Family Medicine Theory in Action for GP's

Theory in Action – A regular opportunity to explore core concepts of our discipline using actual patient interviews and interactions as triggers for discussion. Presented by Dr Anne Wright and Professor Bruce Sparks from the Department of Family Medicine, University of the Witwatersrand.

No 4. The person behind the scent: an exploration of the systems approach

The patient's story ...

The patient .....

Celia Porter, is the wife of a GP colleague in Johannesburg. She tearfully presented last week stating, "I have reached the end of my tether. I don't know what to do. Frank's mother has been with us for over two months now, and I think I'm about to crack!"

The story .....

Her mother-in-law Jean Porter is 85, and until recently was comparatively independent, living on her own in a flat in Pretoria since her husband's death over 20 years before. She was even driving her own car to the nearby shops and the local church in her middle-class suburb.
Six years ago she slipped and fractured her left hip which necessitated insertion of a Charnley prosthesis. On discharge from the private hospital she had a lot of pain and disability which required a period of recuperation and rehabilitation in her younger son Peter's home in Pretoria. It was not an easy time for Peter's wife Chantal who, while tolerating her mother-in-law's demanding and controlling attitude for Peter's sake, never really got on with Jean. Nevertheless, within eight weeks Jean was back in her own flat following a remarkable recovery from her injury. In no time she was once again driving her old "Opel" to and from the suburban village.

While outwardly demonstrating an air of independence, she relied on the frequent phone calls to Frank, and his weekly "compulsory" visits to Pretoria to advise her on her finances, check her blood pressure and to move bits of furniture to more suitable positions. He often took his wife Celia and their two daughters with him. The girls' memories of Granny were of a kindly elderly woman enveloped in Blue Grass perfume and copious amounts of floral scented Pink Rose talcum powder, living in a flat filled with English porcelain figurines and dark paintings of Scottish clan battles. She religiously observed all their birthdays with a card handed to Frank at least 2 weeks before due date and an early morning phone call on the day. Above all, they remembered how she demanded so much of their Dad's time.

A year ago Peter and his family moved to Cape Town. Jean was obviously saddened by the move, but decided to stay on in Pretoria. "My friends are all here and I enjoy my church groups. Of course I miss them, but they must lead their own lives too. Anyway, it's time I shuffled off this mortal coil".

Two months ago Jean slipped in her flat and fractured her right hip. Again she had a Charnley prosthesis inserted, but this time was discharged to Frank and Celia's home in Johannesburg. She recovered quite well and was soon mobile, although non-weight-bearing and using crutches. Despite a major second injury she was looking forward to returning to her home in Pretoria, and even possibly driving again!

Then disaster struck - and this time with what on its own would have been a minor setback. One morning when she shuffled on her own onto the front porch her crutch slipped on the early morning dew on the highly polished surface. Her fall resulted in dehiscence of her hip wound and an impacted fracture of her right humeral head!

She is now totally disabled and dependent on others for every bodily function and activity, being unable to weight-bear nor use her crutches. Since she is a heavy, large-boned individual she was now confined to her bed or wheelchair. Celia has to attend to her every need. It seems as though this catastrophe is the beginning of the end. Her injuries now have major effects on the harmony in the family.

The theory....

So what to do for Celia?

To yourself: *"I haven't got time for all this. She's the wife of a GP for goodness sake; she must be able to handle it better!*
To Celia: *"I understand. Elderly parents are indeed a worry and great burden. I can well believe how difficult it must be for you. Speak to Frank, I'm sure he has a lot of experience with this kind of problem. But to help you cope, shall we try an antidepressant? Maybe one that's more sedating, so that you can at least get a good nights sleep..."*

And 10 minutes later, Celia is on her way with her pills. And you're dealing with the next influenza...

That's one way of understanding the situation – a typical "geriatric" case: a family suddenly burdened with a sick, bedridden, aged parent with the daughter-in-law becoming stressed and needing medication.

