

THE RELEVANCE OF VALUE NET INTEGRATOR AND SHARED INFRASTRUCTURE EBUSINESS MODELS IN MANAGING CHRONIC CONDITIONS

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ABSTRACT

There is widespread support for chronic condition management (CCM) programs that require a multi-disciplinary, care-team approach. Implementation of such programs represents a paradigm shift in primary care service delivery and has significant resource implications for the general practice. Integral to the widespread uptake of care-team based CCM is information collection, storage and dissemination amongst the care-team members. This paper looks to ebusiness models for assistance in understanding the requirements of general practitioners (GPs) in providing multi-disciplinary team care to patients with chronic conditions. The role required of GPs in chronic condition management is compared to that of a value net integrator. The essential characteristics of value net integrators are identified and compared to those of GPs providing multi-disciplinary team care to patients with chronic conditions. It is further suggested that a shared infrastructure is required.

INTRODUCTION

Growing evidence supports the notion that patients with chronic conditions cannot be effectively treated using the traditional, general practice, acute service model and that a new service model is required. There is some consensus in the literature that a multi-disciplinary, care-team service model involving the general practitioner (GP) and other members of the primary health care value network (value net) is needed (Wagner, 2000, Veale, 2003, Fox et al, 1998, Berenson and Horvarth, 2003). Although there appears to be general recognition that the multi-disciplinary team based model serves patients with chronic conditions better than the acute service model, GPs are struggling to implement it and most are not even attempting to implement these programs.

The changes required to successfully implement multi-disciplinary care-team based primary health care are not incremental, they constitute fundamental changes to the general practice business model and require significant changes to the underlying resources of the general practice.

In this paper it is suggested that to enable care-team based primary health care on a large scale the business model needs to incorporate the characteristics of what Weill and Vitale (2001) call the value net integrator (VNI) and a shared infrastructure.

Firstly, the traditional general practice business model will be described using the business model framework of Weill and Vitale (2001) demonstrating a close resemblance to the direct-to-customer business model. The characteristics of the care-team based chronic care model will be described and the shortcomings of the traditional general practice business model to deliver such care will be identified. Next, attributes of the VNI business model will be described and it will be demonstrated that the VNI business model, supported by a shared infrastructure, has the potential to provide a better vehicle for the delivery of team based chronic care than the direct-to-customer business model. Questions will be raised as to whether the GP is in the best position to take on the role of VNI or whether there is an entity or person better placed to take on this role.

THE TRADITIONAL GENERAL PRACTICE BUSINESS MODEL

A business model is a business concept that has been put into practice (Hamel, 2000). Many definitions and constructions of business models exist but essentially they describe the value offered by the entity, the value received in return and how the entity relates with other entities in the value network (Lambert, 2003). Table 1 lists the generic business model attributes (Lambert 2003) and the values of these attributes for traditional general practices. It is from the business model that the essential resources, strategies and organisational structures of the entity can be derived.

The traditional general practice business concept is that of GPs providing an acute care service to patients in return for a government subsidised fee. The traditional general practice business model can be best described as a non-electronic, direct-to-customer (patient) business model.

Table 1: Traditional General Practice Business Model Attributes

Generic Business Model Attributes	General Practice Business Model Attributes
Value offering and to whom	Primary health care services offered to patients using predominantly an acute service model.
Value received and from whom	A government subsidised fee from the patient.
The firm's position in the value domain	The general practice is a direct-to-patient service provider, utilising no intermediaries.
The nature and channels of interaction of the firm with other entities (allies) within the value domain	Three categories of allies interact with the general practice through various channels. Allied health service providers. Divisions of General Practice The Federal Government.

GPs make themselves available to patients in their consulting rooms and patients make appointments for consultations. Patients present to the GP and describe their conditions, the GP treats the patients and or recommends further consultations with themselves or other allied health service providers. The GP does nothing more unless the patient presents again. This is known as an acute service model, patients presenting in an ad hoc fashion primarily for acute symptoms.

