberal philosophy - 'There is no alternative' - can be seen as an expression of hegemony.

Ledwith, working as a community development worker in the 1980s, views the profound changes she observed in the values within a working class community in the North of England, as a "hegemonic consequence" of New Right ideology (5). Their (the community's) new language echoed that of the State (eg 'welfare scroungers') and broke down working class notions of 'solidarity' and communitarianism. In reality the 'rolling back of the State' resulted in transfer of wealth from poor to rich and new patterns of poverty and ill health, with a shameful increase in the number of children in poverty - the most vulnerable.

In relation to health, the concept of hegemony can therefore act as a tool to ask the right questions and to challenge actions to promote health that smack of ideological dominance asserted as moral persuasion of how we ought to live.

Why is health political?

Like the man in the bar who begins every political statement with "I'm not political but ...", the inherently political nature of health has for too long been hidden from view. It is high time that the implicit, and sometimes explicit but unstated politics within and surrounding health were more widely acknowledged. Health, like almost all other aspects of human life, is political, in numerous ways. In this section we examine five aspects of the political nature of health:

- Unequal distribution: health is political because, like all other life chances under a capitalist economic system, some social groups gain more of it than others.
- Health determinants: health is political because its social determinants, such as housing and income, are amenable to political interventions and are thereby dependent on political action (or more usually, inaction).
- Organisation: health is political because, any purposeful activity to enhance health needs 'the organised efforts of society' (26) or the engagement of 'the social machinery' (27).
- Citizenship: health is political because, the right to 'a standard of living adequate for health and well-being' (28) is, or should be, an aspect of citizenship and of human rights.
- Globalisation: health is political because we now face a complexity of worldwide crises – social, economic, ecological and ethical – that impact upon us all and contribute to ill health and avoidable deaths.

Ultimately, health is political because power is exercised over it. The health of a population is not entirely under the control of an individual citizen, nor of a doctor (especially not of a doctor, except in some instances of individual disease), but is substantially under the control of the social relations of the capitalist system. Changing this system and these relations are only achievable through politics and political struggle.

Unequal distribution

The hopes, aspirations and expectations of the advances in scientific and medical knowledge in improving human health and wellbeing forecast at the beginning of the 20th century have for the majority failed to be realised (29,31,39). Evidence that 'the most powerful determinants of health in modern populations are to be found in social, economic, and cultural circumstances' (32) comes from a wide range of sources and is also, to some extent, acknowledged by Government (29,31,33). Yet massive inequalities in health continue.

How these inequalities in health are approached by society is highly political and ideological: are health inequalities to be accepted as 'natural' and inevitable results of individual differences both in respect of genetics and 'the silent hand of the economic market'; or are they abhorrences that need to be tackled by a modern state and a humane society? Underpinning these different approaches to health inequalities are not only divergent views of what is scientifically or economically possible, but also differing political and ideological opinions of what is desirable.

Health determinants

Whilst genetic predispositions to, and causes of ill health are becoming increasingly better understood, it is evident that environmental triggers are in most cases even more important, and that the major determinants of health and ill-health lie in the social and physical environments (31,34). In this way, factors such as housing, income, employment - indeed many of the issues that dominate political life - are important determinants of health and wellbeing. Similarly, many of the major determinants of health inequalities lie outside the health sector and therefore require non-health care policies to tackle them (29,31,35). Recent wider acknowledgements

on both sides of the Atlantic of the importance of the social determinants of health (36,37) are welcome - but they fail to seriously address political determinants of health and of health inequity.

Organisation

“The science and art of preventing disease and prolonging life, and promoting physical and mental health and efficiency, through organized community efforts. ...And the development of the social machinery which will ensure to every individual in the community a standard of living adequate for the maintenance of health” (27).

“The science and art of preventing disease, prolonging life and promoting health through the organised efforts of society” (26).

The above definitions of public health highlight the social and political aspects of improving health. Health is political because any purposeful activity to enhance health needs ‘the organised efforts of society’ (26) or the engagement of ‘the social machinery’ (27): both of these require political involvement and political actions. Health can only be improved through the organised activities of communities and societies. The organisation of society, in most countries, is the role of the state and its agencies. The state, under any of the four definitions of politics outlined earlier, is a - and more usually, the - subject of politics. Furthermore, it is not only who or what has the power to organise society, but also how that organisational power is processed and operated that makes it political.

While this constitutes a clear argument for the political nature of public health-relevant services, an external observer could be forgiven for interpreting the roles of most public health practitioners as purely bureaucratic. Certainly this was the case in the UK between 1974 and 1988, when the National Health Service (NHS) ‘community physicians’ who replaced the pre-1974 local government-based Medical Officers of Health fulfilled an explicitly techno-bureaucratic role. But even after the 1988 Acheson report (26) and the resulting ‘reinvention of public health’ (38), its political nature was – and arguably remains - barely apparent. On the whole, as is the case with other NHS ‘managers’, public health practitioners carry out the current government’s bidding – however unhealthy or reactionary they find it to be.

Citizenship

“Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control” (28).

Citizenship is ‘a status bestowed on those who are full members of a community. All who possess the status are equal with respect to the rights and duties with which the status is endowed’ (39). Following Marshall, it is possible to identify three types of citizenship rights: civil, political and social. Health, or the right to a standard of living adequate for health and well-being (28,40), is an important aspect of social citizenship. Citizenship is interwoven with politics and political struggle because, whilst the emergence of civil, political and social rights accompanied the development of capitalism, their incorporation into citizenship was only gained as a result of political and social struggle.

Globalisation

The flow of information, goods, capital and people across political and economic boundaries has of course been going on for centuries. What is of growing concern is the scale and pace of change. Lee (41) defines globalisation as: ‘The process of closer interaction of human activity across a range of spheres, including the economic, social, political and cultural, experienced along three dimensions: spatial, temporal and cognitive’. What this means is that ‘the death of distance’ has made the world feel smaller, our perceptions of time have changed (due to an electronic revolution), and there is global spread and interaction of ideas, cultures and values’ (42). On the one hand this has clear advantages such as reuniting diasporic communities and the potential to develop more tolerance of difference; on the other, it represents the imposition of a neo-liberal ideology and economics that systematically neglects the basic needs of the disadvantaged in its pursuit of the accumulation of money, property and natural resources. This is resulting in a widening gap in wealth, health and quality of life, both between countries and within them (5,43,44).

Why has health been apolitical?

It is perhaps puzzling that despite its evident political nature, the politics of health has been marginalised: it has not been widely considered or discussed as a political entity within academic debates or,

more importantly, broader societal ones. Unfortunately there is no simple solution, as the treatment of health as apolitical is almost certainly the result of a complex interaction of a number of different factors. We suggest some reasons for this below, though we would not claim that this speculative list is exhaustive.

Health as health care

Health is often reduced and misrepresented as health care (or in the UK, as the National Health Service). Consequently, the politics of health becomes significantly misconstrued as the politics of health care (45), and more specifically as the politics of the NHS. For example, the majority of popular political discussions about UK health concerns issues such as the 'State or market?' debate about NHS funding and organisation, or NHS service delivery and efficiency, or the demographic pressures on the future provision of health care facilities. The same applies in most other – especially 'developed' – countries.

The limited, one-dimensional nature of this political discourse surrounding health can be traced back to two ideological issues: the definition of health and the definition of politics. The definition of health that has conventionally been operationalised under Western capitalism has two interrelated aspects to it: health is both considered as the absence of disease (biomedical definition) and as a commodity to be marketed (economic definition). These both focus on individuals, as opposed to society, as the basis of health: health is seen as a product of individual factors such as genetic heritage or lifestyle choices, and as a commodity which individuals can access either via the market or, in the UK's case, the health system.

“The political basis of our health services is the view of health as a commodity, a function of individuals rather than of societies; something to be valued, exchanged (bought and sold in many societies), and in every way determined by the actions of individuals.” (46)

Health in this sense is an individualised commodity that is produced and delivered by the market or the health service. Inequalities in the distribution of health are therefore either a result of the failings of individuals through, for example, their lifestyle choices; or of the way in which healthcare products are produced, distributed and delivered. In order to tackle these inequalities, political attention is placed upon the variable that is most amenable to manipulation - the healthcare system.

It is important to note that this limiting, one-dimensional view of health is common across the ideological spectrum. This has resulted in the naive perspective amongst health activists that societal ill-health can be cured by more and better health services. At best, this perspective is slowly changing.

Health and concepts of politics

Earlier in this paper, we outlined definitions of politics and suggested that the first one, politics as the art of government and the activities of the state, was the most prevalent within current political discourse. The hegemony of this conceptualisation of politics influences which aspects of health are considered to be political. Health care, especially in countries like the UK where the state's role is significant, is an immediate subject for political discussion. Other aspects of health, such as health and citizenship, are excluded from this narrow popular definition of politics and are thereby seen as non-political. This is not, of course, to imply that health care is unimportant; rather, that it should be seen as one of several important health determinants. Equity of access to health care should also be seen as a key citizenship right.

Health and political science

Health has not been seriously studied within political science - nor for that matter has politics within public health. This has compounded its exclusion from the political realm. Health to a political scientist, in common with more widely held views, most often means only one thing: health care; and usually, only one minor aspect of health care: the health care system. Some political scientists will argue that they do study health as a political entity; however, what is actually under analysis is the politics of health care.

The roots of this focus on health care derive from the dominance of certain schools of thought within political science and of their corresponding definitions of the political. These schools are not of equal weight within political science and the discipline is dominated, especially in the USA, by the behaviouralist, institutionalist, and rational choice strands. To adherents of these schools politics - and therefore political science - is concerned with the processes, conditions and institutions of mainstream politics and government. The politics of health care is the politics of institutions, systems, funding, and elite interactions, all of which fit the priorities of these hegemonic schools of political science like a glove. Health, in its broader sense, is therefore apolitical and should only be the concern of disciplines such as sociology, public health or medicine. In this way specified aspects of health, namely health care issues, are politically defined as political while all other aspects are not.

Responsibility and authority

“When we conceive of ill-health as episodes of disease manageable by the delivery of healthcare, we are ... transferring the responsibility for health from society as a whole to an elite possessing what we define as the necessary professional and technical expertise for the management of disease.” (46)

The conceptualisation of health as non-political is also in part due to medicalisation - the transfer of power over and responsibility for health from individuals, the public and therefore political life, to powerful elites, namely the medical and health professions and the multinational pharmaceutical companies. However, unlike the impression given in the above quote, this transfer of responsibility is not always voluntary. Drug companies and the medical profession have taken the power and responsibility for health for themselves (47). They have thus been able to dictate what health is and therefore, how political it is or, more usually, is not. Their historic power over the definition of health has resulted in its depoliticisation via medicalisation: health is something that doctors are responsible for, they are the providers, and we are the recipients.

Their authority and responsibility over health has further emphasised its commodity status – when ill, an individual visits a doctor and / or purchases drugs (commodity) to regain health (another, albeit less obvious commodity). Ill health is a transient state caused by the presence of disease. It can be ended by the appropriate application of medical technology. This depoliticisation of health, via the transfer of power and responsibility to these professional groups, means that we do not have power over our own health or autonomy over our own bodies.

Health policy

“We sat after lunch, five of us, arguing about the meaning of health policy. For the economist from the World Bank it was about the allocation of scarce resources. For the Ugandan health planner it was about influencing the determinants of health in order to improve public health. For the British physician it was about government policy for the health service. The Brazilian smiled. 'In Portuguese the word "politica" means both policy and politics', she said. For her, health policy was synonymous with health politics.” (48)

As Walt goes on to point out, for most people, health policy is synonymous with policy content. Certainly in the UK it is relatively unusual to find discussions of health policy which are not focused on the pros and cons of particular courses of action in relation to particular political parties. In reality, however, health policy is part of a broader body of knowledge (social policy and public policy), whose practical aspects consist of a dynamic, multi-stage policy process which in turn is inextricably linked with politics. Public policy also forms the knowledge base of a social science (policy science) which is characterised by a range of theories, models and constructs. (Our working definition of public policy is 'purposive action within the sphere of government influence').

Given all the above, the reduction of 'health policy' to 'the content of health policies' can be viewed as a form of reductionism which diverts attention from, and renders invisible the political nature of the policy process. In reality, both content and process are crucially important. For example, the fundamental requirement within capitalism for inequality (between those who labour and those who profit) makes the meaning of government policies to 'tackle inequalities' at best highly questionable. It is only when one 'refocuses upstream' from the polarised political debates over the content of inequalities policies to the dynamics of their implementation that this fundamental contradiction becomes clear. To put it simply, no capitalist government will (or can) support a policy process which permits the full implementation of radical equity policy. Current UK Government policy in this area effectively consists of (loudly trumpeted) minor reform, in the context of an underdeveloped and inappropriate policy process whereby strategy and responsibility for reducing inequalities are handed – in the name of 'devolved autonomy' – to local managers with no knowledge or experience in this area.

Unsurprisingly, little research is undertaken on the equity policy process (49,50). Meanwhile, no policy connections are made with the macro-political causes of the major economic, social and health inequalities, such as neo-liberal macroeconomic and trade policy, defence policy and foreign policy. None of these featured in the UK Treasury's Cross Cutting Spending Review (51), which was intended to examine the impact on health inequalities of the expenditure programmes of all government departments. Nor of course are the actions of the World Trade Organisation, of transnational corporations, of the World Bank and of US foreign policy taken into account.

It could perhaps be suggested that the globalised context of these policy areas makes it unsurprising that their major contributions to the generation of health inequalities go unrecognised. The same cannot as readily be said, however, of the one domestic area where effective policy action could have radical impact – that of gender equity. Arguably, gendered differences relating to power and control underlie all inequality. Yet this

issue – which cuts across social class, ethnic and other social dimensions – is barely acknowledged in domestic policies relating to the potential action areas of (male) parenting and socialisation.

One important conclusion to this discussion is that there is an urgent need for health policy research and commentary which draw upon policy theory (52) and on an explicit awareness of the dynamics of the policy process (35,53,54).

Conclusion

”The public ideas – and the language associated with them – which currently envelop us are those of the market, corporatism, fiscal restraint, and globalization, ideas which are driving the near universal *dismantling of the welfare state, and eroding any notion we might have of the common good.*” (55)

Western neo-liberal capitalism, combined with Cartesian reductionism, has become a powerful hegemonic force, nurturing the perception of people as customers and consumers and transforming the wonderful diversity of human ‘being’ and the process of living into a bland sameness - what Shiva (56) calls a ‘monoculture of the mind.’ In essence, we are losing the perception of people as human beings with feelings, needs and relationships and are creating a way of life that makes us sick. The neo-liberal ideology that emerged from the Thatcherism and Reaganomics of the 80s is now a feature of ‘socialist’ governments both here in the UK and globally, testifying to its hegemonic nature (5). Therefore to continue to think that a welfare state could indefinitely ‘exist in an island of socialism in a sea of capitalism’ (57) is delusional.

