

# DIMENSIONS OF EXCELLENCE

## “SECOND CURVE THINKING”

### AND PROGRESS IN PHYSIOTHERAPY

We are living in times of enormous change, not just here in South Africa where great and rapid changes are occurring at every level of society and specifically in health care delivery and in education, but right across the world. Never before has there been such multisystem change - socioeconomic, sociopolitical, technological - all impacting upon the health system and the future delivery of health care. Impacting too upon the higher education system and upon the preparation of undergraduates for professional practice.

There would be no-one who would disagree with me that change is a constant feature of our lives, no one who would disagree that the pace of change is increasing.

Does it have something to do with the immediacy of communication, the amount of information transmitted? Superfast information delivery systems in electronic or hard copy create an immediacy of information which can threaten to overwhelm us - e-mail, fax, voice-mail, to say nothing of hardcopy memoranda descending onto our desks like ticker tape at a parade. New technology means that we can be reached instantly from all over the country, if not the world, and as the speed of machines increases so is the expectation that answers will be forthcoming. Faxes stream in,

helpful secretaries, administrative assistants or the like, phone to check that the fax has arrived safely, and to ascertain when a reply might be forthcoming, (and I haven't even mentioned the mobile phone!).

This information technology era has coined the term “communicophilia” - the irresistible desire to send messages. Can we not immediately call to mind, a communicophilia or two in our own department, hospital, professional association or university?

Whilst we contemplate the pace of change and the immediacy of information, I am reminded compellingly of that great English poet and writer of this century T S Eliot, and this extract from Chorus from “The Rock”.

*“Where is the Life we have lost in living?*

*Where is the wisdom we have lost in knowledge?*

*Where is the knowledge we have lost in information?”*

Sometimes we would have to agree that we have made too little movement in the direction of the hierarchy of “information - knowledge - wisdom” implicit in Eliot's poem. In fact one of the effects of recent technological progress is to focus even more tightly on the information end of that spectrum.

*Has the medium become the message?*

Clearly a dimension of excellence for each one of us, for our professional association, for the organisation for which we work be it a hospital, university or health facility either private or public, is the successful management of change.

#### THE PARADOX OF SUCCESS

Charles Handy has been described as Britain's foremost busi-

#### RUTH GRANT

ness guru. He has written much about management of change, and for the next few minutes I will draw quite heavily from his book entitled “The Empty Raincoat: Making sense of the future”. (Why did Handy give the book this title? “The empty raincoat is to me, the symbol of our most pressing paradox. If economic progress means that we become anonymous cogs in some great machine, then progress is an empty promise. The challenge must be to show how paradox can be managed.”).

May I present an excerpt from The Empty Raincoat, the segment is titled “The Road to Davy's Bar”:

The Wicklow Mountains lie just outside Dublin in Ireland. It is an area of wild beauty, a place to which, as an Irishman born near there, I return as often as I may. It is still a bare and lovely place, with unmarked roads, and I still get lost. Once, I stopped and asked the way. ‘Sure, it's easy,’ the local replied. ‘Just keep going the way you are, straight ahead, and after a while you'll cross a small bridge, with Davy's Bar on the far side, you can't miss it!’ ‘Yes, I've got that,’ I said, ‘straight on to Davy's Bar.’ ‘That's right. Well, half a mile before you get there, turn to your right up the hill.’

It seemed so logical that I thanked him and drove off. By the time I realised that the logic made no sense he had disappeared. As I made my way down to Davy's Bar wondering which of the roads to the right to take, I reflected that he had just given me a vivid example of paradox, perhaps even the paradox of our times: by the time you know

#### CORRESPONDENCE:

Ruth Grant BPT MAppSc is Professor of Physiotherapy and Dean, Faculty of Health and Biomedical Sciences, University of South Australia, Adelaide, Australia.

where you ought to go, it's too late to go there; or, more dramatically, if you keep on going the way you are, you will miss the road to the future.

Because, like my Irishman, it is easy to explain things looking backward, we think we can then predict them forwards. It doesn't work, as many economists know to their cost. The world keeps changing. It is one of the paradoxes of success that the things and the ways which got you where you are, are seldom the things to keep you there.