Another way of understanding what's happening here is to use a "systems approach" or as it has come to be known, the biopsychosocial model. Systems thinking and the biopsychosocial model have come to be accepted as foundation concepts in family medicine.[1] A "systems approach" is based on general systems theory derived from the work of the natural scientists von Bertalanffy[2] and others. General systems theory, in contrast to the nineteenth century reductionist scientific method, which "dealt with problems by cutting them down to size, separating them from their surroundings and reducing them as far as possible to simple, linear, causal chains, seeks to approach problems by including all their significant relationships".[3] According to systems theory, nature can be understood as a hierarchy of systems ranging from molecules to social systems. Engel's [4] depiction of the systems hierarchy is illustrated graphically in Figure 1.

Society
◊
Culture
◊
Community
◊
Family
◊
Two person
◊
Person
◊
Nervous system
◊
Organ systems
◊
Tissues
◊
Cells
◊
Molecules

Figure 1: Systems hierarchy (from Engel 1980)

Each level is both a whole and a part of a greater whole. Thus, the family is both a whole (a system) and is also made up of different parts or subsystems, for example, children, marital partners, and grandparents. As you will notice from the double headed arrows, each level is Janus-faced [5], that is, it faces both in the direction of a higher order system and toward a lower-order system. For example, the "person" (herself a conglomerate of various psychological subsystems) relates to the nervous system but also to another wider system, be it a partner, family or community. Nothing exists in isolation, interdependence and interconnectedness is key. Despite this interconnectedness, each level can only be explained in terms unique to itself; for example different laws govern molecular, cellular and personal behaviour. Central to the notion of wholes and parts is the concept that the whole cannot be understood just by understanding the parts, as McWhinney says, "a system has properties that are not present in the individual parts; they arise from the relationship between parts".[6] So, for example, one cannot understand the dynamics of a family simply by knowing the individual members; the nature of the interaction between the individuals produces a unique dynamic. Each system is said to exist in a state of dynamic equilibrium – a "steady state" both within itself and with the external environment. When this steady state is disturbed, even thrown into crisis, "corrective forces" will attempt either to restore the equilibrium or create new steady state, "much the same as a tightrope walker keeps his or her balance by making frequent shifts and adjustments"[7]. Because there is a relationship of interdependence between the wholes and parts, a change in any one part will produce a cascade of effect throughout the hierarchy.

Prior to Jean Porter's first fracture the systems were in relative balance. At the community level she was a regular church-goer and enjoyed her trips to the local shops, her family were supportive but independent, and as an individual she was healthy, living in her own flat and self-sufficient. But her fracture which presented itself at the organ system level could express itself upwards at every level of the cascade, affecting her personal well-being, deprived her of good health, applying pressures and being dependent on family members. Even the community level is affected with increased utilization of resources and community services. At lower levels of the hierarchy immobility results in demineralization of bony tissues, muscle wasting, weakness, and inflammatory responses at a cellular and molecular level. Upon healing, a new balance of systems was reached and relative normality was re-established.

These features of systems were used by a psychiatrist, George Engel, twenty years ago, to propose a "new medical model" to replace the dominant biomedical one.[8] In two watershed papers he argued that the central problem of the biomedical model of disease is that it is reductionist, focusing exclusively on biological factors with no room for the social and psychological ones. The model he proposed was based on general systems theory and is called the "biopsychosocial model", a term now synonymous with "systems approach". While the clumsy name might suggest that all he was proposing was that social and psychological factors be "added" to the medical data as discrete, unrelated issues, the systems concepts underpinning the model "emphasises interdependency and interplay among different

levels of the system.. (which) all interact with one another to affect the patient who walks into a clinic with a presenting complaint. Recognising and acknowledging the interaction between these different levels of systems allows one to better understand those mysterious, vague or persistent clinical problems seen in day to day practice"[9] Another challenge to the stability of Jean's world arose when her younger son, Peter and his family moved to Cape Town. While this was obviously a loss for her, she balances this against her continuing contact with her friends and church – and of course, her son Frank. There is also a hint that she is beginning to confront her own mortality. The family system remains intact.

The discussion ....