What action can we take, individually and collectively, to change things for the better, for the common good? As public health researchers and practitioners, we can acknowledge the issues raised in this paper by:

- discussing and developing ideas on the theoretical issues relating to the impact of power and ideology on the health of the public
- undertaking between- and within-country comparisons of important political determinants of health inequality
- actively drawing public and political attention to these issues

In this way, our hope is that critical thought can and will lead to critical action.

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HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title	Violence - A global public health problem and universal challenge
Module: 1.43	ECTS (suggested): 0.5
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Keywords	Ecological model, multilevel prevention, public health approach, risk factors, violence.
Learning objectives	Main objective of this Module is to introduce students and public health professionals to the overall principles and general public health approach to violence prevention and control.
Abstract	This module provides a conceptual basis for understanding violence as a public health problem, focusing on: definitions, typology, nature and magnitude of violence. It provides a general overview of the models that analyse violence from a public health and epidemiological perspective, concepts dealing with the Haddon Matrix, public health approach and ecological model. It also explains the preventive strategies and the role of health sector and suggests a number of practical approaches for the design, implementation and evaluation of prevention programmes.
Teaching methods	Lectures, interactive small group discussions and case study will be used to identify the problem, risk factors and prevention interventions for violence. Literature review and critical reading will be applied.
Specific recommendations for teachers	This module will be organised in 0.5 ECTS credits with 70% work under teacher supervision and 30% individual students' work. Internet access is needed for both.
Assessment of students	Assessment will be done through the group work, seminar paper and case problem presentations.

VIOLENCE - A GLOBAL PUBLIC HEALTH PROBLEM AND UNIVERSAL CHALLENGE

Fimka Tozija, Alexander Butchart

This Module discusses the nature, magnitude and prevention of violence. It describes a typology of violence that takes into account the multifaceted nature of the problem at the individual, interpersonal, organizational and community levels.

Definitions and key terms

The World Health Organization (WHO) defines violence (1) as: The intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation. Thus, “*the use of physical force or power*” should be understood to include neglect and all types of physical, sexual and psychological abuse, as well as suicide and other self-abusive acts.

This definition associates intentionality with the committing of the act itself, irrespective of the outcome it produces. However, the issue of intentionality can be quite complex, since the intent to use force may not necessarily mean there was an intent to cause damage (1). Consequently, there has been a move away from the use of the “intentional” classification in the field of violence prevention.

Child maltreatment refers to the physical and emotional mistreatment, sexual abuse, neglect and negligent treatment of children, as well as to their commercial or other exploitation. It occurs in many different settings. The perpetrators of child maltreatment may be: parents and other family members; caregivers; friends; acquaintances; strangers; others in authority – such as teachers, soldiers, police officers and clergy; employers; health care workers; other children.

Youth violence is violence committed by young people. It takes many forms including bullying, gang violence, sexual aggression, and assaults occurring in streets, bars and nightclubs. The victims and perpetrators alike are young people, and the consequences of youth violence can be devastating.

Intimate partner violence – behaviour within an intimate relationship that causes physical, sexual or psychological harm, including acts of physical aggression, sexual coercion, psychological abuse and controlling behaviours. This definition covers violence by both current and former spouses and partners.

Sexual violence – any sexual act, attempt to obtain a sexual act, unwanted sexual comments or advances, or acts to traffic, or otherwise directed against a person’s sexuality using coercion, by any person regardless of their relationship to the victim, in any setting including but not limited to home and work. This definition includes rape, defined as the physically forced or otherwise coerced penetration of the vulva or anus with a penis, other body part or object – however the legal definition of rape may vary in different countries.

Elder abuse has been defined as a single or repeated act, or lack of appropriate action occurring within any relationship where there is an expectation of trust, which causes harm or distress to an older person.

Prevention - prevention means to stop acts of interpersonal violence from occurring by eliminating or reducing the risk factors and increasing protective factors.

Programme is defined as a series of interventions, interrelated preventive activities, or projects, usually with a formal set of goals and procedures designed to have the desired outcome of reducing the level or consequences of violence.

Typology

The typology proposed by WHO (1) divides violence into three broad categories according to characteristics of those committing the violent act: self-directed violence; interpersonal violence; collective violence. This initial categorization differentiates between violence a person inflicts upon himself or herself, violence inflicted by another individual or by a small group of individuals, and violence inflicted by larger groups such as states, organized political groups, militia groups and terrorist organizations (see Figure 1).

These three broad categories are each divided further to reflect more specific types of violence.

Self-directed violence: is subdivided into suicidal behaviour and self-abuse. The former includes suicidal thoughts, attempted suicides – also called “parasuicide” or “deliberate self-injury” in some countries – and completed suicides. Self-abuse, in contrast, includes acts such as self-mutilation.

Interpersonal violence: is divided into two subcategories: family and intimate partner violence and community violence (Figure 1). Family and intimate partner violence is that occurring largely between family members and intimate partners, usually, but not exclusively taking place inside the home and including child

abuse and neglect, intimate partner violence, and elder abuse. Community violence includes violence between unrelated individuals, who may or may not know each other, generally occurs outside the home, and includes: youth violence, random acts of violence, rape or sexual assault by strangers, and violence in institutional settings such as schools, workplaces, prisons and nursing homes. As shown in Figure 1, each category of violence as defined by the victim-perpetrator relationship can involve physical, sexual and psychological violence, as well as deprivation or neglect (1).

Collective violence: is subdivided into social, political and economic violence. Unlike the other two broad categories, the subcategories of collective violence suggest possible motives for violence committed by larger groups of individuals or by states. Collective violence that is committed to advance a particular social agenda includes, for example, crimes of hate committed by organized groups, terrorist acts and mob violence. Political violence includes war and related violent conflicts, state violence and similar acts carried out by larger groups. Economic violence includes attacks by larger groups motivated by economic gain – such as attacks carried out with the purpose of disrupting economic activity, denying access to essential services, or creating economic division and fragmentation. Clearly, acts committed by larger groups can have multiple motives.

Figure 1. A typology of violence
 [Source: World Report on Violence and Health, WHO, 2002 (1)]

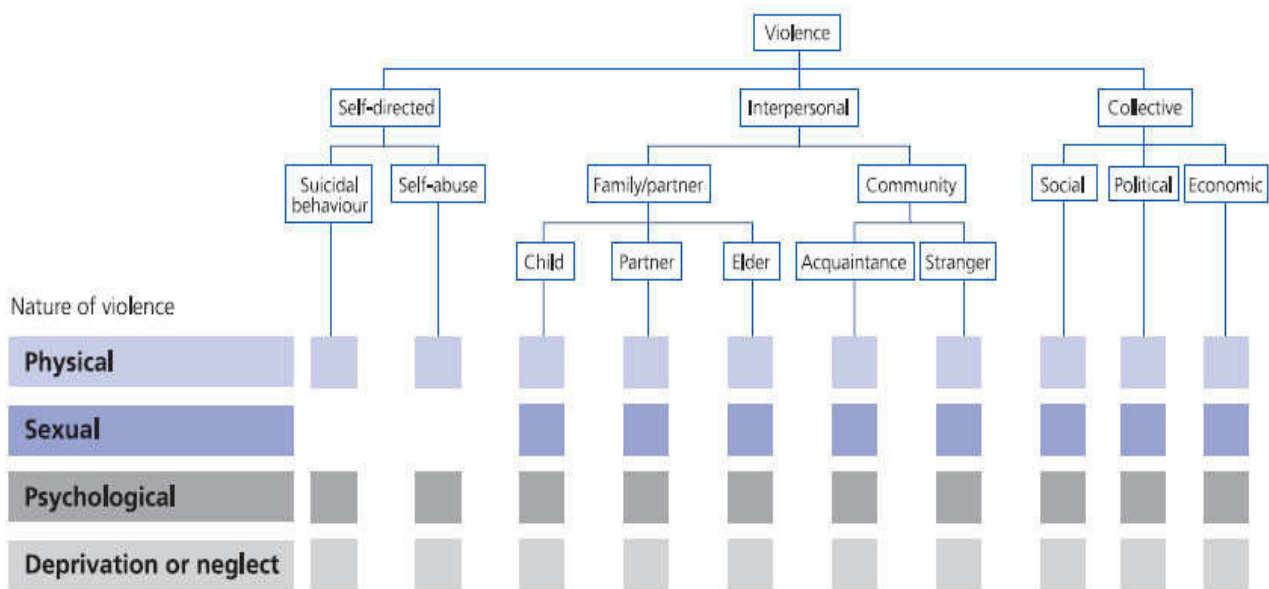


Figure 1 illustrates the nature of violent acts, which can be physical, sexual, psychological, involving deprivation or neglect. The horizontal array in Figure 1 shows who is affected, and the vertical array describes how they are affected.

Burden of violence

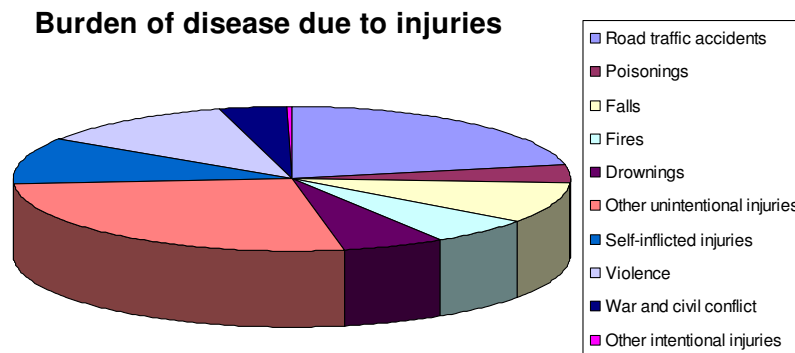
The World Health Organization's (WHO) World report on violence and health (1), gave special attention to the global burden of violence in general and interpersonal violence in particular. The Report is the first comprehensive summary of this public health problem on a global scale, and presents an exhaustive review of the scientific literature on the root causes, risk factors and settings for different types of violence; on the human and social toll arising from its consequences, plus national- and international-level recommendations for violence prevention policies and programmes.

Magnitude

Data from the Global Burden of Disease Study, which combines information on both mortality and morbidity, indicate that injuries are a major burden to global health. Injuries constitute about 12% of the burden of disease attributable to all the health conditions. Within this percentage, as shown in Figure 2, war, interpersonal violence and self-inflicted injuries, account for a third of the burden of injury (2).

The magnitude of the problem is probably most clearly known for deaths, as death data is widely collected. However, information regarding other violence related outcomes may not be as clear. Where the injuries are severe enough to require medical attention or police involvement, some countries maintain good quality data concerning these incidents. Information about less severe injuries might be revealed in surveys, but many violence related injuries are never reported. As data collection in many countries is far from ideal, it is likely that there is a substantial underestimation of the problem of violence globally.

Figure 2. Global burden of disease due to injuries
 [Source: WHO (2011). Global Burden of Disease: 2008 Update (2)]



Mortality

Global mortality data for the year 2008 show that approximately 5.1 million people died from injuries. Of these, violence accounted for an estimated 1.5 million deaths, made up of 782 014 suicides, 535 380 homicides due to interpersonal violence, and 181 795 deaths directly due to war (2).

Injuries and violence are a threat to health in every country of the world. Between them, they account for 9% of global mortality – more than five million deaths every year. Eight of the 15 leading causes of death for people between the ages of 15 and 29 years are injury-related. These are road traffic injuries, suicides, homicides, drowning, burns, war injuries, poisonings and falls (2,3) (Figure 3).

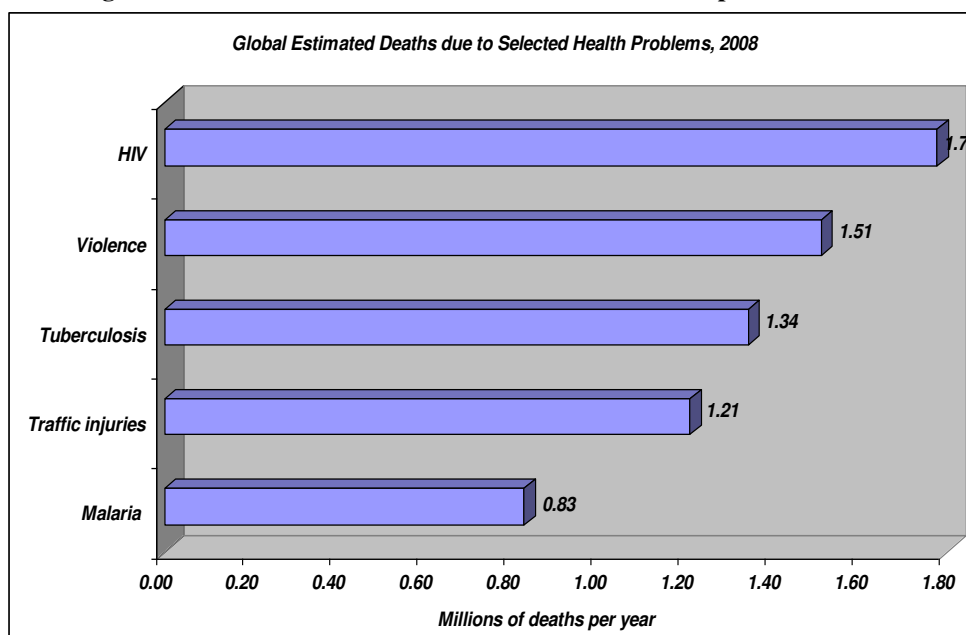
Figure 3. Major causes of mortality
 [Source: WHO (2011). Global Burden of Disease: 2008 Update (2)]