If you think that they are, and that you know the way to the future because it is a continuation or where you've come from, you may well end up in Davy's Bar, with nothing left but a chance to drown your sorrows and reminisce about times past.

### THE SIGMOID CURVE

Reflection upon this took Handy to the concept of the Sigmoid Curve

which graphically represents cycles of life - a waxing and waning - whether it be great empires, a business or corporation's rise and fall, the changing face of a profession, even an individual's progress through life in their professional endeavours, in their personal relationships. If however all there was to life was waxing and waning it would be pretty depressing. The secret of constant growth is to start a new sigmoid curve before the first one peters out. The correct place to start this second curve is at point A (Figure 1). This seems logical, there is still time, there is energy to get the new curve through its initial exploration and floundering before the first curve begins to dip downwards.

This is obvious really. However, all the messages at point A which are coming through to the individual, to the organisation, to a profession are that everything is

going fine and it would be folly to change when the current approaches/ recipes are working so well.

What we know of change, be it personal change or change in organisations, tells us that the real energy for change comes when we are looking at overwhelming evidence that change must take place, or when we are looking disaster in the face viz at point B on the curve (Figure 2). But at this point it is going to require a mighty effort to get the organisation up to where it should be on the second curve. It is often at point B that individuals are made redundant and new people are brought in at the top, because it is believed that people new to the situation will have the credibility and different vision to lift the place back on to the second curve.

How much wiser it is to start the second curve at point A - as Handy suggests this is the pathway through contradiction through paradox, the way to building a new future while maintaining the present.

The second curve, be it a new product, a new way of operating, a new strategy, a new culture, is going to be noticeably different from the old. Those who lead the second curve are not going to be the people who lead the first curve.

- the continuing responsibility of those original leaders whether they be in our profession or heading a corporate organisation is to keep the first curve going long enough to support the early stages of the second curve

- these original leaders will find it temperamentally difficult to abandon their first curve whilst it is doing so well, even if they recognise that a new curve is needed. For a time therefore new ideas and new people have to coexist with the old until the second curve is established and the first begins to wane.

The hatched area below the peak is therefore potentially a time of confusion. Two sets of people, two

FIGURE 1

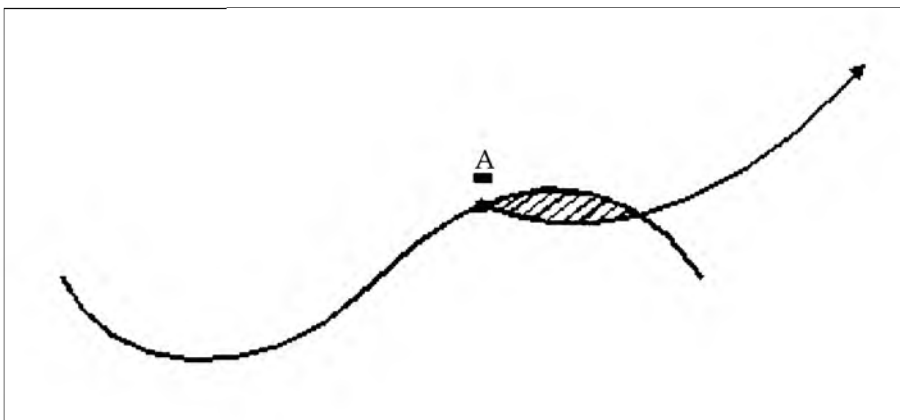
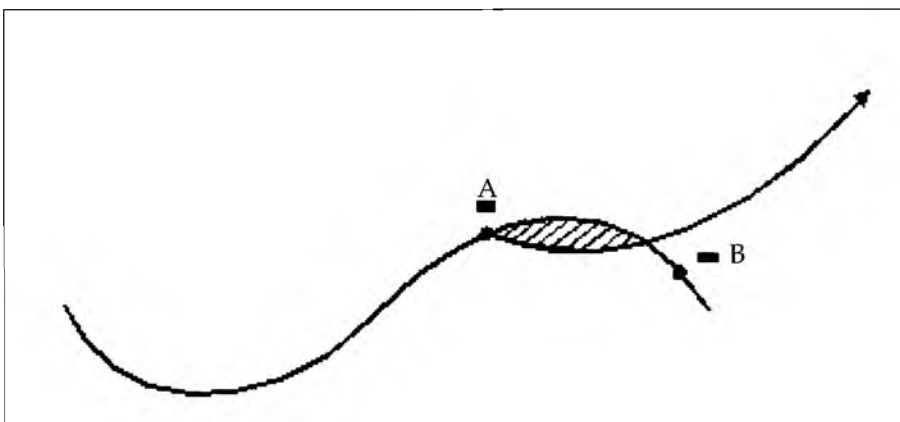


