

Shades of grey:

Complexity in health care of older people

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Complexity in health care is topical as we negotiate our way through the PHO development as part of the Primary Health Care Reform¹ and carry out our everyday consulting. There is also a Health for Older People Strategy² that calls for moves towards Ageing in Place: promotion of independence and maintaining function for older people. This editorial about complexity in health care examines the case of the older person within the context of their community, your office and the health care system and contends that without robust primary health care managing this complexity, the plight of the older person may get worse instead of better. Shades of grey are the reality and those seeking black and white answers will be frustrated.

Older people in the community

Each person can be viewed as composed of and operating within multiple interacting and self-adjusting systems. In our society those over age 65 years make up about 12% of the population and are the largest consumers of the health and welfare expenditure.

Taking the view that life for the older person is part of a complex adaptive system³ we see

that 75% of those over 80 years are living independently, supported by a variety of services delivered by

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paid support workers and family members. Complex adaptive systems have been defined as a collection of free agents with freedom to act in ways that are not predictable, and whose actions are interconnected.³ Tensions and paradox between different parts of the system can often never be resolved. Our scientific reductionist training and paradigm (in which many doctors operate) often assumes that we shall eventually figure it all out. Complexity theory, on the other hand, is comfortable with, and even values, these tensions that lead to continuously evolving situations.

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assurance of safety on the part of the family (and society). Small changes in the neighbourhood, such

as cracks in the pavement, out of the control of most of those involved in the older persons care, or the closure of the nearest supermarket within walking distance, can cause unexpected flow on effects changing the ease and confidence with which the older person maintains their world. A change in the personnel delivering personal care to the older man with dementia may result in behavioural changes that put the home situation at risk. Health is only established and maintained through an holistic approach that accepts unpredictability and builds on subtle emergent forces within the overall system. Considering complexity theory may make negotiations in the milieu that surrounds the older person more acceptable for clinicians.

Complexity and general practice care

Building on the concept that each system is made up of several parts, which may be balanced, and that

small perturbations in one section affect other parts of the system, we begin with a brief look at what is actually happening in general practice to underpin our discussion.

While our own NZ NatMedCa study will tell us shortly about consultations with older people in New Zealand, it is relevant to review the Australian data about primary health care for older people.⁴ This ongoing study gathered data from about 50 000 consultations (termed encounters) between Australian GPs and older adults. This group of older patients (12% of the populations) accounted for 25% of all consultations in general practice, of which one half were with patients between 65 and 75 years and half over 75 years (making up an even smaller proportion of the population). These consultations were significantly longer than consultations with younger age groups and encounters with the oldest groups were longer still, on average 15.9 minutes.

While we make the case that GPs deliver most of the health care of older people being complex, we also make the case that GPs deliver most of the health care for almost all older people. Over 90% of those over age 65 years sought a GP's advice in one year and the mean number of consultations in a year was eight for those between 65 and 75 years and nine for women over age 75 years.

Caring for older people is clearly more complex than younger age groups. Older people had more problems managed per encounter than younger groups (171 problems managed per 100 encounters, compared with just less than one problem per encounter for younger age groups). These problems however, were usually known with only 38 problems per 100 encounters listed as 'new'. The eight most frequent problems are shown in Table 1.

The most frequent individual problems were hypertension and osteoarthritis (19.9 and 6.2 per 100 encounters respectively) with immunisation and diabetes being next (5.9 and 4.8 per 100 encounters respectively). These data show that delivering medical care to older people is more complex than for younger groups and that older people are the most frequent attenders with time-consuming problems.

Complexity within the clinical situation is the norm for GPs. Consider the health related parameters that may interact and evolve:

- Physiological – renal physiology is complex for older people. Less drugs and more consideration of interactions is essential. Neurological physiology is also confus-

ing with almost as many tangles and plaques being found in 'normal' older brains as in those with dementia

- Psychological – depression and poor life satisfaction are more common in older age groups. On the other hand, those with complex medical issues and relatively severe disability may have

robust quality of life, and value highly the activities they participate in and look forward to future events more than those with a simpler and 'healthier' situation.