Rank	0-4	5-14	15-29	30-44	45-59	60-69	70-79
1	Perinatal causes 2 602 520	Lower respiratory infections 171 362	Road traffic injuries 330 163	HIV/AIDS 812 119	Ischaemic heart disease 1 111 800	Ischaemic heart disease 1 375 715	Ischaemic heart disease 2 079 091
2	Lower respiratory infections 1 460 788	Diarrhoeal diseases 114 546	HIV/AIDS 293 659	Tuberculosis 337 361	Cerebrovascular disease 734 660	Cerebrovascular disease 1 114 476	Cerebrovascular disease 1 930 019
3	Diarrhoeal diseases 1 235 885	Road traffic injuries 92 307	Tuberculosis 233 127	Road traffic injuries 288 695	HIV/AIDS 340 166	Chronic obstructive pulmonary disease 655 001	Chronic obstructive pulmonary disease 1 119 316
4	Malaria 711 191	HIV/AIDS 78 587	Suicide 231 491	Ischaemic heart disease 262 141	Chronic obstructive pulmonary disease 327 818	Trachea, bronchus, lung cancers 368 905	Trachea, bronchus, lung cancers 447 536
5	Congenital anomalies 358 373	Malaria 66 135	Homicide 218 343	Suicide 188 573	Tuberculosis 321 785	Diabetes mellitus 291 869	Lower respiratory infections 445 672
6	Whooping cough 194 930	Drownings 57 210	Diarrhoeal diseases 89 832	Cerebrovascular disease 159 661	Trachea, bronchus, lung cancers 297 039	Lower respiratory infections 288 038	Diabetes mellitus 375 790
7	HIV/AIDS 194 175	Meningitis 57 019	Lower respiratory infections 77 764	Homicide 158 871	Cirrhosis of the liver 284 065	Diarrhoeal diseases 208 852	Hypertensive heart disease 335 664
8	Meningitis 157 575	Tuberculosis 34 836	Drownings 68 467	Cirrhosis of the liver 112 438	Road traffic injuries 240 759	Hypertensive heart disease 199 735	Diarrhoeal diseases 316 857
9	Protein-energy malnutrition 133 570	Measles 29 121	War-related 66 779	Lower respiratory infections 104 585	Lower respiratory infections 224 185	Tuberculosis 189 017	Stomach cancer 226 624
10	Measles 119 348	Leukaemia 20 523	Ischaemic heart disease 62 952	Diarrhoeal diseases 83 901	Diabetes mellitus 218 695	Cirrhosis of the liver 183 616	Colon and rectum cancers 189 349
11	Syphilis 80 339	Congenital anomalies 19 908	Maternal haemorrhage 59 030	Liver cancer 67 500	Liver cancer 210 726	Stomach cancer 179 931	Nephritis and nephrosis 177 286
12	Tetanus 62 509	Protein-energy malnutrition 19 114	Cerebrovascular disease 49 312	Nephritis and nephrosis 65 489	Suicide 166 329	Liver cancer 158 812	Liver cancer 168 303
13	Tuberculosis 62 314	Epilepsy 16 767	Burns 47 828	Poisonings 63 662	Stomach cancer 163 972	Colon and rectum cancers 136 786	Cirrhosis of the liver 148 011
14	Drownings 46 921	Trypanosomiasis 18 574	Epilepsy 45 664	Maternal haemorrhage 63 673	Breast cancer 162 341	Nephritis and nephrosis 134 348	Tuberculosis 121 951
15	Upper respiratory infections 30 303	Burns 18 460	Poisonings 45 222	Breast cancer 63 304	Diarrhoeal diseases 150 543	Oesophagus cancer 112 554	Oesophagus cancer 121 733

The burden of disease due to injuries, particularly road traffic incidents, interpersonal violence, war and self-inflicted injuries is expected to rise dramatically by the year 2020 (4).

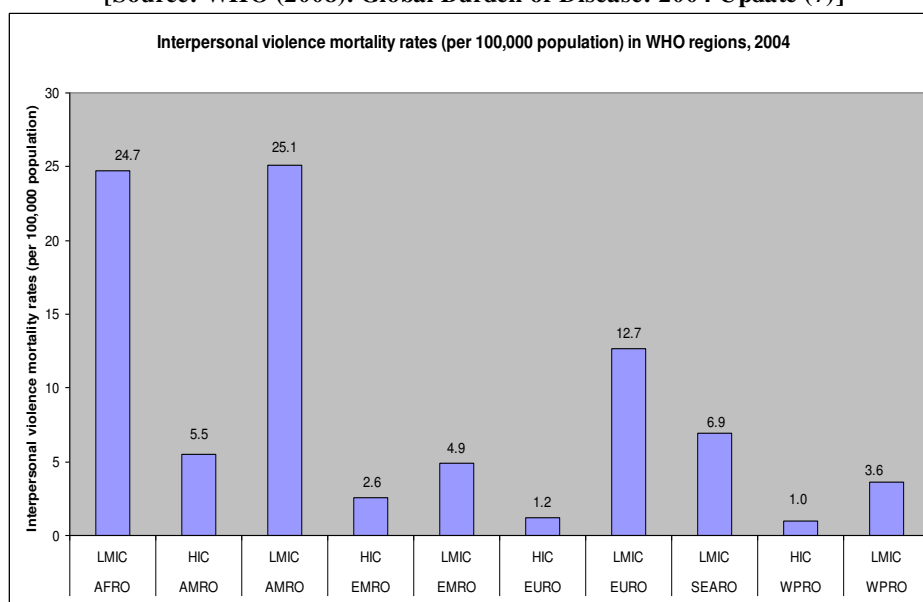
WHO data in 2008 show that, on a global level, violence is a substantial public health problem. As shown in the Figure 4, globally, deaths due to violence exceed that of among malaria, traffic injuries and tuberculosis. Further, as this is likely to be an underestimate, given the lack of information from many nations, the problem may be even greater than it appears to be here (2).

Figure 4. Global estimated deaths due to selected health problems 2008



There are major variations in violence mortality rates between different regions in the world and between different gender and age groups. Rates of violent death vary according to country income levels. Violent deaths in low-to-middle income countries occur at over twice the rate (32.1 per 100,000) of those in high income countries (14.4 per 100,000), due to a greater number and variety of hazards that expose inhabitants to violence, and fewer resources for violence prevention, the treatment of resulting injuries and other health consequences, and victim rehabilitation (1,5). In low to middle income countries homicides and war are dominant, while in high income countries suicides predominate. (6)

Figure 5. Interpersonal violence mortality rates (per 100 000 population) in WHO regions, 2004
[Source: WHO (2008). Global Burden of Disease: 2004 Update (7)]



In 2004, the rate of violent death in low- to middle-income countries overall was nearly four times higher than the rate in high-income countries (Figure 5). There are striking differences in geographic regions in the number of deaths due to interpersonal violence. These regional differences have implications for the setting of priorities for global violence prevention.

The region with the largest number of deaths is the AFRO region. For all regions where both high and low- or middle-income countries are present, numbers of interpersonal violence deaths in low- or middle-income countries far exceed those observed in the high income countries. In the Americas region, the low- and middle-income countries account for almost a quarter of global interpersonal violence mortality. There are also considerable regional differences in the types of violent death. In the African region and the region of the Americas, homicide rates are nearly three times greater than suicide rates. However, in the European and South-East Asia regions, suicide rates are more than double homicide rates and in the Western Pacific region, suicide rates are more five times greater than homicide rates (4). Interpersonal violence mortality rates are highest among males in low- and middle-income countries of the Americas and African regions. Females in Africa have the highest interpersonal violence mortality rates.

Homicide rates in all world regions are significantly higher among males (13.6 per 100.000) than in females (4.0 per 100.000 population). Males are also more exposed to suicides, with a male suicide rate of 18.9 per 100.000 compared to the female suicide rate of 10.6 per 100.000. Violence affects people at all ages, although homicides are most frequent during the age range 15-44 years while suicide rates increase with age (1).

Each year, more than a million people lose their lives, and many more suffer non-fatal injuries, as a result of self-inflicted, interpersonal or collective violence. Overall, violence is among the leading causes of death worldwide for people aged 15–44 years (1). Over 70% of the global mortality due to interpersonal violence occurs among young persons aged between 15-44 years (2,4).

Figure 6. Age distribution of global interpersonal mortality, 2008
 [Source: WHO (2011). Global Burden of Disease: 2008 Update (2)]



Consequences

Deaths are only the most visible part of the interpersonal violence iceberg, and for every death there are many more non-fatal cases. Of the hundreds of victims that survive many require emergency medical treatment and a significant proportion suffer long term physical and mental health consequences. Interpersonal violence occurs in the home and in public settings (such as streets, bars, clubs, workplaces, schools, hospitals and residential care facilities). It is widespread, but discrete and far less visible than the collective violence of terrorism and war. The highest rates of interpersonal violence occur in the poorest communities with the fewest resources to cope with the financial, social and psychological strains (1).

Fatalities represent only a fraction of the full interpersonal violence problem. Unfortunately, precise national and international estimates of non-fatal violence are lacking, partly because of under-reporting due to a range of factors, including inadequate victim services in the health and criminal justice systems (9). Violence can have a number of negative effects on the health of those involved such as physical, mental health, behavioural consequences and reproductive consequences (4).

The extent of non-fatal injuries varies from country to country. For every death, though, it is estimated that there are dozens of hospitalizations, hundreds of emergency department visits and thousands of doctors' appointments. A large proportion of people surviving their injuries incurs temporary or permanent disabilities (3).

It is estimated that 10% of males and 20% of females have been sexually abused as children; that for every homicide among 10-29 year olds there are a further 20-40 non-fatal cases which require hospital treatment; that rape and domestic violence account for 5-16% of healthy years of life lost by women of reproductive age, and that 10-50% of women have experienced physical violence at the hands of intimate partners over their lifetime (8).

Economic burden

These consequences have great costs to the individual, family, community and society as a whole. In economic terms there are direct and indirect costs related to violence. But there are also costs that are wider and more difficult to measure. These indirect costs relate to premature deaths of otherwise healthy individuals, lost productivity and absenteeism, consequentially impaired economic development and overall losses in quality of life. Other costs that add up to this problem are associated with the increase in security measures for violence protection.

The majority of victims of violence are in the most economically productive age range of 15-44 years, and for every one of the thousands of millions of dollars spent on direct medical care for victims many more financial resources are lost due to indirect factors such as time away from work and disruption of family routines. The direct costs and indirect costs of lost productivity due to interpersonal violence represent an enormous economic burden to victims, families and society. The economic costs of interpersonal violence are therefore very high. The economic burden of interpersonal violence in the USA is 3.3% of GDP, while in England and Wales the annual total costs from violence are estimated at US\$ 40.2 billion (3).

Methods and conceptual framework

The main methods for describing and measuring the magnitude and impact of injuries and violence on populations are presented in this Module as a conceptual framework for organizing information about the root causes and risk factors for violence as well as prevention activities (10): the Haddon matrix, public health approach and the ecological model, as used in the World Report on Violence and Health (1).

Haddon's model

One important model to understand the causal chain of events involved in injuries is that proposed by William Haddon (11,12) commonly known as the Haddon Matrix.

This model extends the epidemiological approach, to produce a matrix where the causal factors involved in injury can be better understood through the interaction of multiple factors over time. It consists of temporal notions of pre-event, event and post-event phases plotted against the host or person, agent (product) and environmental factors (physical and social) of the epidemiological model. When these two axes (time and other factors) are combined they produce the Haddon Matrix. This is generally a twelve-cell matrix although it can be a nine-cell matrix if the physical and social environment columns are combined into one.

Haddon's model effectively separates out the factors which predispose an injury causing event to occur (pre-event phase) from the actual event itself (event phase) in which energy is transferred to the host in an amount to cause damage. Haddon also added a post-event phase, encompassing transport, emergency care and rehabilitation, which affect survival and ultimate outcome once the energy transfer has occurred (13).

Combining these phases of injury with the epidemiological model, creates a matrix for the study of both injury causation and prevention. The temporal phases are generally associated with primary (pre-event), secondary (event) and tertiary (post-event) prevention.

The value of this model is that it points out different areas in which interventions can be mounted to prevent or reduce the severity of injuries. The point of intervention is not necessarily early in the chain of events. It should be where the intervention is possible, or ideally, where it is most effective.

Public health approach

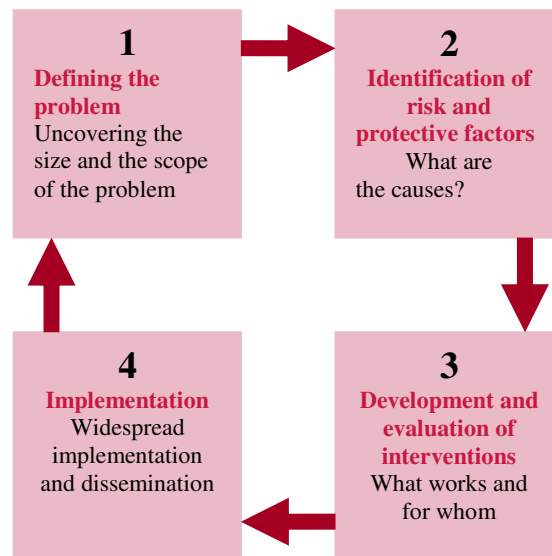
The public health approach has been presented as a guiding framework for violence risk assessment and prevention activities. The public health approach is a science-based, multi-disciplinary approach for understanding and preventing violence. The approach is intended to help coordinate actions by representatives of the many different sectors relevant to violence prevention, including welfare, social work, education, employment, health, police and justice. As shown in Figure 7, the public health approach consists of four steps.

Problem definition – step 1 - examines the how, when, where, and what of violence. It involves developing case definitions of violence with clear agreement on what is being studied and counted. These

should take into account the typology of violence, according to the different forms of violence, the setting, and the relationship between the victim and perpetrator (1).

Risk factor identification – step 2 - looks at the why of violence. Risk factors are aspects of the person, place and social environment that are shown to increase the possibility of becoming a victim or a perpetrator of violence (1). Problem definition, risk factor analysis, and the identification of causes help to show how levels of violence are an outcome of the relationships between people, products and the physical and social environments, and therefore how violence can be prevented by altering these causal relationships.

Figure 7. The public health approach
[Source: WHO, Geneva, 2004 (10)]



Development and evaluation of interventions – step 3 - aims to identify effective prevention strategies by using scientific evaluation studies to find out what strategies work and for whom they are effective. The effectiveness of strategies for preventing interpersonal violence will depend on a combination of the type of intervention, the timing of its delivery and the population at risk.

Implementation - step 4 - includes the translation of effective programmes into wide-scale implementation through the dissemination of effective practices and programmes and their adaptation to different populations and settings. It deals with the sustained implementation of effective interventions, practices and violence prevention initiatives, as a basis for developing public health policy and practice, institutional support and funding for violence prevention on a large scale (10).

Information arising from activities in steps 1 and 2 is vital for developing and evaluating interventions (step 3), and for widespread implementation and dissemination of proven and promising strategies (step 4). Individual violence prevention programmes will usually include activities relevant to only some of the steps, while national-level violence prevention policies and plans should ensure that all steps are adequately addressed, and that programmes dealing with the different steps are fully informed about the data and evidence from each of the other steps (9).