FIGURE 2



sets of ideas competing for the future.

The concept of the Sigmoid Curve has helped many people and many institutions to understand their current dilemmas. The question always asked is "How do we know where we are on the first curve?" Handy suggests that that each person makes his/her own private and personal assessment of their position or that of their organisation, or indeed of their profession, or their professional association; to draw the first curve as they see it, and to mark it to show where they are now. Almost invariably Handy has found, when they reveal their perceptions of the curve, there is a consensus that they are further along the curve than any of them would previously have admitted. They are nearer to point B than point A.

## **SECOND CURVE THINKING AND PROGRESS IN PHYSIOTHERAPY**

The discipline of the second curve requires that one always assumes that one is nearer the peak of the first curve and should be starting to prepare for the second curve. Organisations should assume that their present strategies will need to be replaced within two to three years.

Individuals should also work on the assumption that life will not continue as it has forever, and that a new direction will be needed in two or three years. Indeed as Handy has argued, the accelerating pace of change shrinks every Sigmoid Curve.

It may well be that the assumption turns out to be wrong, that the present trends for example in our own profession, and its role in health care delivery can be prolonged much longer, and that the first curve was really only in its infancy. If this proves to be so, nothing has been lost only the exploratory phase of the second curve has been done. No major commitments will have been under-

taken until the second curve overtakes the first, which will never happen as long as the first curve is still on the rise. Keeping the two curves going will become a habit.

The discipline of devising the second curve will however have had its effect. It will force one to challenge the assumptions underlying the first curve and to devise some possible alternatives.

This keeps us questioning and striving for relevance in a time of change and is an essential dimension of excellence.

The paradox of success that, what got us where we are, won't keep us where we are, is a hard lesson to learn.

Second curve thinking will come most naturally from the second generation, those who will inherit the future of the institution, the organisation, the profession or the society. They will however need both permission and encouragement. They must realise that what they might privately think of as revolution or even sedition in a professional sense, is possibly the way ahead in due course. New ideas can and must exist with old.

It is also important that the second generation accepts their responsibility for second curve thinking.

Perhaps you have found this very theoretical to date, perhaps it has helped you to put a framework around change be it personal, professional, organisational.

Let me seek to illustrate what it is about us as physiotherapists which gives us great hope in these changing times as well as considerable challenge.

The ability to notice things that easily escape attention, describe these with "clarity and rigour" (Rose 1986) and propose/describe relationships between them, are the hallmarks of many of those physiotherapists who have made a major contribution to our knowledge base in physiotherapy. These were people who were never content,

who were constantly seeking. Clinicians who put as much store on learning derived when treatments didn't work, as when they did. Clinicians constantly engaged in second curve thinking. Clinicians who provided the springboard for much research in physiotherapy and certain treatment approaches now commonly in use. We need these people now as never before, and they are certainly amongst us today.

Physiotherapists are in the truest sense - agents of change - we seek to effect change in our patients' lives, working with them to achieve this and indeed significant lifestyle change is often required. In a very true sense for them the secret of growth or quality of life is to start a new curve before the first peters out. We often work with patients nearer to point A where everything is going well except that they have had for example, a first episode of acute low back pain (LBP). It clears up quickly. They are perhaps unconvinced of the need to adopt any preventative strategies - the messages coming in to them that they wish to take notice of, are that it was a minor perturbation and they recovered quickly. When after perhaps a number of recurrences and a clearly worsening condition, the energy will be there to agree that lifestyle must change.