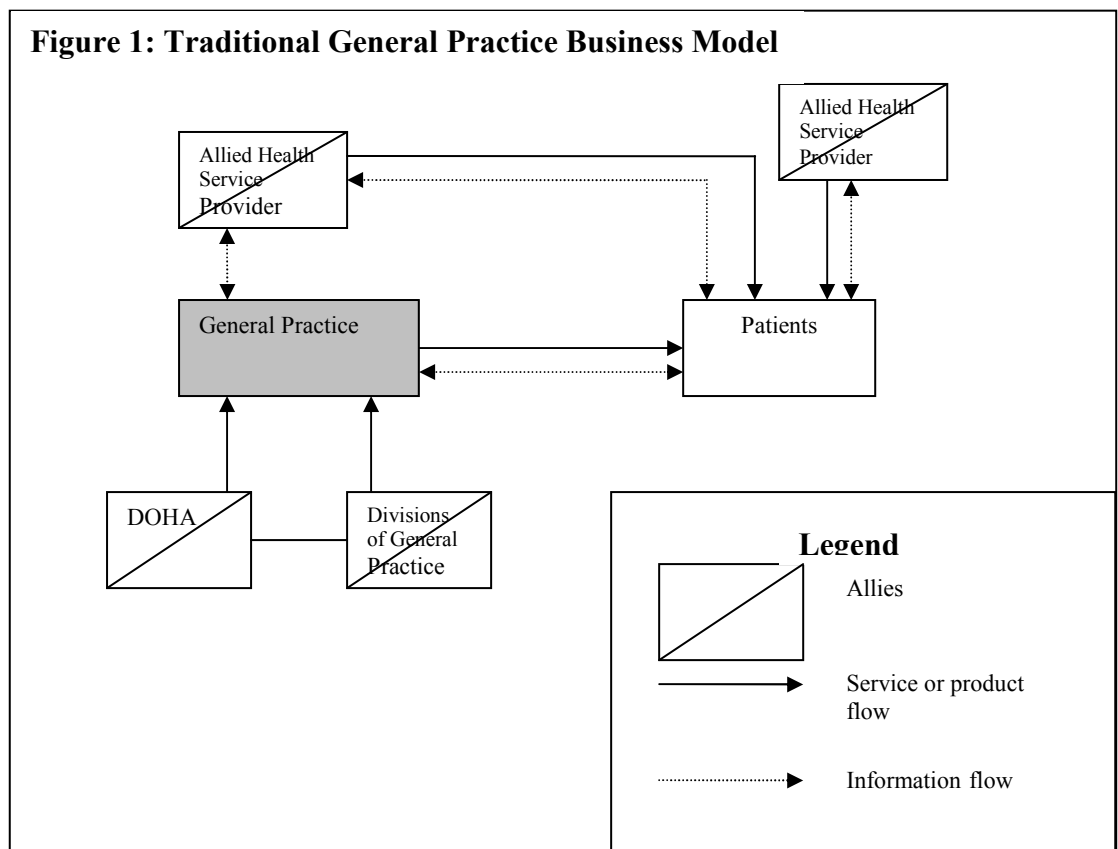
The general practice business model is illustrated in Figure 1. The dashed line represents flows of information between entities and the solid line represents a flow of services and products. The interactions with allies are significant characteristics of the general practice business model distinguishing it from business models of many other professional service firms. Allies play a major role in the successful delivery of primary care to patients therefore it is crucial that the nature of these relationships is clearly understood.

TRADITIONAL RELATIONSHIPS WITH ALLIES

As stated in Table 1, GPs interact with three categories of allies and each serve very different roles in the primary health care domain.

Allied Health Service Providers

This group consists of medical specialists, hospitals, pharmacists, health care providers such as dieticians, dentists, asthma educators, social workers and psychologists, and community service providers such as alcohol and drug support workers, disability service coordinators, carer respite and support workers and education providers. These entities interact directly with the patient, sometimes being referred to the patient by the GP and other times without the GPs knowledge.



Although there is some exchange of information and ongoing communication between these allies and the GP it is mostly of a reporting nature with the patient often not privy to the communications.