Ecological model

The ecological model has been described, which enables better understanding of violence and its risk factors at multiple levels. The basic principles and criteria for the identification of multilevel violence prevention programmes and the rationale for conducting evaluations of the prevention programmes have been discussed.

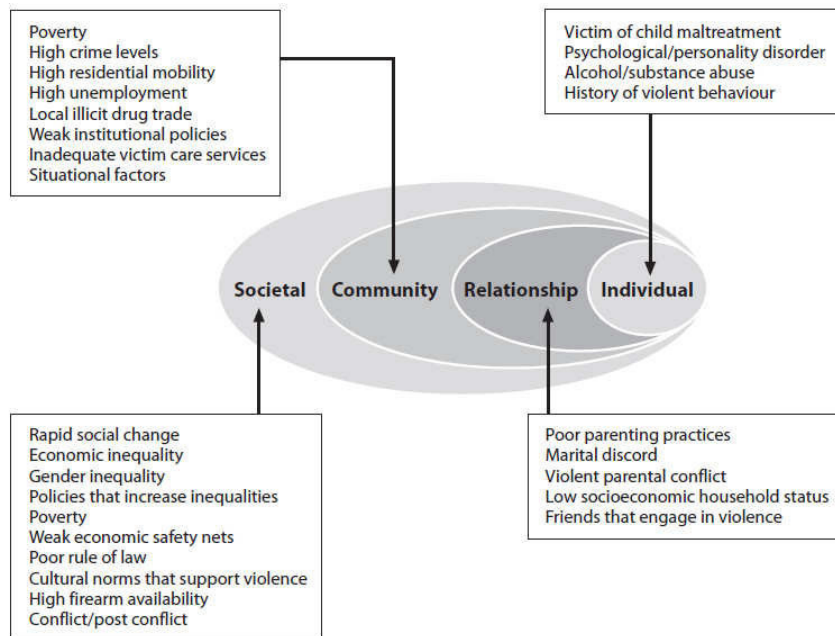
Violence is an outcome of a complex interaction of many factors at different levels: biological, social, cultural, economic and political. The ecological model developed in the World report on violence and health is used to capture this complexity and understand the root causes and risk factors of violence as a basis for developing prevention strategies at four levels: individual, relationship, community, and societal (Figure 8) (1,10). “Whilst some risk factors may be unique to a particular type of interpersonal violence, more often the various types of violence share a number of risk factors” (1).

The ecological model is multilevel, showing the interaction of factors within each level and across the different levels. To address these multilevel risk factors, prevention programmes also need to operate on multiple levels (1).

Root causes and risk factors

This model is particularly useful for understanding the causes of violence. No single factor explains why some individuals behave violently towards others or why violence is more prevalent in some communities than in others. The root causes of violence and the majority of its consequences are located across different levels of society involving individual, social, economic and political factors.

Figure 8: Ecological Model shared risk factors for sub-types of interpersonal violence
[Source: WHO 2002 (1)]



Violence is the result of the complex interplay of individual, relationship, social, cultural and environmental factors. Understanding how these factors are related to violence is one of the important steps in the public health approach to preventing violence. Because violence is a multifaceted problem with biological, psychological, social and environmental roots, it needs to be confronted on several different levels at once (9). The ecological model serves a dual purpose in this regard; explores the relationship between individual and contextual factors and considers violence as the product of multiple levels of influence on behaviour; each level in the model represents a level of risk and each level in the model can also be thought of as a key point for intervention (1) (Figure 8).

There are a number of factors that contribute to violence at all relationship levels:

- Individual level: demographic factors, psychological and personality disorders, history of violent behaviour and having experienced abuse.
- Relationship/family level: poor parenting, marital conflict, friends who engage in violence.
- Community level: concentration of poverty, high residential mobility, high unemployment, social isolation and illicit drug trade.
- Societal level: multiple social inequalities, norms that support violence, availability of means, weak police and criminal justice system.

Multilevel prevention

This section uses the ecological model to identify and cluster prevention strategies at the four different levels - individual, relationship, community and societal (see Figure 8). Programmes may assume a singular or multiple focus; target one or more at-risk environments; one or more at-risk groups and sub-groups or whole populations, and one or more different levels (8).

Individual level interventions focus on changing the attitudes, beliefs and behaviours of individuals, and can include: educational programmes providing adolescents and youth with vocational training and

educational support, and social development programmes teaching very young children social skills, anger management and conflict resolution (1).

Relationship level interventions influence close relationships, such as between parents and children, between intimate partners and between peers, to reduce the risk of child abuse; mentoring programmes to match young persons with caring adults to prevent antisocial behaviour; and home visitation programmes (1).

Community level prevention includes raising public awareness about violence, stimulating community action and providing care and support for victims, addressing community level risks and the physical and social characteristics of settings such as schools, hospitals, neighbourhoods and workplaces (1).

Societal level prevention strategies include changes in legislation, policies and the larger social and cultural environment to reduce the risk of violence both in various settings as well as in entire communities. Governments may launch broad programmes to benefit society, which may be aimed at reducing interpersonal violence either directly or indirectly such as: reduction of income inequality, de-concentrating poverty, enforcing laws prohibiting the illegal transfer of guns, strengthening and improving police and judicial systems, reforming educational systems, establishing job creation programmes for the unemployed (1,14).

Violence prevention work should therefore be conducted at different levels by a range of international, national, local government and civic groups. The United Nations, world economic agencies, human rights organizations, national governments, non-governmental agencies, and concerned individuals have initiated prevention activities. Some outstanding successes in preventing violence have been well evaluated and well documented, whereas others, particularly those in developing countries, remain unevaluated and poorly described (8).

Public health interventions are traditionally characterized in terms of three levels of prevention, which relate back to the temporal dimension of the Haddon Matrix. Each of these strategies can be utilized in injury and violence prevention, maintaining an evidence-based approach is essential in ensuring their effectiveness (4).

Primary prevention involves strategies and interventions to stop violent events from taking place, and is related to the time before violence actually occurs (pre-event phase). Examples of primary prevention programmes include pre-school enrichment programmes, training in parenting, assisting high risk youth to complete secondary schooling, and situational interventions to reduce alcohol-related violence.

Secondary prevention includes strategies aimed at minimizing harm that occurs during and/or following a violent event and preventing re-victimization and re-offending. Secondary prevention examples include the early identification by health professionals of child abuse, intimate partner violence and elder abuse, and subsequent interventions to prevent further abuse.

Tertiary prevention includes all activities for the treatment and rehabilitation of victims and perpetrators and facilitating their re-adaptation to society (post-event phase).

Another way of defining prevention activities focuses on the target group of interest. This definition groups interventions on three levels.

Universal interventions are interventions that target everyone within the population without regard to their differences in the risk of becoming a victim or perpetrator of violence (e.g. the enactment and enforcement of laws to regulate the consumption of alcohol and firearm ownership).

Selective interventions target people at enhanced risk of violence only (e.g. parent training and home visitation for high-risk families in selected low-income settings).

Indicated interventions are applied to individuals and groups that have already been involved in violent behaviour (as perpetrators and/or victims) in an effort to reduce re-victimization and repeat offending.

Passive versus active interventions

Passive interventions are those aimed at preventing injuries where the individual is not required to take any action (e.g. an airbag deploys automatically on impact). They are interventions that are independent of human behaviour.

Active interventions are those where an individual's behaviour is involved (e.g. a seat-belt requires the individual to put the belt on). Such interventions require some human involvement for their success.

Prevention strategies

Programmes and strategies can differ in terms of scope (degree of coverage), complexity (multiple levels and sites versus single level, single site interventions), and time frame (short-term and long-term interventions). Features that characterize programmes, are: clearly defined goals and objectives; intended beneficiaries (the target group); some measures of success; programme components (i.e. the means to achieve the goals); programme infrastructure; a human resource base; stakeholders with a direct or indirect interest in the programme; a specific context (or, setting) (15).

It is important that the development of prevention strategies is evidence-based. That is, the design of an intervention needs to be based on accurate data concerning the problem and its risk factors. A full understanding

of the problem will allow the strategy to be designed and targeted appropriately. The effectiveness of interventions also needs to be rigorously evaluated and reviewed to determine whether they have worked and whether they continue to work. As funding for the development and implementation of prevention strategies is usually limited, it is important to check that the money is being well spent.

The aim of violence prevention programmes is to reduce the amount and severity of violence in the target population, and therefore programmes shown to be effective in this regard should be chosen ahead of programmes that lack evidence or which have been shown to be ineffective. The evidence base of programmes refers to the scientific literature describing outcome evaluations of interventions and programmes, and should be used to inform recommendations for prevention, the identification of elements to improve a specific programme and in determining whether a particular programme should be repeated or applied elsewhere (10). The World Report on Violence and Health (1) and Preventing Violence, the guide to its implementation (8), both describe this evidence base in detail.

Further, it needs to be kept in mind that while an intervention may work effectively in one community, it may not readily transfer to another community. While some of the above examples may work well in a number of countries with differing cultures and economies, it cannot be assumed that they will work in every community, and consideration needs to be given to their appropriateness (4).

The definitions of violence and prevention, and the overview of the public health approach given in this Module help to suggest criteria for violence prevention programmes and principles for programme evaluation (16). Programmes for violence prevention must have clearly defined goals and quantifiable objectives; must be designed to address clearly identified risk factors at one or more different levels of the ecological model; must be based on a logical framework for prevention (e.g. the public health approach); must clearly identify their target populations, and must have an administrative and logistic infrastructure.

Programme characteristics are common elements which can be used for their description and comparison, such as: scope (local, national, international); geographical location; setting of the target population (rural, urban or peri-urban context); socioeconomic variables; type and nature of interpersonal violence addressed; theoretical/philosophical orientation; nature and ecological level of interventions; target populations; sites and settings; evaluation mechanisms; outcomes, and infrastructure and resources (3).

Interpersonal violence prevention programmes may focus directly on one or two risk factors, or may address many different risk factors and ecological levels at the same time. Some programmes have violence prevention as their only objective, while in others the prevention of violence is one among many aims, such as community empowerment programmes and pre-school enrichment programmes that while aimed primarily at increasing education performance have also been demonstrated to be effective in reducing youth violence and the risk factors for youth violence (1,8).

Figure 9 lists a number of selected interventions to prevent violence grouped according to the types of violence problems they address. It indicates the effectiveness of each intervention, according to current knowledge, and the role of the health sector in designing and implementing the intervention as: effective: interventions evaluated with a strong research design, showing evidence of a preventive effect; promising: interventions evaluated with a strong research design, showing some evidence of a preventive effect, but requiring more testing; unclear: interventions that have been poorly evaluated or that remain largely untested; ineffective: interventions evaluated with a strong research design, and consistently shown to have no preventive effect, or even to exacerbate the particular problem. It should be noted that the term “ineffective” is used only in relation to the impact on injury (3).

The role of the health sector for each intervention is stated in the figure 9 as: lead - the health sector has primary responsibility for carrying out the intervention and monitoring its impact on the problem; advocate, collaborate, evaluate - primary responsibility for implementation lies with another sector, but health has a crucial role in calling for the intervention, collaborating with other sectors in its implementation and monitoring the intervention's impact; discourage - continued investments in interventions that have been shown to be ineffective or counterproductive waste scarce resources and – where an intervention actually exacerbates the problem – are detrimental to public health. The role for the health ministry for such interventions is therefore to discourage their development and implementation by any sector, and to offer alternatives where they exist (3).

Figure 10 presents the overview, indicating for each intervention the strength of the evidence for its effectiveness and the types of violence it has been found to prevent.

Preventing violence: a global public health priority

“We owe our children – the most vulnerable citizens in any society – a life free from violence and fear. In order to ensure this, we must be tireless in our efforts not only to attain peace, justice and prosperity for countries, but also for communities and members of the same family. We must address the roots of violence. Only then will we transform the past century’s legacy from a crushing burden into a cautionary lesson.” Nelson Mandela (1).

The 2003 World Health Assembly adopted Resolution 56.24 (on implementing the recommendations of the World report on violence and health, which encourages Member States to prepare a report on violence and violence prevention that describes the magnitude of the problem, the risk factors, current efforts to prevent violence, and future action to encourage a multisectoral response.

Conclusion

After completing this module students and public health professionals should have improved their knowledge to understand the nature, magnitude, root causes and risk factors of violence as a whole; to understand the consequences and costs of violence; become familiar with the use of the ecological model and the public health approach; and be able to identify the multilevel evidence-based programmes for violence prevention.

Box 1. Resolutions for violence prevention

World Health Assembly:

2003 – Implementing the recommendations of the World report on violence and health, WHA56.24

1998 – Concerted public health action on antipersonnel mines, WHA51.8

1997 – Prevention of violence, WHA50.19

1996 – Prevention of violence: a public health priority, WHA49.25

UN General Assembly resolutions

2006 - Intensification of efforts to eliminate all forms of violence against women, A/RES/61/143

The full texts are available at: www.who.int/violence_injury_prevention/resources/publications/en

Exercises

The teacher could select a group of publications on violence and discuss the multiple methods used and the results obtained. In this exercise the students will work in small groups and will have two tasks: so a discussion of risk factors and preventive measures could be attained.

Task 1: The students will look at publications on violence and discuss the different methodologies used to study and address this problem.

Task 2: The students will apply the public health approach and the ecological model to analyse the situation in their countries regarding the multilevel root causes and risk factors for violence.

Task 3: Case problem analysis will be used for review the existing and potential evidence-based multilevel prevention measures.