Starting the second curve and particularly getting back to where they were before will not be as quickly achieved however, or perhaps not achieved at all.

How effective are we at turning such advice in on ourselves, of effecting change in our own lives, of contributing to the change process in our association, school, hospital, department or private practice?

The December 1996 issue of *Spine* is devoted to a series of papers from the first ever International Forum for Primary Care Research on Low Back Pain". Dr Gordon Waddell in his keynote address stated "Back

pain is a 20th century health care disaster. There is widespread agreement that most current health care for non specific LBP is inappropriate and ineffective. We need a fundamental change in clinical management... We also need fundamental reorganisation of the health care system to deliver that improved management".

Concomitant with Waddell's paper are ones by Koes et al (1996) and Faas (1996). Both comprise updated reviews of randomised controlled trials of spinal manipulation and exercise therapy respectively, in the management of LBP.

*Koes et al (1996) concluded that*

- the efficacy of spinal manipulation for patients with acute LBP and also with CLBP has not been established
- there certainly are indications that manipulation might be effective in some subgroups of patients with LBP

*Faas (1996) concluded that*

- in acute LBP exercise therapy is ineffective
- in subacute back pain, exercises with a graded activity program "deserve attention"
- in chronic back pain intensive exercise or fitness exercises "deserve attention".

In terms of the Sigmoid Curve these findings might well be interpreted at putting us at point B. Whilst we might take comfort that everybody else is there with us - it would be unwise for us to do so.

## **SECOND CURVE THINKING AND ITS COMPATIBILITY WITH THE PHYSIOTHERAPY CLINICAL PRACTICE MODEL OF DIAGNOSTIC PROBLEM SOLVING**

What is emerging however is the strength of the second curve thinking and how compatible this is with the physiotherapy clinical practice model of diagnostic problem solving. Here the therapist seeks to elicit the precise dysfunction linked to the patient's spinal

pain and disability and uses this information to prescribe treatment based upon the presenting dysfunction and then assess the outcome.

*Let me illustrate*

### **Example 1**

A. Recent studies by Hides et al (1994) and (1996) have shown localised segmental dysfunction of the multifidus to occur after a first episode of acute or subacute unilateral LBP.

The most important finding of the second study was that multifidus muscle recovery did not occur spontaneously on the remission of symptoms. The clinical significance is that although these patients with LBP appeared fully recovered after their initial acute pain subsided, their muscle system had not recovered. Hides followed up these patients who had initially been assigned in a randomised control trial to two groups - medical treatment only and medical treatment plus specific localised multifidus holding exercises. The only difference in all the outcome measures, at both 4 weeks and 10 weeks was in the muscle recovery (ultrasound imaging was used to determine muscle size throughout). Muscle size had not returned to normal in the non exercise group by 10 weeks.

The multifidus muscle has been shown to be an important provider of segmental spinal stability. Further-more, dysfunction in the multifidus is correlated with poor functional outcome in patients who undergo disc surgery. Hides hypothesised that those patients whose pain had resolved and who returned to normal activity, but in whom the multifidus had not recovered, may do so with a predisposition to further injury and recurrence of LBP. Indeed the final part of this study just submitted for publication has shown that those who did not get this physical impairment better, had a high rate of recurrence of the LBP, 80 percent of patients in group 1, compared with 30 percent in group 2.

### **Example 2**

B. Work by Hodges and Richardson (1996) has clarified the contribution of transversus abdominus to spinal stabilization in subjects with and without LBP. These physiotherapists sought to evaluate the temporal sequence of trunk muscle activity associated with rapid arm movements. In the control subjects they found that transversus abdominus was invariably the first muscle active and this occurred before or shortly after the deltoid muscle, and was not influenced by arm movement direction. This supported the hypothesised role of the transversus abdominus muscle in spinal stiffness generation. By contrast the contraction of the transversus abdominis was significantly delayed in patients with low back pain when all arm movements were performed.