Divisions of General Practice

This body provides professional and business support to GPs. Divisions of General Practice are

“...local organisations, funded by the Australian Government Department of Health and Aging (DOHA) to improve health outcomes for patients by encouraging GPs to work together and link with other health professionals.

...Divisions have a role in helping general practices and individual GPs to work more collaboratively with other health professionals. They advocate and negotiate on behalf of their members with governments, hospitals, other health care providers....” (Primary Health Care Research & Information Service 2004).

Some Federal Government funding is channelled through the Divisions to GPs to provide professional development and resources to the GP such as practice nurses to rural practices.

The Federal Government

The Department of Health and Aging (DOHA) is the federal government body that has both a monitoring and a regulating role with respect to GPs. General practice revenue models are determined by the DOHA which implements government health fiscal policies by controlling the GP fee structure and the conditions by which GPs can claim additional funding. The DOHA channels funding through the Divisions as well as directly to the GPs.

The Patient

The traditional relationship between GP and patient can best be described as didactic; the GP having a predominantly authoritarian role and the patient a passive one (Holman & Lorig, 2000). In the past most patients would present with acute symptoms, seeking treatment or instructions from the GP on what to do to treat the problem.

THE NEED FOR A MULTI-DISCIPLINARY CARE-TEAM APPROACH TO CHRONIC CONDITION MANAGEMENT

The GP business model has evolved to assist and support GPs in achieving their traditional objective, which is to provide medical care to patients presenting with predominantly acute ailments. In recent times however the majority of patients present not with acute ailments but with chronic conditions.

Chronic conditions represent approximately seventy percent of all general practice encounters (Veale, 2003) and most of these involve comorbidities (i.e. multiple chronic illnesses) (Grumbach, 2003). The problem is that the traditional, acute care model does not work well for patients with chronic illness, especially where patients present with comorbidities. One of the reasons is that the goals of chronic care are not the same as the goals of acute care. The main goal of acute care is to treat the ailment so that it goes away and the patient's health is restored. The goals of chronic care are to “...enhance functional status, minimize distressing symptoms, cope with the psychosocial stresses of pain and disability, and prolong life through secondary prevention.” (Grumbach, 2003). The complexity and long-term nature of chronic illness requires a range of skills all of which cannot be provided by the GP alone. The multi-disciplinary care-team approach requires

the GP to work in conjunction with other healthcare groups to provide a more holistic service to patients.

Chronic care programs take a variety of forms but common to all is the development of long-term care plans that set goals for the patient, record treatments and results. Essential to the success of care-team based chronic care is the ability of all care-team members to have access to patient data and be able to update the records in real time.

The collaborative teamwork required for effective chronic care and the complementary information processing, storage and distribution activities require radical changes to general practice operations and have significant resource implications.

RESOURCE IMPLICATIONS OF CHRONIC CARE-TEAM BASED MEDICINE

Key Competencies

The training and skills of GPs have been tailored to suit the acute service, didactic model, the emphasis being on what Balogun and Jenkins (2003) refer to as 'explicit knowledge'. This equates to the GP being able to diagnose and apply the appropriate treatment to the illness. Training of GPs in Australia has 'remained rooted in urban medical schools and their affiliated teaching hospitals, where the focus is on acute disease' (Balakrishnan and Finucane, 2003).

These skills and knowledge are obviously still required in a team based approach however additional skills and knowledge are required to facilitate the functioning of the care-team. Increasingly the GP must be able to utilise the services and treatments offered by allied health service providers for the benefit of their chronically ill patients and therefore need to acquire skills in quality assurance, supervision and review. They also need to be able to manage the patient data that is a necessary part of a long-term approach to chronic care along with the associated technologies.

IT Infrastructure

The information technology and communication (ITC) requirements of GPs have, to date, been relatively basic. They are aimed at assisting GPs to access and update patient data, issue prescriptions and order diagnostic tests. Many GPs maintain predominantly manual systems for internal information management.

Effective chronic condition management requires greater utilisation of ITC resources to monitor patient condition and communicate with other care-team members. (Celler et al, 2003). Internet based application programs that allow GPs to remotely monitor patient conditions and programs that allow for the sharing of patient health records are gradually becoming available, although considerable research into the effectiveness of these applications is ongoing (Celler et al, 2003).