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Recommended readings

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Figure 9. The role of health sector in prevention of violence [Source: WHO 2007 (3)]

TABLE 2: SELECTED VIOLENCE AND INJURY PREVENTION INTERVENTIONS, BY CAUSE, EFFECTIVENESS AND HEALTH SECTOR ROLE

	Intervention	Effectiveness	Health role
INTENTIONAL AND UNINTENTIONAL INJURIES			
	Reducing the availability of alcohol during high-risk periods	Promising	Lead
	Reducing economic inequalities	Promising	Advocate, collaborate, evaluate
	Strengthening social security systems	Unclear	Advocate, collaborate, evaluate
	Stand-alone education programmes focusing only on changing risky behaviour	Ineffective	Discourage
INTENTIONAL INJURIES			
Child maltreatment	Improving the quality of and access to prenatal and postnatal care	Promising	Lead
	Training health-care providers to detect child maltreatment	Unclear	Lead
	Home visitation programmes	Effective	Lead
	Training programmes for parents	Effective	Lead
	Preventing unintended pregnancies	Promising	Lead
Youth violence	Life skills training programmes	Effective	Advocate, collaborate, evaluate
	Preschool enrichment, to strengthen bonds to school, raise achievement and improve self-esteem	Effective	Advocate, collaborate, evaluate
	Family therapy for children and adolescents at high risk	Effective	Lead
	Home-school partnership programmes promoting the involvement of parents	Promising	Advocate, collaborate, evaluate
	Educational incentives for at-risk high-school students	Effective	Advocate, collaborate, evaluate
	Peer mediation and counselling	Ineffective	Discourage
	Education on the dangers of drug use	Ineffective	Discourage
Intimate partner & sexual violence	School-based programmes to prevent violence in dating relationships	Effective	Advocate, collaborate, evaluate
	Training health-care providers to detect intimate partner violence and to refer cases	Unclear	Lead
Elder abuse	Building social networks of older people	Promising	Lead
	Training older people to serve as visitors and companions to individuals at high risk of victimization	Promising	Lead
	Developing policies and programmes to improve the organizational, social and physical environment of residential institutions for the elderly	Promising	Lead
Self-inflicted violence	Restricting access to the means of self-inflicting violence – such as to pesticides, medications and unprotected heights	Effective	Lead
	Preventing and treating depression, alcohol and substance abuse	Effective	Lead
	School-based interventions focusing on crisis management, the enhancement of self-esteem, and coping skills	Promising	Advocate, collaborate, evaluate
All types of violence	Reducing demand for and the availability of firearms	Promising	Advocate, collaborate, evaluate
	Sustained, multimedia prevention campaigns aimed at changing cultural norms	Promising	Lead

Figure 10. Overview of violence prevention interventions with some evidence of effectiveness by types of violence prevented [Source: WHO 2008 (17)]

Intervention	Type of violence					
	CM	IPV	SV	YV	EA	S
1. Developing safe, stable and nurturing relationships between children and their parents and caregivers						
Parent training, including nurse home visitation	●			○		
Parent-child programmes	○			○		
2. Developing life skills in children and adolescents						
Preschool enrichment programmes				○		
Social development programmes				●		
3. Reducing the availability and harmful use of alcohol						
Regulating sales of alcohol				○		
Raising alcohol prices				○		
Interventions for problem drinkers		●				
Improving drinking environments				○		
4. Reducing access to guns, knives and pesticides						
Restrictive firearm licensing and purchase policies				○		○
Enforced bans on carrying firearms in public				○		
Policies to restrict or ban toxic substances						○
5. Promoting gender equality to prevent violence against women						
School-based programmes to address gender norms and attitudes		●	○			
Microfinance combined with gender equity training		○				
Life-skills interventions		○				
6. Changing cultural and social norms that support violence						
Social marketing to modify social norms		○	○			
7. Victim identification, care and support programmes						
Screening and referral		○				
Advocacy support programmes		●				
Psychosocial interventions				○		
Protection orders		○				

KEY

- Well supported by evidence (multiple randomized controlled trials with different populations)
- Emerging evidence

CM – Child maltreatment; IPV – Intimate partner violence; SV – Sexual violence; YV – Youth violence; EA – Elder Abuse; S – Suicide and other forms of self-directed violence

HEALTH: SYSTEMS – LIFESTYLES – POLICIES A Handbook for Teachers, Researchers and Health Professionals	
Title	Global public health threats and disaster management
Module: 1.44	ECTS (suggested): 1.0
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Key words	Accidents, disasters, disaster planning, emergency medicine, environmental and public health, natural disasters.
Learning objectives	After completing this module students and public health professionals should: <ul style="list-style-type: none"> • understand public health importance of disasters and disaster management; • be aware of needs for public health preparedness and response; • define/classify major crisis, emergencies and disasters using relevant definitions and criteria; • increase knowledge about epidemiological aspects of main disasters and their public health consequences; • list and describe different phases of disaster management.
Abstract	Major emergencies, disasters and other crises do not respect national borders and never occur at convenient times. The magnitude of human suffering caused by these events is huge, and many aspects of people's lives are affected - health, security, housing, access to food, water and other life commodities, to name just a few. That is why it is vital to strengthen public health preparedness and response to different natural and man-made disasters. Disaster management has a crucial role in mitigation of disaster consequences. The aim of disaster management is to support countries in building their emergency response capacities. Since the risk is a function of the hazards to which a community is exposed and the vulnerabilities of that community, the risk can be modified by the level of the emergency preparedness of the community at risk. The challenge is to put in place systematic capacities such as: legislation, plans, coordination mechanisms and procedures, institutional capacities and budgets, skilled personnel, information for measurable reducing of lost and damages.
Teaching methods	Teaching methods should include: lectures, interactive small group discussion, seminars, tutorials and case studies. Students should apply the new knowledge by working in small groups identifying public health preparedness and response priorities and respective reduction plans. Basic skills like quantitative risk assessment have to be trained.
Specific recommendations for the teachers	This module should be assigned by 1.0 ECTS from which 70% should include work under the direct supervision of teachers including lectures and guided discussion, and 30% is individual work of the students - case studies and writing assignments; searching Internet in order to find the latest available data regarding frequency of events, International Health Regulation (2005), strategies, plans and preparedness.
Assessment of students	Assessment could be based on multiple choice questionnaire (MCQ), structured essay and case problem presentations.

GLOBAL PUBLIC HEALTH THREATS AND DISASTER MANAGEMENT

Elisaveta Stikova, Pande Lazarevski, Ilija Gligorov

Introduction

Threats to health security are many and diverse. They include sudden shocks to health and economies from emerging diseases, humanitarian emergencies, effects of climate change or environmental degradation, bioterrorism, natural disasters and other acute health risks.

In a globalized world, they cross national borders and threaten our collective security. In recent years, the world has faced numerous events that put at risk the health and security of people and societies. Some of these events have triggered public health emergencies with cross-border consequences; others have had a more local, but still severe, impact on affected communities.

Some communicable diseases, such as severe acute respiratory syndrome (SARS), influenza, HIV/AIDS, increasing incidence of multi-drug resistant TB cases and other new (re)emerging diseases, have the potential to cause sudden, large-scale harm to the health and welfare of entire populations from developed and developing countries.

The eradication of communicable disease threats, such as smallpox in the 1970s and poliomyelitis and measles targeted for elimination, may paradoxically create novel threat scenarios if the public health capacity required at the national and international levels is not maintained.

Food safety and food security, access to safe water and sanitation, clean air and affordable energy supply, climate change and other related phenomenon are also intimately linked to health in a number of ways.

Although chronic conditions related to the lifestyle factors as smoking, drinking, an unhealthy diet, unsafe sex, insufficient physical activity or obesity bring much more suffering, disability and loss to the people of the European Region than do communicable diseases, they do not have a direct health security dimension.

Other threats to public health are also closely linked to individual behavior, such as suicide, interpersonal violence, road crashes and accidents at work and at home (1,2).

Natural disasters can have significant public health and environmental impacts which, depending on the event, may affect more than one country. Extreme storms, for instance, may be very damaging for forests and other natural habitats; forest fires may destroy rich forest ecosystems and adversely affect rare plant and animal species; landslides and snow avalanches often remove or damage the biotic stock of the areas located along their paths. Extreme events can cause a "domino effect" of other, more indirect impacts, such as the mobilization by floods of toxic substances in the soil that then infiltrate aquifers, the degradation of soils by forest fires, fires and explosions triggered by earthquakes, or a deterioration in water quality caused by drought.

The numerous terrorist attacks using explosives around the world, including the Madrid train bombings on 11 March 2004 and the underground London bombings on 7 July 2005 and elsewhere in the world made it clear that terrorism is a threat to all states and to all peoples. The world cannot forget the terrorist attacks on 11 September 2001, the anthrax attacks of autumn 2001 in the United States of America, the deliberate use of nerve gas (sarin) in Japan - Matsumoto incident in 1994 and the Tokyo subway attack in 1995 and many other terrorist attacks around the world.

Terrorists target our security, the values of our democratic societies and the basic rights and freedoms of our citizens. Terrorists may resort to non-conventional means such as biological, chemical and nuclear weapons or materials. Some of these materials have the capacity to infect, harm and injure thousands of people, contaminate soil, buildings and transport assets, destroy agriculture and infect animal populations and eventually affect food and feed at any stage in the food supply chain. The risk of "bioterrorist" attack has been statistically low, but its consequences can be devastating. If a deliberate introduction of deadly pathogens or a naturally occurring disease outbreak were to occur in the European Union or be imported from a third country, it is possible that it could spread across borders and have considerable economic and social impact.

The likely effects of a major incident are dead and missing of the overall population or of some more vulnerable population's group, mental and physical injuries, mental and physical diseases, secondary hazards (fire, disease etc), contamination of environmental media such as water, air pollution, soil etc. Displacement of people, damage to infrastructure, and breakdown in essential services, loss of property and loss of income are other connected consequences of the major incidents and disasters that influence on the global and public health security (3,4).

In respect to this, every country should strengthen its national public health preparedness capacity. The term "preparedness" covers all aspects, such as: prevention, protection, response and recovery. The term also covers the steps taken to minimize the threat of natural and man-made disasters including deliberate release of chemical, biological and radiological agents.

The enjoyment of the highest attainable standard of health as a state of complete physical, mental and social well-being is one of the fundamental rights of every human being. On the other hand, health of all peoples is fundamental to the attainment of peace and security. This is because UNDP identifies health security as one of the seven components of human security. The other categories encompassing most of the threats to human security are economic, food, environmental, personal, community and political security.

Definitions

Leading by methodological purpose it is very important to make very clear definition and strict distinction in terms of the name of the events, sources and etiological agents. Some most important definitions are given below.

Emergency is a state in which normal procedures are suspended and extraordinary measures are taken. Emergency presents a sudden occurrence of demanding event that may be due to epidemics, technological catastrophes or other natural or man-made causes. WHO and the IHR (2005) define emergency as an "extraordinary" event that could spread internationally or might require a coordinate international response.

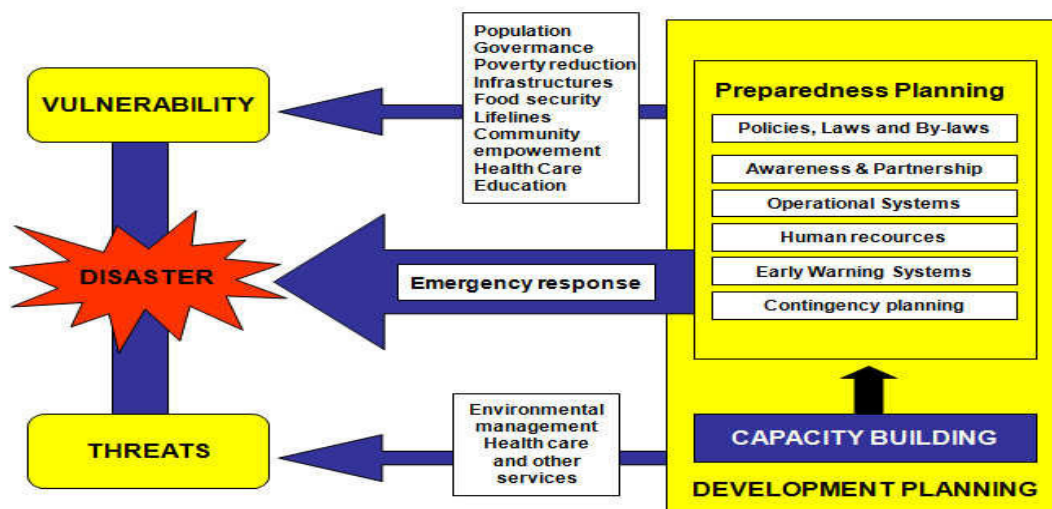
Major incident is an emergency that cannot be managed within normal working practices. If you require special provision to handle it, it is a major incident. Major incident means an incident where its location or number, severity and type of life casualties require extraordinary resources.

Disaster means serious disruption of the functioning of a community or a society causing widespread human, material, economic or environmental losses that exceed the ability of the affected community or society to cope using its own resources. Disasters combine two elements: events and vulnerable people. A disaster is fundamentally a socio-economic phenomenon. It is an extreme but not necessarily abnormal state of everyday life in which the continuity of community structures and processes temporarily fails. Therefore, a list of important questions often cannot be answered clearly: When does a disaster begin? Who decides about shortcomings in the coping capacity of a society? When does the disaster end? What are the appropriate indicators for disasters? A disaster occurs when the treats and vulnerability meet. The balance between the component of vulnerability and threats is essential for disaster occurrence. A disaster is "a disruption of the human ecology that exceeds the capacity of the community to function normally". A disaster occurs when threats and vulnerability meet (5).

The term disaster can enter into the database of the UN's International Strategy for Disaster Reduction (ISDR), only if at least one of the following criteria is met:

- a report of 10 or more people killed;
- a report of 100 people affected;
- a declaration of a state of emergency by the relevant government;
- a request by the national government for international assistance.

Figure 1. The main components of vulnerability and trigger threat's events in disaster occurrence



Crisis is an event or series of events which represents a critical threat to the health, safety, security or wellbeing of a community or other large group of people, usually over a wide area. Armed conflicts, epidemics, famine, natural disasters, environmental emergencies and other major harmful events may involve or lead to a humanitarian crisis.

Hazard is any phenomenon that has the potential to cause disruption or damage to people and their environment. A hazard might lead to a disaster.

Risk is defined as a probability of harmful consequences, or expected losses (deaths, injuries, property, livelihood, economic activity disrupted or environment damaged) resulting from interactions between natural or human-induced hazards and vulnerabilities.

Risk is a function of the hazards to which a community is exposed and the vulnerabilities of that community. The risk exposure decreases proportionally to the level of the local preparedness of the community at risk. It is expressed by the following notation:

$$\text{Risk:} \frac{\text{Hazard probability X Vulnerability}}{\text{Local Capacity (Preparedness)}}$$

Vulnerability encompasses the conditions determined by physical, social, economic and environmental factors or processes, which increase the susceptibility of a community to the impact of hazards. The vulnerability can be defined as a degree to which a population or an individual is unable to anticipate, cope with, resist and recover from the impact (expected loss) of a disaster.

Emergency Preparedness designates all those activities that aim at preventing, mitigating and preparing for emergencies, disasters and other crises. Emergency preparedness is a programme of long-term activities whose goals are to strengthen the overall capacity and capability of a country or a community to manage efficiently all types of emergency. It requires development of emergency plans, training of personnel at all levels and in all sectors, and education of communities at risk. In terms of emergency preparedness all these measures should be monitored and evaluated regularly. Emergency prevention and mitigation involves measures designed either to prevent hazards from causing emergencies or to lessen the likely effects of emergencies (6,7).