The results provide evidence that the CNS initiates contraction of the muscles of the trunk in advance of limb movement. The contraction of TA is hypothesised to contribute to the control of forces associated with limb movement by increasing the stiffness of the lumbar spine in anticipation of limb movement. This would limit intersegmental translation and rotational forces and may provide a more stable lever over which other trunk muscles can act.

Finally, this observed deficit may provide a basis for the development and evaluation of rehabilitative and preventative strategies for patients with LBP, focusing on resolution of the anomaly and restoration of normal function.

Having given you those two examples let me return to the report of the forum of leading researchers in the field of primary care research on LBP. The 50-60 invited researchers set as a major goal the drafting of an agenda for future primary care research on LBP considered to be of highest priority.

Twenty (20) research priorities were delineated. Far and away the highest ranked (with 30 votes) was

the following research priority "Can different varieties or subgroups of LBP be identified and if they can, what criteria can be used to differentiate among them?" The goal was that clinically useful subgroups might be defined in terms of diagnostic characteristics, behaviours, imaging studies, type of care sought, response to therapy or other factors. If such subgroups could be reliably determined, these forum participants expressed great interest then in further determining:

(1) how subgroups differed in terms of the natural course of the LBP

(2) whether treatment and management strategies could be tailored to each subgroup.

What wonderful opportunities this presents for physiotherapists because this priority is so compatible with the physiotherapy clinical practice model of:

- diagnostic problem solving
- recognising clinical patterns or recognising patients who do not fit a pattern
- rigorous assessment
- careful, regular recording of the features of the patient's disorder and response to treatment

The work of Hides et al (1996) and Hodges and Richardson (1996) previously referred to, is illustrative of the precision of the delineation of the dysfunction in LBP. Clearly as physiotherapists we are some way down the track in providing some clarification of that first research priority.

Another dimension of excellence for us as physiotherapists must be the extent to which we can prove the efficacy of our treatment methods. We have the ability but do we have the commitment? We must find it because we are close to point B in the Sigmoid Curve.

I have walked down the road to Davy's Bar in my presentation to you today, perhaps I have moved away from my title Dimensions of Excellence?

## **ENSURING PROFESSIONAL EXCELLENCE**

In conclusion I wish to address quite practically what the individual physiotherapist - you and I - can do to strive for, and ensure professional excellence and second curve activity.

May I suggest four approaches (these are by no means a complete list). When you see these itemised I have no doubt you will recognise many activities you are engaged in already. However all of us can do some of these things much better than we do them now.

## **RECOGNISE YOUR GREATEST ASSETS**

These assets include the following:

- Your skills in observation, clinical reasoning, diagnosis and your "hands on" professional expertise. We are uniquely qualified movement specialists, no other profession has the special array and depth of skills which physiotherapists have.

- Your role in the promotion of health and a healthy lifestyle, not just in restoring function or in rehabilitation of dysfunction. Because the demands on physiotherapists to restore function and to rehabilitate patients have been great, we have not been able to give the attention to health promotion and prevention that we should. As a profession we cannot ignore this vital role. If we do, we do so at our peril.

- Your patients are indeed a great asset. We learn much from our patients and they in turn are great ambassadors for physiotherapy.

## **EXTEND YOUR SPHERE OF INFLUENCE**

This may be achieved through:

- Your patients. Each patient has a sphere of influence, use this in an ethical and professional way to enhance your profession.

- Ensuring you are an excellent professional role model.

- Taking and making opportunities in your hospital, private practice, school, university, government committee, professional association.

- Promoting a healthy lifestyle in the community. For example, this might be done through your role as a parent in the local school, your membership of philanthropic organisations like Rotary, your involvement in sport as a parent or administrator, your membership of a church or religious group,

- Establishing strategic working links. For example, with you local council, local industry, local member of parliament; or if you are in education, placing students under supervision in areas where physiotherapy is not well known, not just in areas where the role of physiotherapy is clear.