- Social systems – complexity again makes these more problematic for older people. Those with intact social systems in younger days maintain these. However older people are more often faced with bereavement as friends, family and spouses pass on. Changes in residential location threaten autonomy and maintenance of the 'status quo' is more difficult.
- Pathological – co-morbidity is common in older people and development of new problems needs to be considered in the context of existing and ongoing problems.

Illness comes from dynamic interaction within and between these systems, not from failure of a single component. Frailty for older people is a good example. The lack of reserve in physiological systems pre-empts problems developing after seemingly minor perturbations. The severe confusion that accompanies a urinary tract infection or the heralding of serious illness by falls, are examples in which clinical diagnosis may involve complex detective work on the part of the GP. Influencing behaviour change for health is more difficult as older individuals operate within networks of relationships and information sources that affect their health choices. Com-

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Table 1. Problems managed by ICPC-2 chapter

ICPC-2 chapter	65-74 years	75+ years	65+ years
Circulatory	36.1	40.5	38.4
Musculoskeletal	22.9	21.5	22.2
Respiratory	20.5	17.1	18.8
Skin	16.1	18.9	17.6
Endocrine and metabolic	19.2	12.5	15.7
General and unspecified	13.4	15.1	14.3
Psychological	9.6	12.5	11.1
Digestive	10.6	10.2	10.4

Adapted from O'Halloran et al.⁴ Numbers are rate per 100 encounters

plexity science suggests that 'readiness to change' occurs in a system that is not in equilibrium and that a small impetus may have a large effect, positive or negative.⁵

Dealing with these complex clinical situations can be assisted by using problem based management plans and organising the issues of the clinical encounter in order to more clearly identify potential interactions between different parts of the same system. The older person with congestive heart failure and renal insufficiency may also have a dementing wife who puts salt in the tea and causes undue stress at home by inadvertently taking her husband's medication. Sorting out this situation will take more than a repeat prescription. Appreciating complexity theory may help GPs ride the waves of uncertainty that are normal in the clinical management of older people's health problems. Complexity theory also allows the objective of maintenance of autonomy and independence to remain a priority through all the interacting systems (even though they may be out of balance) and to be addressed despite complex health problems.

Older people may see their situation quite simply as getting on with their tasks of daily living

Complexity of the health system

Complexity of the health system in which we look after older people is seemingly transparent, except that current changes in the structure and funding of care have already caused stressful perturbations in the system. It is interesting that the mortality from pneumonia in older people doubled in Germany during the SARS outbreak in 2003. The older people did not have

SARS, but the health system was under duress and failed to respond in the usual way. While this is an extreme example it is easy to see that changes in the following components of the health system, crucial for care of older people, will affect outcomes:

- AT&R wards
- Older peoples' health outreach multidisciplinary teams in community service
- Support services with health care assistants
- Other nursing services (not necessarily associated with the older peoples' health)
- Volunteer, religious and welfare support services
- Networks of family, friends and neighbours

- Local GP, practice nurse and PHO support services

Complexity theory suggests that relationships between parts of organisations or systems are more important than the parts themselves.⁶ Application of this theory means that time and energy must be spent on developing relationships between GPs and other community services, secondary care and the older person. To do this effectively funding for liaison is needed. Perhaps within the context of the new PHOs (a rather large perturbation for some) integrated systems for effective care of older people will be facilitated.

In summary

Older people may see their situation quite simply as getting on with their tasks of daily living, looking forward to the future and keeping away from hospitals. Having a role within their society, family and social network is essential to wellbeing. If their doctors take a broad view with a problem-based approach to managing complexity and respect the autonomy of older people, their health and wellbeing may benefit. Considering complexity theory may help us accept the complex situations presented by older people in their every day lives and during their interactions with the health system.

References

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'We are, in an important sense, the stories of our lives. How sickness affects us depends on how sickness alters those stories. Both sick persons and physicians make the experience of sickness more meaningful (thereby reducing suffering) by placing it within the context of a meaningful story. Physicians, because of their special knowledge and their social role, have special powers to construct stories and to persuade others that these stories are the true stories of the illness.'

– Brody H. *Stories of Sickness*. New Haven: Yale University Press, 1987.