Strategy and Structure

To a large extent the revenue model dictates practice strategy. The revenue model is a fee-for-service model, determined by the DOHA. The GP is able to charge patients per visit the majority of the fee coming from government rebate and a small proportion (if any) coming from the patient. The ability to charge for practice nurse services is strictly limited and

administrative services are not chargeable. It follows that the traditional strategy adopted by GPs is to maximise the number of patient visits and minimise practice support staff which in turn maximises practice revenue and to utilise IT systems and human resources to provide support services to the GP without substituting for GP-patient time. Innovative use of technology that eliminates the need for clinical visits is not supported by the existing revenue model.

CARE-TEAM COORDINATOR AS VALUE NET INTEGRATOR

Coordination of the multi-disciplinary care-team and management of patient data requires a team member to assume the role of VNI. Although the pure VNI abandons roles connected with the physical world and the care-team coordinator does not, there are important similarities.

“Value net integrators add value by improving the effectiveness of the value chain by coordinating information.” (Weill and Vitale, 2001, p221)

The VNI is responsible for gathering information, processing it and distributing it to all other entities in the value net and for coordinating product flows from suppliers and allies to the customer. The goal of the VNI is to know more about the customers' needs and transactions than any other entity in the value net, to know the needs and capabilities of all other entities in the value net and be able to manage relationships between customers and other entities. To be successful the VNI must be trusted by the customers and the other entities in the value net and be aware of the services and products supplied by all suppliers and allies in the value net.

Arguably the VNI role can be carried out by any of the care-team members however the GP is well positioned in the primary health care industry to become the VNI. The GP and the staff of the GP interact with the patients for multiple reasons including acute ailments and therefore has the potential to have more information about the patient and their needs than any other entity in the value net. In addition the GP is well informed as to the services and products offered by the allied health services and how they can assist the patient.

The VNI business model is very similar to the general practice, direct-to-customer business model. Most importantly it recognises the significance of and the richness of communication between the general practice and the allies. It also acknowledges that the general practice owns the primary relationship with the patient. Owning, or having the potential to own, the primary relationship with the patient means the VNI is in a position to know more about the patient than any other entity in the value net. This is only possible if the allies keep the general practice informed of all dealings with the patient.

Figure 2 illustrates the application of the VNI business model to the delivery of multi-disciplinary team care to chronically ill patients. It is noteworthy that the general practice rather than the general practitioner is the entity of interest. It is possible and likely that support staff within the general practice will assume the role of team coordinator and that the GP will assume the role of supervisor and quality assurance reviewer.

To operate successfully the VNI must be able to gather, synthesise and distribute information to all entities within the value net. This implies a level of ITC that is not present in most practices. It is not likely that individual general practices will have the skill and the financial resources to develop and manage their own patient databases in such a way as to allow input from allies dealing with the patient, processing of the data and to allow dissemination of patient data to the relevant allies and the patient.

It seems appropriate for the ITC resources and management to be provided under a shared infrastructure business model as described by Weill and Vitale (2001). In general, a shared infrastructure is formed and financed by competitors in the same industry with a view to providing a service that is not otherwise possible due either to cost factors or because the service can only be provided if competitors share some or all data and or assets.