## **COMMITMENT TO RESEARCH, DIRECTLY OR INDIRECTLY**

This can be done in a variety of ways which include:

- Keeping good records of patient treatment and outcome. National data on types of patients attending for physiotherapy treatment, types of treatment given, number of treatments and results are lacking in every country. Your records can help to address this deficit.

- Starting, or joining a journal club in your physiotherapy department, or school or geographical area. Reading and discussion with others, discussion with others and critical evaluation of published papers is so important.

- Sharing patient problems/successes with others or submitting case studies to your newsletter. Remember that observation and contemplation were the hallmarks of those clinicians who have made the greatest contributions to the development of our knowledge base for physiotherapy practice.

- Joining others in a team to undertake research. Establish close links with your School of Physiotherapy or professional association so that collaborative research might be the outcome.

- Undertaking formal research study. I cannot stress too highly how vital it is to our profession that we

have leadership in clinical research and in evidence-based practice.

- Contributing to physiotherapy research financially, or in other ways. Even small financial contributions can be invaluable when added with others. Consider making your records, or patients available for clinical research; consider offering to be a co-supervisor or assistant supervisor of a student undertaking a research project.

**CONCLUSION**

There is much more that can be said on the importance of pursuing professional excellence in the face of rapid change. May I leave you with four thoughts by way of conclusion.

First, a reminder to those of us who lead teams of physiotherapists, that in times of rapid change, staff development is of very great importance. Second, that the pursuit of evidence that physiotherapy intervention is effective, is indistinguish-

able from the pursuit of excellence in physiotherapy. Third, that we must show not only that what we do as physiotherapists is effective, but also that we are the best ones to do it. Finally, the changes and challenges that we face as physiotherapists as we move towards the year 2000, may be different from those of earlier physiotherapists, but they are not greater challenges than they encountered.

*Indeed change and challenge are simply opportunities in disguise.*

**REFERENCES**

Embracing the Future: Address by Dr Mamphela Ramphele on the occasion of her installation as the 7th Vice Chancellor of the University of Cape Town (Unpublished)

Faas A 1996 Exercises: Which ones are worth trying for which patients and, when? Spine 21: 2874-2877

Handy C 1994 The Empty Raincoat: Making sense of the future. Sydney: Arrow Books

Hides JA, Stokes MJ, Saide M, Jull GA, Cooper DH 1994 Evidence of lumbar multifidus muscle wasting ipsilateral to symptoms in patients with acute/subacute low back pain. Spine 19: 165-177

Hides JA, Richardson CA, Jull Ga 1996 Multifidus recovery is not automatic following resolution of acute first episode low back pain. Spine 21: 2763-2769

Hodges PW, Richardson CA 1996 Inefficient muscular stabilization of the lumbar spine associated with low back pain. Spine 21: 2640-2650

Koes BW, Assendelft WJJ, Van der Heijden GJMG, Bouter LM 1996 Spinal manipulation for low back pain: An updated systematic review of randomised clinical trials. Spine 21: 2860-2871

Rose SJ 1986 Description and classification - The cornerstones of pathokinesiological research. Physical Therapy 66: 379-381

Waddell G 1996 Low back pain: A twentieth century health care enigma. Spine 21: 2820-2825

**SUBSCRIPTION ORDER FORM FOR 1999**

(Non-SASP members)

**PUBLICATIONS**

SA Journal of Physiotherapy 4 issues - Feb, May, Aug, Nov,

PhysioForum 8 issues - Jan, Mar, Apr, June, July, Sep, Oct, Dec,

SA Journal of Physiotherapy and PhysioForum (12 issues per year)

**LOCAL**

R120.00

R120.00

R240.00

**OVERSEAS**

R290.00

R290.00

R580.00

Prices include postage costs. SASP members receive the South African Journal of Physiotherapy and PhysioForum as part of their membership package. **NB** Should you wish to receive any publication airmail, please fax us for a quote.

Name .....

Postal address.....

.....

.....

.....

Postal code.....Country.....

Tel (H) .....(W).....

Signature .....

Cheque/Postal order must accompany order form R.....Date.....

Please send your payment to: Physiotherapy Publications, PO Box 92125, Norwood, 2117, South Africa. Fax + 27 11 485 1613