While Frank & Celia's family system had been able to accommodate and adjust to the second fractured femur with relatively minor cascading effect up and down the hierarchy, it was the final "minor" injury to her humerus that had "broken the camel's back", causing total immobility for Jean and major family dysfunction in her son's home. This is illustrated in Figure 2. The injury had catastrophic effects on all levels of the hierarchy. Because the family system was unable to "bounce back" – known as positive feedback (which implies "an amplification of a deviation and (which) drives the system into excess") – the situation is made worse. Previously the adjustments that were made, for example taking granny into their homes, had provided negative feedback (stabilises a system by reducing deviation from its normal range – i.e. things get back to normal)
It seems that the system has exhausted itself in its ability to adjust, restore balance – there are no more internal resources – so each new setback drives it toward collapse.

This is where the GP consultation with Celia could be crucial. A systems-oriented family physician would be able to move beyond the immediate problem of the patient and her depression, and offer a systems approach. In this instance it could be:

- a more careful exploration with the patient of the situation which would include problems with granny and also negative effects on the family;
- an assessment of the difficulties and available resources, both within the family and outside, e.g. nursing care;
- offer a family meeting/consultation;
- look to the medium- and long-term – offer ongoing support.

How can a family practitioner be more systems-oriented? What are the available tools for facilitating a systems approach?

(a) Peeling the onion: "Most medical problems resemble the metaphorical onion. When scrutinised closely they shed layer after layer... this does not mean that the outer layers are less vivid, urgent and real than the deeper more obscure ones. Rather it means that the outer level is not the whole story and that the 'onion' problem will not be entirely resolved by attending solely to the outer level. ... at times we may need to 'peel the onion' to manage symptoms unresponsiveness to a reductionistic view of the presenting illness"[10];
(b) Using family system theory and suggesting a family conference? Possible areas for doctor to explore and observe:[11]
(i) Tracking: exactly what happens regarding the symptom and the family?
(ii) Distress: what are the sources of distress for this patient? For this family?
(iii) Cohesiveness: how cohesive is this family? Is it more enmeshed or disengaged?
(iv) Adaptability: how adaptable or rigid is this patient and the family system;