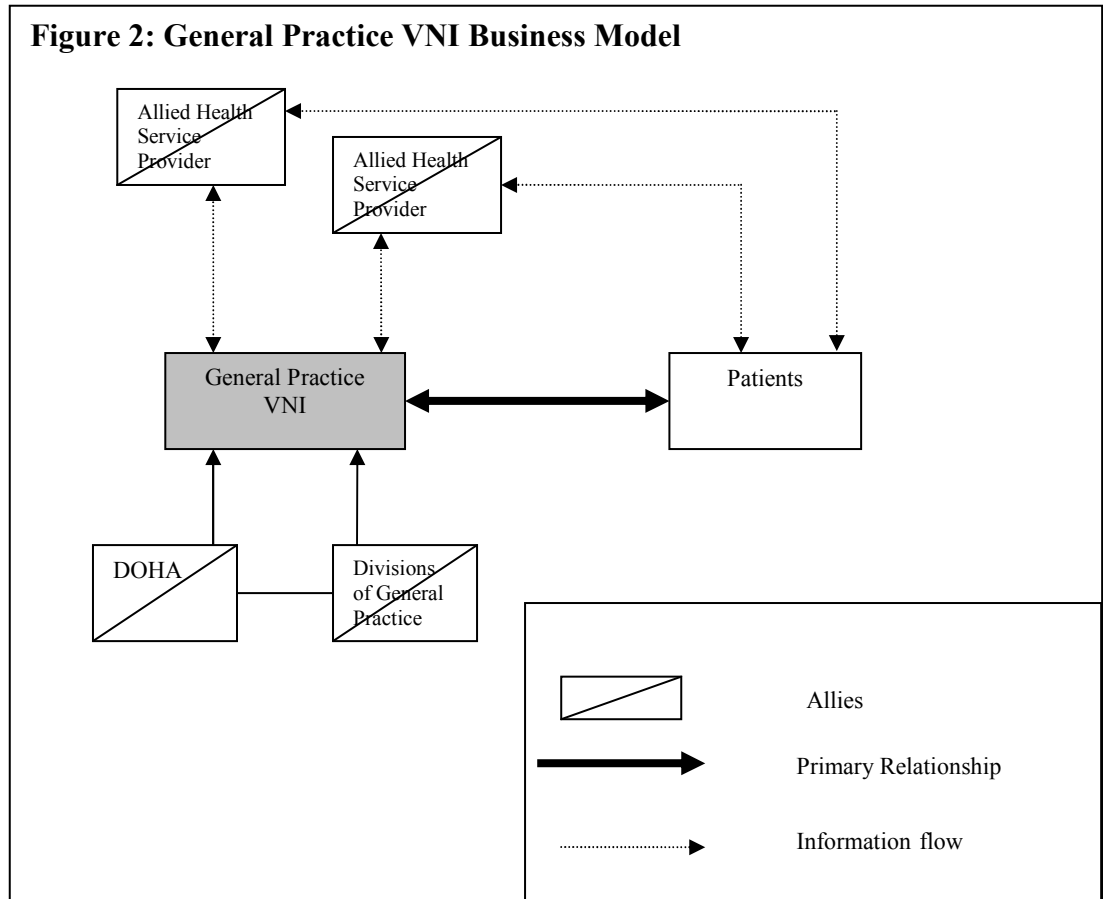
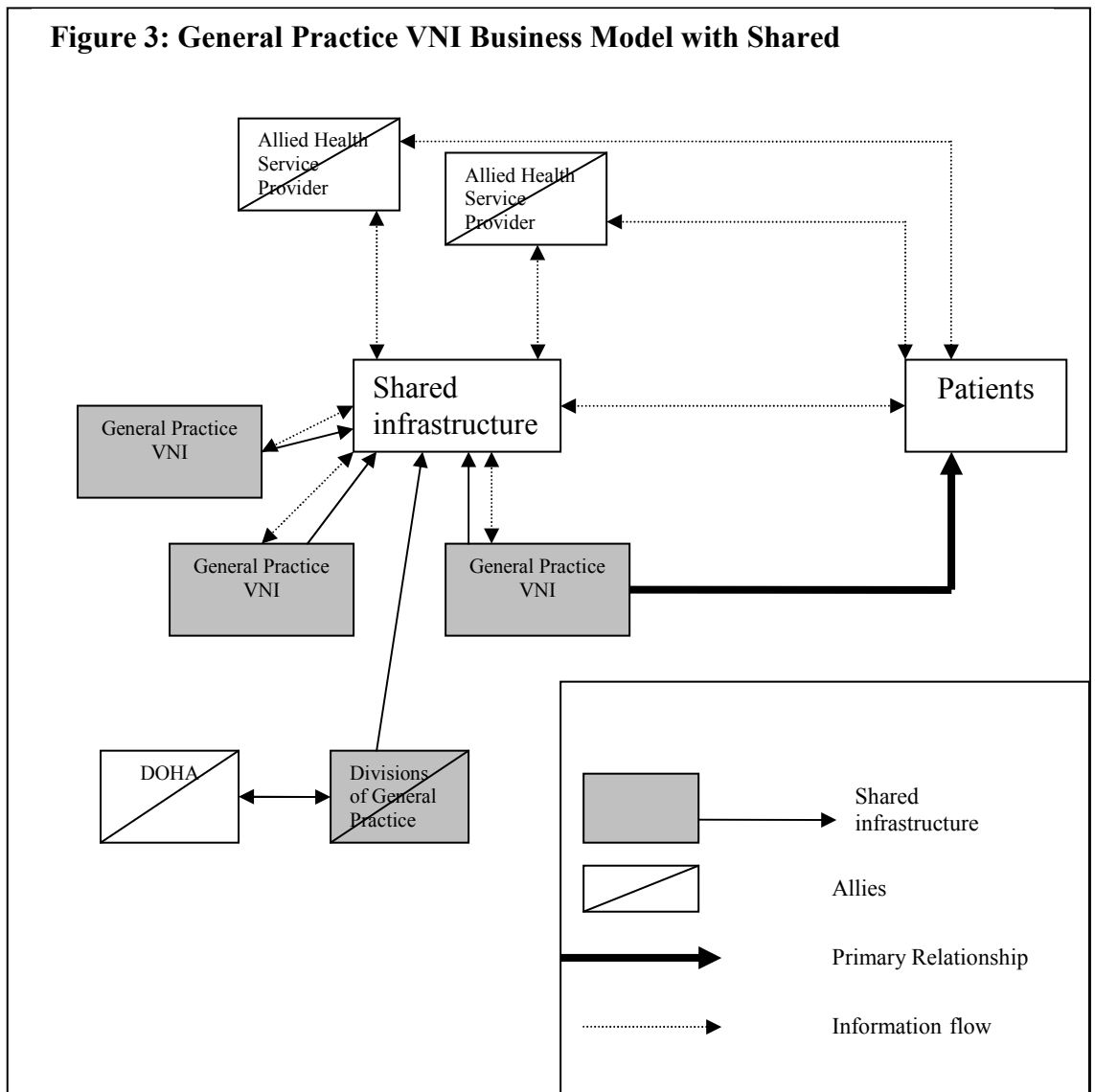