Classification of major incidents and disasters

There are so many criteria for classification of major incidents and disasters. Regarding their nature they have been divided in two big categories - **natural and man-made** major incidents/disasters.

In terms of their occurrence they can appear **suddenly** or **insidiously**. The major incidents/disasters can cause **mechanical** or **medical** casualties and the most affected group can be adult population or children.

As a consequence of the emergency the social structure can be intact or destroyed. In the first case we speak about **simple** and in the second one about **compound** emergency/disaster.

A **compensated** type means that emergency/disaster can be managed by additional resources mobilization.

Uncompensated emergency/disaster means that it can't be managed by additional mobilization of available resources.

Numerous and different classifications by type and origin of disasters are available and they have been reviewed. The International Disaster Database (EM-DAT) distinguishes two generic categories for disasters: **natural** and **technological**. These are then divided into 15 main categories, each covering more than 50 sub-categories (8,9).

Natural disasters are divided into two groups:

- Hydro meteorological disasters: avalanches/landslides, droughts/famines, extreme temperatures, floods, forest/scrub fires, windstorms and other disasters, such as insect infestations and wave surges.
- Geophysical disasters: earthquakes, tsunamis and volcanic eruptions.

Technological disasters comprise three groups:

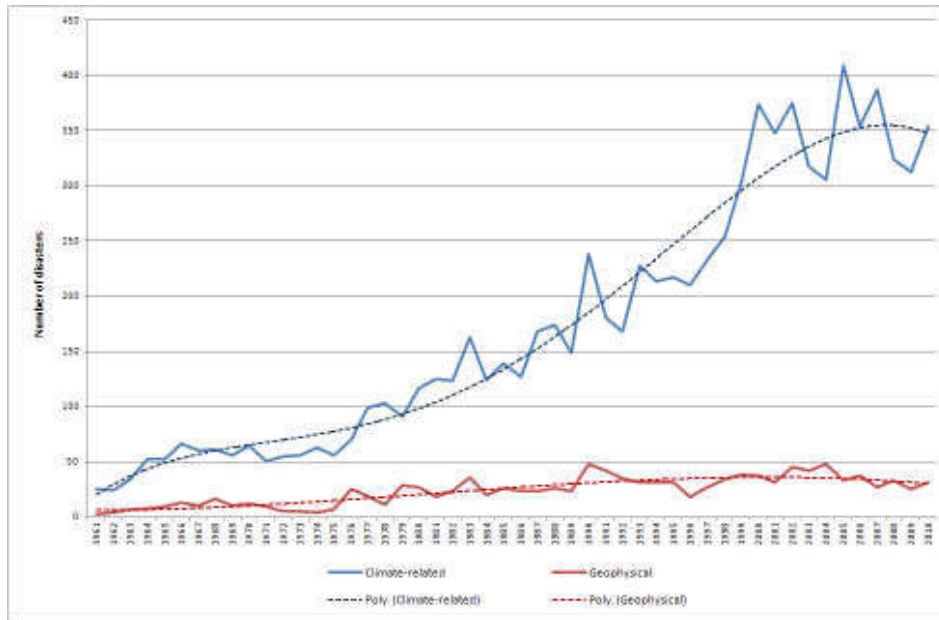
- Industrial accidents: chemical spills, collapses of industrial infrastructure, explosions, fires, gas leaks, poisoning and radiation.
- Transport accidents: by air, rail, road or water means of transport.
- Miscellaneous accidents: collapses of domestic/non-industrial structures, explosions and fires.

Some epidemiological characteristics of natural disasters – global overview

Over time, natural disasters are not stationary and may exhibit various kinds of trends, cycles, or seasonal patterns. The evolutions of these patterns can be summarized and made evident by using trend lines showing long-term movements in natural disasters time series data.

Between 1961 and 2010, a global annual average of 129.6 million (129,563,481) people were affected by natural disasters. These disasters claimed an average of almost 99,000 (98,816) lives per year. Between 1961-1970, 1 in 138 persons worldwide were affected by natural hazards, compared to 1 in 28 in the decade 2001-2010 and the economic costs associated with natural disasters increased more than eightfold.

Figure 2. Number of geophysical and hydro-meteorological disasters, 1961-2010



Hydro-meteorological events such as storms including cyclones, typhoons and hurricanes, droughts, floods and wet landslides, account for anywhere between 70 – 90 percent of all registered natural disasters in the last 5 decades. In 2010, 92 % of the worldwide totals were due to hydro-meteorological events (floods and storms). These events also accounted more than 96 % of the total affected people and for almost 63 % of the total economic losses that year.

During the past two decade, incidents of natural disasters have increased six fold compared to the 1960s and the increase is mainly due to small and medium scale disasters. Of the total, almost 90% are hydro-meteorological events such as droughts, storms and floods and scientific evidence suggests that global climate change will only increase the number of extreme events, creating more frequent and intensified environmental emergencies.

During the period between 1990 and 2011 the number of disasters varied between 227 and 432, but in 1996-2005 the number of disasters increased by nearly a multiple factor of two. Although there are potential biases in this increase and some of it can be partially explained by increased reporting of disasters, part of the trend is likely to reflect a real increase.

During this period the number of victims registered in the natural disasters was ranged from 100 million in 1990 to 658 million in 2002 year. The highest number of victims in 2002 was due to the droughts that affected 300 million people in India and 60 million in China. In the same year, China was affected by a wind storm with 100 million affected people and a flood that affected 60 million people.

In the year 2011, natural disasters once again had a devastating impact on human society. Worldwide, 332 reported natural disasters caused the death of more than 30,770 people, made 244.7 million victims and caused a record amount of US\$ 366.1 billion of damages. A total of 101 countries were hit by these disasters (10).

In terms of the geographical distribution of total number of victims by continents it's very important to emphasize that Asia remains the most affected region.

Figure 3. Trends in occurrence and victims in natural disaster in period 1990-2011

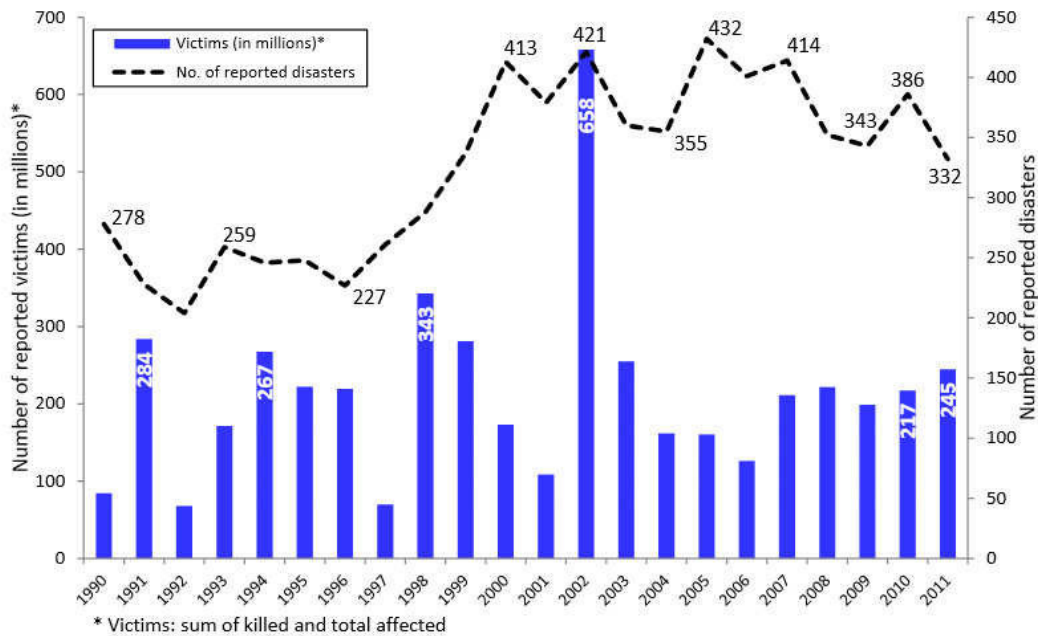
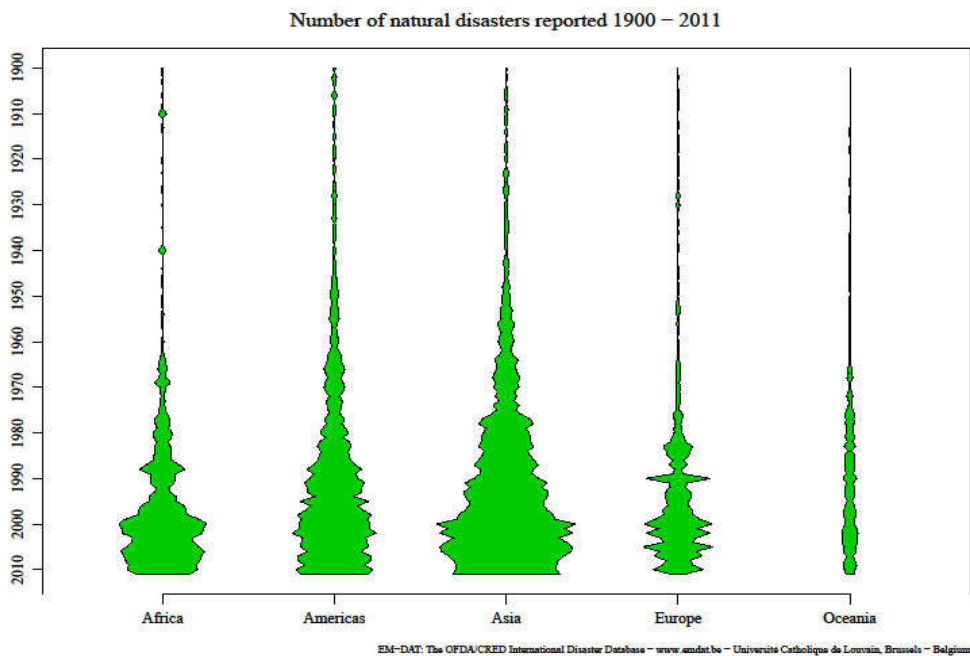


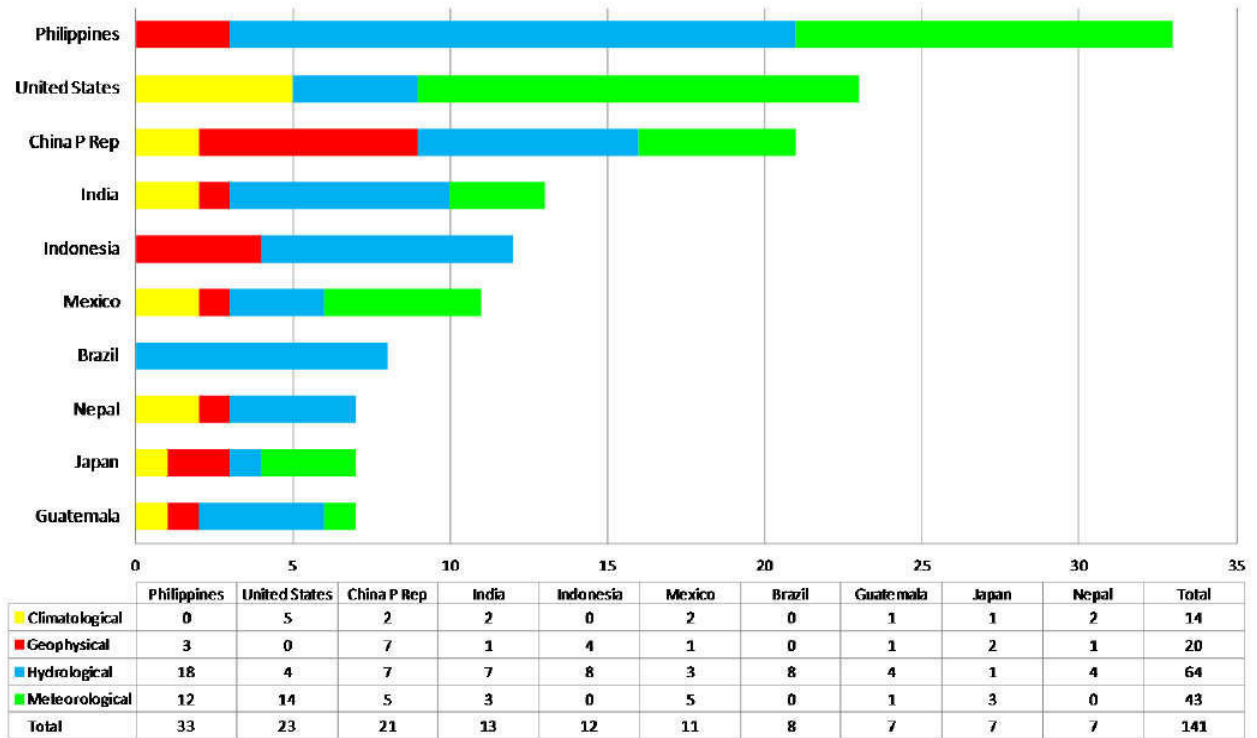
Figure 4. Number of natural disasters reported 1900-2011 by continents



A comparison between continents about the occurrence of natural disasters shows that disasters were most frequent in Asia. Looking at the geographical distribution of disasters, Asia was the continent most often hit by natural disasters in 2011 (44.0%) too, followed by the Americas (28.0%), Africa (19.3%), Europe (5.4%) and Oceania (3.3%). In particular, Europe was less frequently hit by climatological and hydrological disasters (10).

Over the last decade, China, the United States, the Philippines, India and Indonesia constitute together the top 5 countries that are most frequently hit by natural disasters. The list of top ten affected countries by type of the disasters in 2011 is shown on the next figure.

Figure 5. Top 10 countries by number of reported events in 2011



The Philippines experienced the highest number of natural disasters ever registered in its history. The country was affected by 33 natural disasters, mostly floods and storms. A series of tropical cyclones struck the country, killing over 1,780 people. This series of tropical cyclones caused 9.5 million victims, while floods resulted in 2.2 million victims in the country.

In United States were registered 23 natural disasters. The hurricane Irene was the biggest one that affected 370,000 people mostly in New York, New Jersey, Pennsylvania, but the biggest number of total 354 deaths was registered in Alabama, Arkansas, Kentucky that were hit by local storm.

In China, a total of 67.9 million victims were reported after severe flooding in June. This natural disaster alone accounted for 42.6% of total victims in the country and 27.8% of global reported victims in 2011. But a drought (January-May), a storm (April) and a flood (September) also made many victims in China.