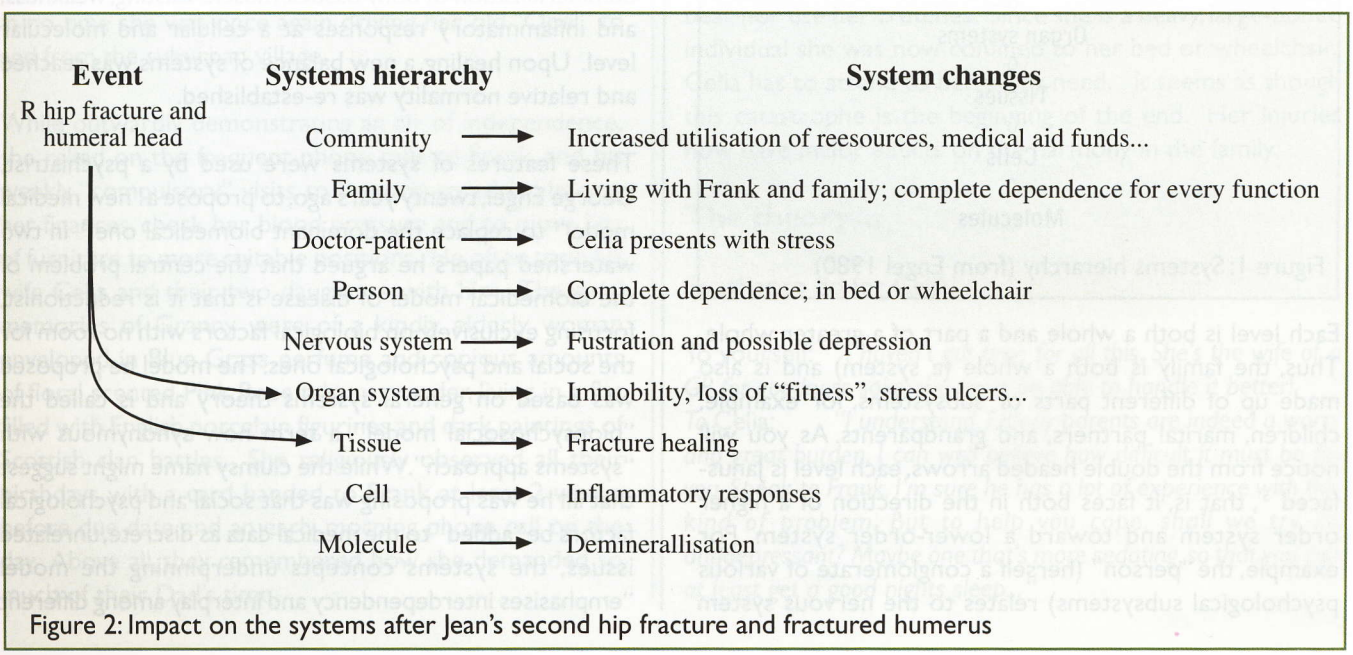

Figure 2: Impact on the systems after Jean's second hip fracture and fractured humerus

(c) Using the three stage (comprehensive) assessment[12]: assessing the clinical individual and contextual aspects of the problem;

(d) "BATHing the Patient" [13]: using four useful questions to help elicit the patient's psychosocial situation:

Background:	"What is going on in your life? "
Affect:	"How do you feel about that? "
Trouble:	"What about the situation troubles you the most? "
Empathy:	"That must be very difficult for you"

"The art and science of applying a systems approach to health care turns on the choice of systems levels with which to work... which areas deserve further exploration and evaluation? Which components might provide the most powerful leverage for successful treatment?"

The postscript ....

The effects within the hierarchy are not always negative or harmful. In a systems model one should not apportion blame. It is a matter of reactions and interactions within the system. In a subsequent discussion with Frank, he says that there have been some very positive effects from Jean's injury. Both grandchildren have taken an active role in supporting their granny, and have at last begun to understand and share meaningful time with the 'person behind the scent'.

The library ...

1 See for example, McWhinney IR. A Textbook of Family Medicine. 2nd edition. Oxford: Oxford University Press; 1997; McDaniel S, Campbell TL and Seaburn DB. Family-Oriented Primary Care. New York: Springer Verlag; 1990; Rakel RE (ed). Textbook of Family Practice. 5th edition. Philadelphia: WB Saunders Company; 1995 and Crouch MA and Roberts L. (ed) The Family in Medical Practice, a Family Systems Primer. New York: Springer Verlag; 1987.

2 von Bertallanfy L. General Systems Theory. New York: George Braziller; 1968

3 McWhinney IR. A Textbook of Family Medicine. 2nd edition. Oxford: Oxford University Press; 1997, 65. McWhinney provides an excellent concise description of general systems theory and the biopsychosocial model (pg 64 – 71).

4. Engel G. The Clinical Application of the Biopsychosocial Model. American Journal of Psychiatry 1980: 137; 537..

5 After Janus the two-faced Roman god of doorways and arches who guarded the temple door.

6 McWhinney IR. A Textbook of Family Medicine. 2nd edition. Oxford: Oxford University Press; 1997, 66

7 McDaniel S, Campbell TL and Seaburn DB. Family-Oriented Primary Care, a manual for medical providers. New york: Springer Verlag; 1990, 7

8 Engel G. The Need for a New Medical Model: a challenge for biomedicine. Science 1977: 196; 129-136; Engel G. The Clinical application of the biopsychosocial model. American Journal of Psychiatry 1980: 137; 535-543.

9 Campbell T and McDaniel S. Applying a Systems Approach to Common Medical Problems. In: Crouch MA and Roberts L. (ed) The Family in Medical Practice, a Family Systems Primer. New York: Springer Verlag; 1987, 112

10 Stein H. A Systems View of the Clinical Relationship. in Crouch MA and Roberts L. (ed) The Family in Medical Practice, a Family Systems Primer. New York: Springer Verlag; 1987, 31

11 Roberts L. Family Systems Theory in Medical Practice. In Crouch MA and Roberts L. (ed) The Family in Medical Practice, a Family Systems Primer. New York: Springer Verlag; 1987, 63

12 Fehrsen GS and Henbest RJ. In Search of Excellence. Expanding the Patient-Centred Clinical Method: a Three-stage assessment. Family Practice 1993: 10; 49 - 54

13 Lieberman JA and Stuart MR. Practising Biopsychosocial Medicine. In: Rakel RE (ed). Textbook of Family Practice. 5th edition. Philadelphia: WB Saunders Company, 55 – 61.

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