Figure 3 depicts the general practice operating as a VNI and being supported by a shared infrastructure. To be successful the partners of the shared infrastructure must perceive that they all have the same opportunity to gain from the arrangement and that no single partner dominates. There must be effective partner conflict management structures and processes and the infrastructure must be fully interoperable not only with respect to the partners but with respect to all users of the system. Financially a shared infrastructure would benefit GPs providing care-team based chronic care. Economies of scale could be recognised and an overall more efficient and productive system could be developed and maintained. The other entities within the value net would also benefit from having to deal with a single service provider rather than a multitude of independently operated databases.



A generic problem with shared infrastructures is the management of the project, coordinating partners to the project, managing the relationships between partners and ensuring equitable opportunities for partners to contribute to the development of the project. Since the Divisions of General Practice already operate to encourage collaboration amongst GPs and other health service providers and since the Divisions have access to federal government funding, the management of the shared infrastructure might be a natural extension of Division services.

LIMITING FACTORS

Security and privacy of patient data is a major obstacle to the implementation of any database that contains data of a personal and sensitive nature. Unauthorised access and data tampering is of paramount concern to patients and to medical team members.

The propensity of GPs to embrace change and to manage such radical change will be a determinant of the success of multidisciplinary, care-team, chronic condition management. One of the factors that will influence the motivation of GPs to make the change is the ability of them to benefit monetarily. The GP revenue model will need to recognise the non-GP input to the system and allow GPs to benefit from providing web based support, practice nurse resources and other administrative services to patients. Although these issues are not the subject of this paper it is recognised that they need to be addressed before any patient data sharing programs can be implemented and before GPs will contemplate implementing the ITC systems that are being developed.

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