Globally, natural disasters killed a total of 30,773 people and caused 244.7 million victims worldwide in 2011. Less people were killed by disasters in 2011 compared to 2010, when the Haiti earthquake alone caused the death of more than 222,500 people. However, geophysical disasters took the largest share of natural disaster fatalities in 2011, causing 20,949 deaths, and representing 68.1% of global disaster mortality in 2011 (10).

In figure 6 are presented mortality data by country in the period of last 4 decades.

The year 2011 was the most expensive year ever in terms of economic damages caused by natural disasters. The estimated economic losses from natural disasters in 2011 (US\$ 366.1 billion) were the highest ever registered, and surpassed the last record year of 2005 (US\$ 246.8 billion). The Tōhoku earthquake and tsunami in Japan cost US\$ 210.0 billion, or 57.4% of global reported damages. The United States (storms), Thailand (floods), New Zealand (earthquakes) and China (floods) were also main contributors to the total damages of US\$ 366.1 billion globally. Average annual damages in US\$ by type of natural disaster in the period 1990-2011 is shown below (11).

Figure 6. Deaths from natural disasters by countries in the period 1970-2010

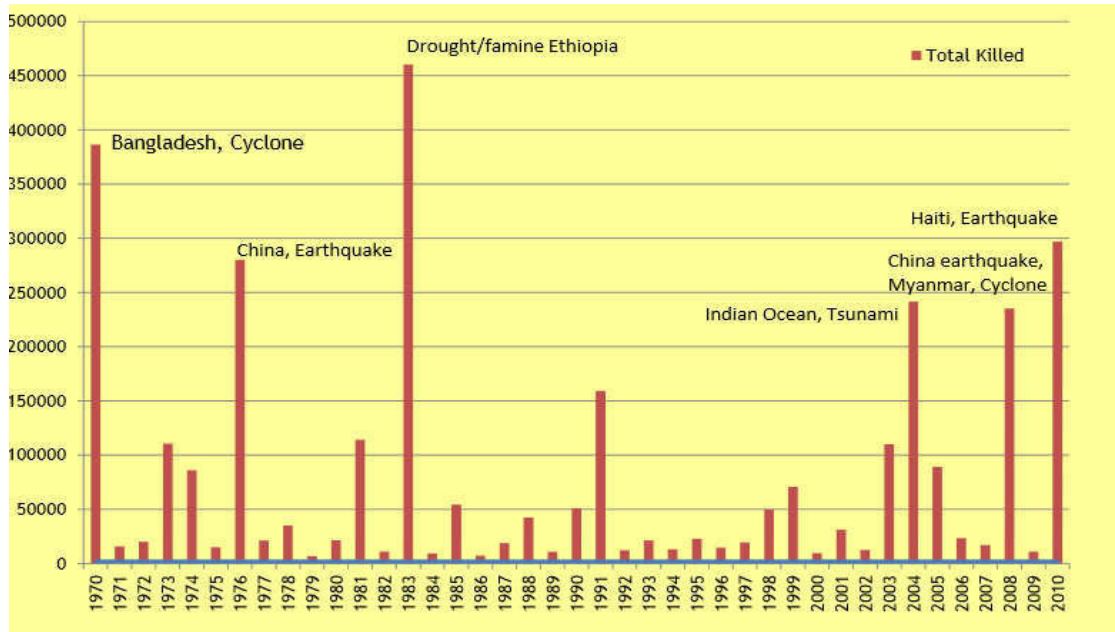
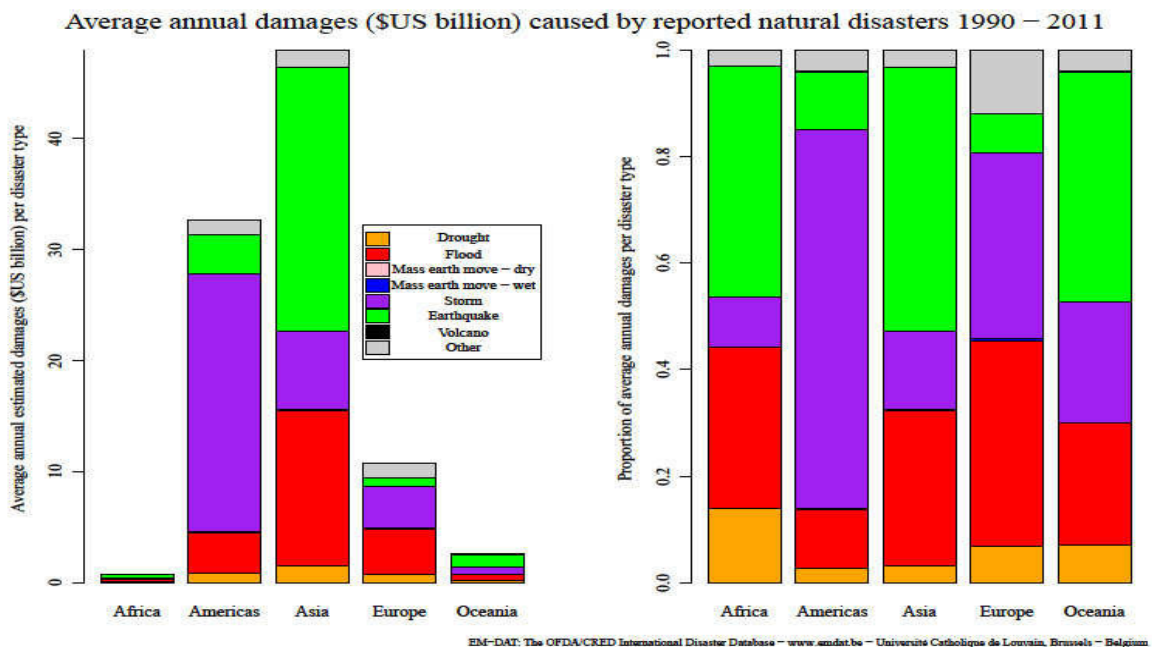
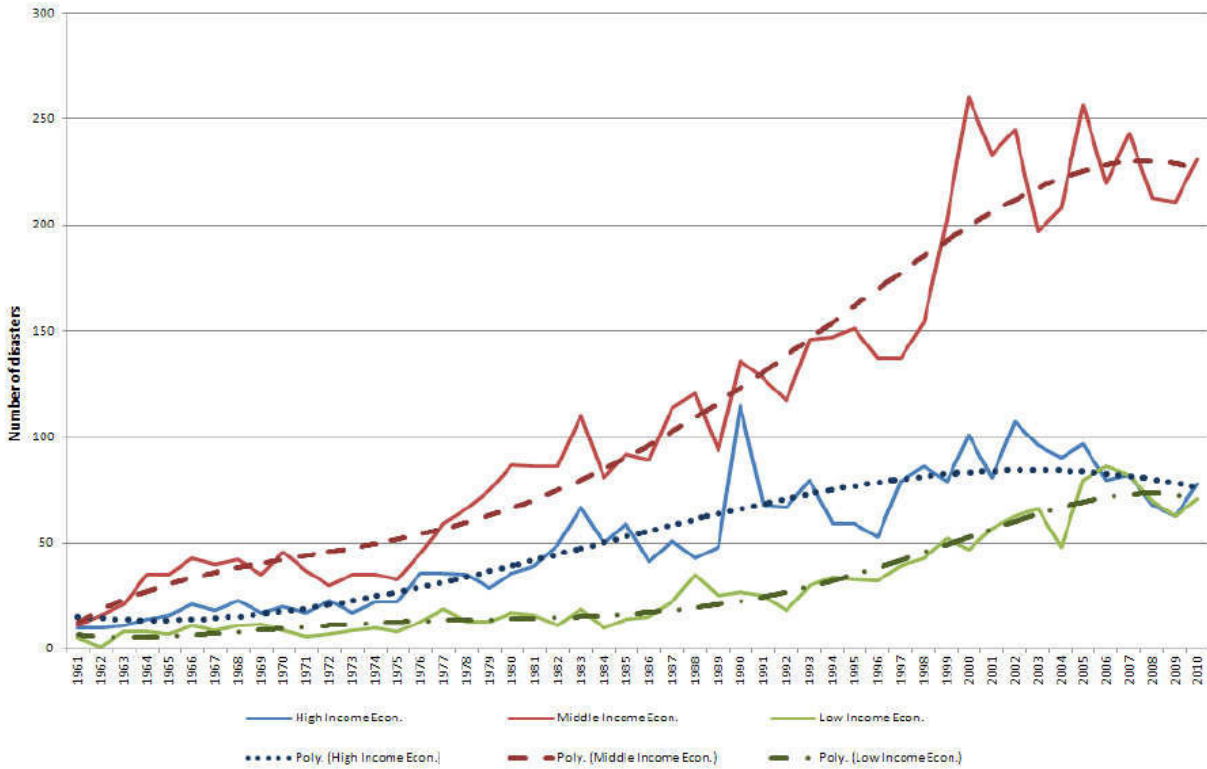


Figure 7. Average annual damages (\$US billion) caused by reported natural disasters 1990-2011



While all regions show an increase in the number of disasters, middle income countries know the greatest increase. Part of this is due to large countries, such as China and India, which by their sheer size, are exposed to more hazards and their population density renders them more vulnerable. The middle income category also includes countries at high seismic and volcanic risk such as most in South America and some in Asia such as Turkey, Armenia, Azerbaijan and Iran. Although the size of countries reflects exposure to natural hazards, it is the capacity of the national government and its infrastructure that remains the main determinant for effective response, preparedness and prevention (11).

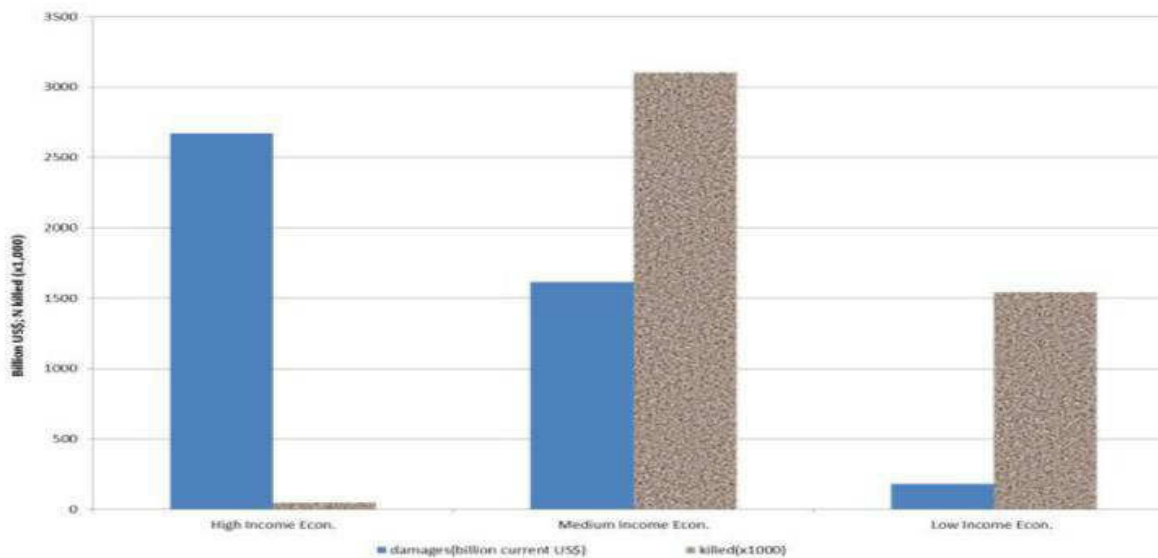
Figure 8. Distribution of disaster types by levels of economies, 1961-2010



Economic losses are widely used to indicate the severity of a disaster and to justify the need for preparedness. The distribution of natural disasters and their impact vary widely according to economies. The greatest losses in absolute terms are from the wealthier countries while poor countries typically report low economic losses for disasters.

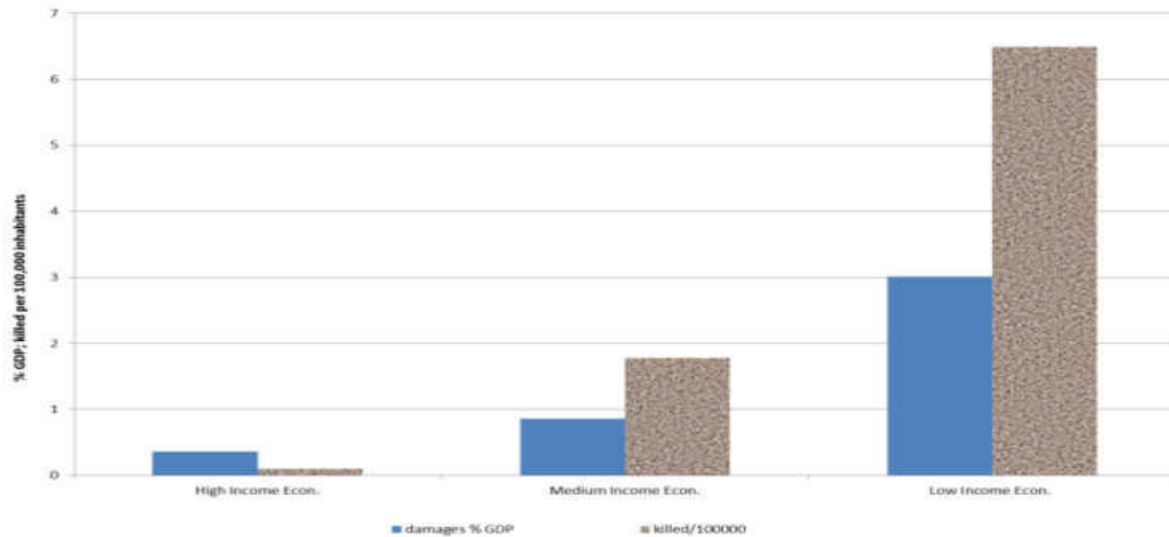
In contrast, for every person in wealthy countries who died in a disaster in the last 50 years, almost 30 individuals died in poor countries. In other words, the global ranking of disasters depends on the indicator used. Richer countries rank higher if economic loss data is used as an indicator of impact, while poor countries rank higher if death tolls are used as the impact indicator. It means that the pattern economic losses when are higher in richer countries than in poorer ones. In contrast, death tolls from disasters are higher in poorer countries.

Figure 9. Economic damages and mortality by economic status of the country in \$US billion



Contrary, by calculating population-based mortality rates and expressed economic loss as a percentage of GDP, both mortality and economic losses increase as economies get poorer, reflecting more accurately the burden of disasters (11).

Figure 10. Economic damages and mortality by economic status of the country in % of GDP



Technological disasters

Compared with disasters of natural origin, most technological accidents do not tend to cause many deaths or much economic damage. However, their catastrophic potential, especially in environmental terms, can be much greater than that of natural events. The worst non-natural disasters resulting in human suffering and death have been caused by wars, transport and industrial activities.

The first documented chemical disaster with industrial origins was described by Bernardino Ramazzini in 1600s. Today's chemical disasters differ in the way they happen and in the type of chemicals involved.

The most prevalent technological accidents are connected with releases of toxic substances in air (43%). Fire and explosion participate in the structure of technological accidents with almost equal parts (26% and 24%).

Fires or explosions account for half of all industrial accidents recorded in Europe over the past two decades. They are also the most dangerous type of industrial accident.

By methodological needs technological accidents can be divided in five groups: overt disasters, slow-onset disaster, mass food poisonings, transnational disaster and "developing" disasters.

Overt disasters are environmental releases which leave no ambiguity about their sources and their potential harm. Examples are Seveso and Bhopal. Seveso's accident took place in 1976 and it caused contamination of several square kilometers of populated countryside by the powerfully toxic 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD). More than 700 people were evacuated, and restrictions were applied to another 30,000 inhabitants. Bhopal represents, probably, the worst chemical industrial disaster ever. It happened in 1984 when gas leak caused a deadly cloud to spread over the city of Bhopal, in central India, leaving thousands of dead and hundreds of thousands injured in the space in few hours.

One of the most impressive and instructive examples of the slow-onset disasters is "Minamata disease". In 1953 unusual neurological disorders similar to that due to poisoning by alkyl mercury compounds began to strike people living in fishing villages along Minamata Bay, Japan. A source was found in a factory discharging of mercury into Minamata Bay and the subsequent biological transformation into organic compound into the fish that were used as food.

Outbreaks of food poisoning can be caused also by toxic chemicals released into the environment through the use of chemicals in the handling and processing of food. One of the most serious episodes of this type occurred in Spain in 1981 when previously unknown syndrome with signs of toxic pneumonitis, and gastro-intestinal symptoms affected over 20,000 persons with 315 deaths. The illness was found to be associated with the consumption of inexpensive denatured rapeseed oil, sold in unlabelled plastic containers that caused contamination with polychlorinated biphenyls (PCBs). Similar poisoning was reported in Japan and in Taiwan and dioxin poisoning was detected in Belgium.

An obvious example of transnational disasters is Chernobyl, whose contamination reached from the Atlantic Ocean to the Ural Mountains. The Chernobyl disaster in 1986 is regarded as the worst accident in the history of nuclear power. The explosion in the plant resulted in radioactive contamination of the surrounding geographical area, and a cloud of radioactive fallout drifted over western parts of the former Soviet Union, Eastern and Western Europe, some Nordic countries and eastern North America. Large areas of Ukraine, the Republic of Belarus and the Russian Federation were badly contaminated, resulting in the evacuation and resettlement of over 336,000 people.

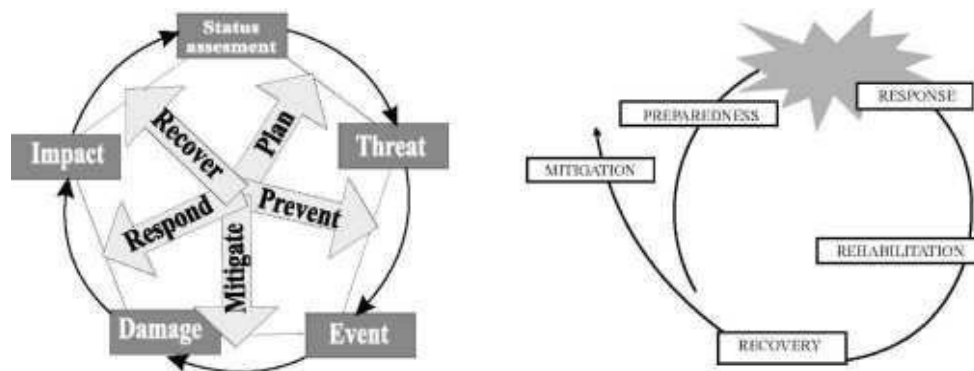
The occurrence of 'developing' disasters is connected with industrialization and modernization of agriculture in developing countries and application of imported or adopted technology and products, which are quite different from those in which they were intended to be used. It was estimated that about 500,000 acute pesticide poisonings occur annually, resulting in about 9,000 deaths. But, only about 1% of the deadly cases occur in industrialized countries, although those countries consume about 80% of the total world agrochemical production (10).

Disaster management

Nobody dies by "disaster". During the crises, emergencies or disasters people die of well recognizable, often banal causes that in other circumstances could be prevented. This is the main reason for better preparedness for appropriate response to crises and disasters.

Main phases of disaster management - planning, prevention, preparation (mitigation), respond and recovery are closely linked (11,12). Focus of action of each of these phases is placed between different periods in relation of disaster events or hazard spectrum. Good preparedness before the event and appropriate response are essentially important for disaster risk reduction or mitigation in the next cycle of hazard spectrum. They are based on good planning activities based on the status assessment. This is shown on the following schemes:

Scheme 1 and 1-a. Disaster management and disaster reduction activities



Assessment

Assessment is a crucial management task which contributes directly to effective decision-making, planning and control of the organized response. Assessment of needs and resources is required in all types of disasters, whatever the cause and whatever the speed of onset (13,14).

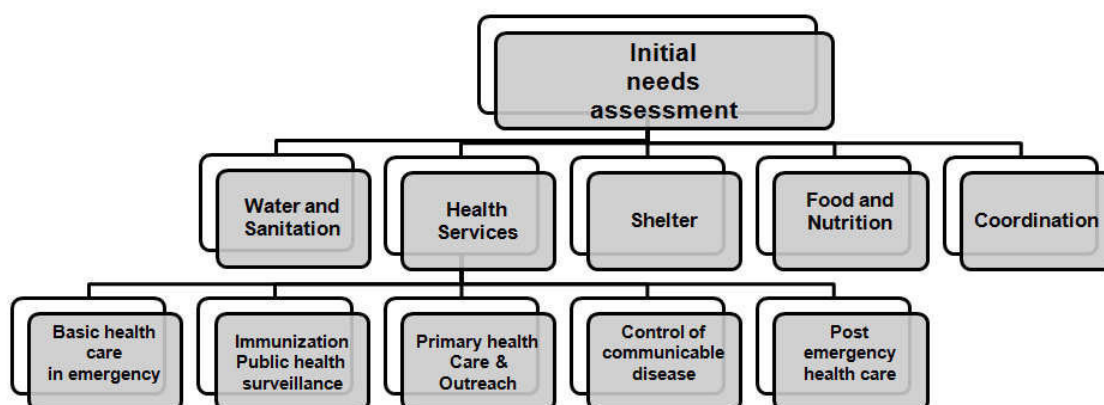
Three general priorities should be identified for early assessment: location of problem, magnitude of problem and immediate priorities. Initial needs assessment is based on the situation analyses of available resources about 5 essential needs during the disaster: water and sanitation, health services, shelter, food and nutrition and coordination activities.

For better public health preparedness, assessment activities should offer appropriate information for specific hazard identification and appropriate quantitative risk assessment.

The purpose of risk assessment is to guide communities in planning by developing and maintaining 3 sets of plans:

- hazard reduction plans,
- vulnerability reduction plans,
- emergency preparedness plans.

Figure 11. Scope of activities of the initial needs assessment



Prevention

Prevention describes those activities that can be implemented to stop or minimize the likelihood of disaster/incident occurrence. It would be achieved by the hazard **reduction programmes**.

Reduction is "identification and analysis of long-term risks to human life and property from natural or non-natural hazards taking steps to eliminate these risks if practicable and, if not, reducing the magnitude of their impact and the likelihood of their occurring" (15).

Risk reduction methods are based on the principles of acceptance, avoidance, and mitigation. Some examples of hazard reduction plans are remediation of contaminated land before building on or building barriers to reduce a flooding risk.

Preparation-mitigation

Preparation describes those activities, whose implementation as soon as there is advance warning of an imminent threat will minimize the impact of the incident. Activities include both forecasting and implementing the precautionary measures.

It involves both organizations and individuals who are involved in the response, recovery and post-incident audit phases. It would be achieved by the **vulnerability reduction programmes**. Vulnerability reduction describes those activities whose implementation is designed to minimize the consequences of a natural hazard event. This is achieved by lowering the vulnerability or by reducing the number of elements at risk.

Some examples of vulnerability reduction plans are designing earthquake proof buildings or heat wave watch scheme (16,17).

Response

Response describes those activities whose implementation in the immediate aftermath of a major disaster/ incident will provide health and social care, and will rehabilitate or reconstruct the physical structures of the community. Essential elements of the response include equitable access to adequate safe water, hygienic sanitation, and food and shelter, and protection of affected populations from ill-health and violation. The base for appropriate emergency preparedness and response is initial needs assessment. Responses should give priority to the most vulnerable people: women (especially when pregnant), young children, older people and persons who are disabled or chronically ill.

It would be achieved by the appropriate **emergency preparedness and response plan**. There are many different emergency plans, some of them being:

- generic (all hazards) or specific;
- single agency or multi-agency;
- local, regional or national;
- business continuity plans.

All-hazards plans approach is based on the premise that an organization's (service's) response to the range of potential major incidents. Single generic plan can provide a basic structured response for any incident including chemicals, fuel, electricity, flooding etc.

Specific plans approach is designed to meet specific needs. It is developed following the risk assessment. Plans may be risk specific, site specific or organization function specific (13,18).

Multi-agency/integrated emergency plan aims to ensure that the activities of all services/organizations involved in managing a major incident operate in an integrated manner.

Specific preparation for emergencies and crises alleviates their impact on health systems and decisively reduces the level of suffering, spread of epidemics, and number of deaths. For the health sector, preparedness

typically means assuring resiliency of: health facilities to extreme conditions, availability of priority hospital services (focusing on trauma, women's health, child care and chronic conditions), management and triage of mass casualties, evacuation of the injured and quarantine procedures, capacity for search and rescue operations, and the ability to establish disease surveillance and control measures rapidly. The key requirement is that those who need to respond are ready to do so. Careful planning is essential in order to assign responsibilities, identify challenges, introduce special procedures, and establish fallback mechanisms.

Preparations and training should focus on identifying essential staff, establishing roster systems, testing procedures, and stockpiling essential supplies. Response activities include many different actions as follows:

- Development of specific incident algorithm;
- Command and control;
- Safety (self, scene and survivors);
- Communication;
- Scene assessment;
- Triage;
- Treatment;
- Transport.

Command and control. This identifies who is in charge of the individuals/organizations involved in managing the incident. Effective command requires good communication both horizontally between incident officers and vertically (up and down the individual service chains of command).

It is usually based on **bronze (operational), silver (tactical) and gold (strategic) levels of command.**

Safety. This embraces the rescuer's own safety, the safety of the scene and the safety of the casualties (in that order of priority).

Communications. This involves the process of communication between individuals/organizations at bronze and between bronze and silver/ gold as appropriate.

Scene Assessment. The information required at this stage is contained in the acronym METHANE (16, 19). The initial information to be passed from the scene assessment of a major incident that should be done is:

- **M**-Has a major incident been declared
- **E**-What is the exact location (grid reference)
- **T**-What type of incident is it (e.g. rail, chemical or road)
- **H**-What hazards are on site (current and potential)
- **A**-How is incident accessed (i.e. approach direction)
- **N**-Numbers of casualties (type and severity)
- **E**-Emergency services (present and required)

Triage. Triage activities (sieve and sort) are undertaken to sort casualties into priority groups for treatment (13). Whenever the numbers of casualties exceeds the numbers of skilled rescuers present, then the following triage principles should be used:

- get the right patient to the right place at the right time
- do the most for the most
- triage is a dynamic process

The aim is to prioritize the casualties into 4 groups on the basis of the treatment required: immediate, urgent, delayed and expectant.

Treatment. This involves applying those medical interventions that will enable the patient be stabilized prior to scene evacuation.

Transport. This involves getting the right patient, to the right facility at the right time.

Recovery

This encompasses all those activities designed to "address the enduring human, physical, environmental, social and economic consequences of major disasters/incidents." Its objective is to rebuild, restore, and rehabilitate the community and all possible disasters' impacts.

Recovery means that the crises are resolved. The recovery phase begins at the earliest opportunity after the onset of the disaster, running simultaneously with the response phase and continues until disruption has been rectified, demands on services have returned to normal levels, and the needs of those affected (directly or indirectly) have been met.

From a health perspective the crises are resolved when essential health systems have been repaired and rebuilt. To achieve this, a health sector recovery plan is essential. Such plans focus on essential lifelines to those in need - the restoration of services in primary health centers and hospitals, rehabilitation of laboratory services, disease surveillance and public health programmes. They include the identification of vital staff, their support and training, and the provision of essential supplies and equipment.

The specialty of emergency medicine meets the scientific, clinical and organizational need for a medical discipline that has a primary concern with emergencies (disaster medicine). Emergency medical care of a high standard should be available to every person in need in all situations and at all times.

The provision of high quality emergency care requires physicians with specialized training. Unfortunately this kind of education is not available in all Western-Balkan countries. The implementation of EU standards of training in emergency medicine and pan-European examination should be one of the national health care priorities (13,20).

Post Incident Audit

This involves conducting an assessment of the management of the incident to identify lessons learned. By definition, audits are an independent assessment and evaluation of an institution's activities.

The purposes may include gaining an understanding of the service's/organization's operations, evaluating the adequacy of the control structure for potential key issues and areas of concern, providing on-going feedback to management, validating and reviewing data for completeness, accuracy, and authorization, benchmarking, or assessing a data centre for security, operations, application maintenance, and system implementations.

Potential health sector response strategies - Implementing the legal framework

The first legally binding WHO instrument, the International Health Regulations (IHR), has been revised in 2005. This revised version, IHR (2005), constitutes a renewed legal framework for WHO to collectively address public health emergencies of international concern, of whatever nature (infectious agent, chemical, nuclear, etc.) or origin (natural, accidental, deliberate). IHR (2005) came into force on 15 June 2007. WHO has a mandate to support the countries in preparing their health systems to cope effectively with the health aspects of crises and to strengthen their public health readiness. It requires complex prevention and preparedness strategies. Good governance and good management of health systems are particularly the most important prerequisites for effective operational crisis response.

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