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Guest editorial

Reinventing the doctor

Moyez Jiwa MA MD FRACGP MRCGP
Curtin Health Innovation Research Institute, Faculty of Health Sciences, Curtin University, Perth, Western Australia

Significant healthcare problems occur in people with chronic and life-limiting illness.[1] More than 15 million Australians are directly affected by at least one chronic disease in an ageing demography.[1,2] With only limited resources, it is accepted that the nation must specifically target those most likely to benefit if we are to maintain a productive work force. The challenge is encapsulated in Figure 1 which illustrates that not all people who would benefit consult a medical practitioner.

A recognised feature of primary care is that significant diseases are not readily diagnosed in this setting because symptoms are common whereas significant pathologies are relatively uncommon.[3] This is consistent with Bayes' theorem.[4] Another consideration is the relatively short and complex consultations in primary care.[5] It has been established that people who consult a medical practitioner in general practice are more likely than in any other speciality to present with multiple clinical problems, acute illness and symptoms that defy an immediate diagnosis.[5] It is also postulated that the pathway from research evidence to clinical practice is a so-called 'leaky pipeline' in which patients may fail to benefit if their doctor: is unaware of the research findings; does not accept that evidence; does not target the evidence to the patients to whom it applies; is unable to offer the necessary treatment; does not recall that treatment when consulting the patient; cannot reach agreement with the patient that the treatment is necessary and/or fails to prescribe the treatment.[6] These seven pitfalls are all amenable to research and intervention. However, things are changing fast.

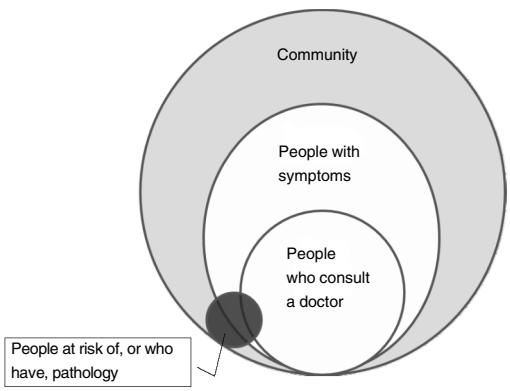

Figure 1 Not all people with pathology seek appropriate advice

Change in patient experience

It is now recognised that there has been a seismic shift brought on by technology in the lives of people. People are far better informed than they were in the 1980s and 1990s. Much of this information is available through the media but even more is available and archived on the internet. The major driving forces that are pushing the internet into health and health care are strong and unstoppable; they ensure that the internet and the choices it offers must be taken into account in the design of health care.[7]

21st Century healthcare consumers

By 2005, for example, more than half of American consumers had access to a computer at home or at work and were actively using computers to access information. Healthcare consumers of the future will be more actively involved in making decisions about the care they receive. They will expect high levels of choice, control, customer service, interaction with their healthcare providers and access to information. They will use the internet to help meet those expectations.

Consumer experiences with other industries

Internet shopping and email are now commonplace. Consumers' experiences in other areas, particularly

the responsiveness and choice they get from internet shopping and the interaction they get using electronic mail, have shaped the expectations they bring to health and health care. Only parts of the healthcare industry will meet those expectations with online information and services, and succeed.

The characteristics of the internet

The internet as a channel for health information and communications is well suited to fulfilling consumer expectations. It is inexpensive, easy to use, provides a diversity of healthcare information and opens to its users a global network of people with common interests.

Market forces in health care

Market forces have been at work in Australasian health care for decades, in the form of health insurance, private billing, Medicare reform and consumer organisations. Web technologies – intranets, extranets and the internet – now serve as a low-cost, rapidly deployable platform for disseminating information across vertically and horizontally integrated healthcare organisations. Chronic disease management increases the diversity and urgency of information flow; more of that communication will move to the internet. Competitive healthcare organisations will in most Australasian countries use the Web as a channel to promote their services.

Doctors and research

Despite the fact that doctors are key to delivering health care they are rarely involved in research and even fewer lead research teams. The relationship between research organisations and doctors is the key to understanding their limited involvement in innovation. 'Good' research is a painstaking science in which clearly defined research questions are articulated, appropriate methods are applied, data are efficiently collected and the most relevant tests are deployed to craft conclusions that take into account the limitations and strengths of the study. Seldom, if ever, does a single study, no matter how large, offer robust conclusions that will lead to changes in practice.

Research with patients who must give informed consent is much more complicated than working with uncomplaining rats in a sanitised laboratory. Because of the limited control over subjects, most clinical research has major limitations and is unlikely to be published in general scientific journals like 'Nature' or 'Science'. Most research is conducted at universities, directly or indirectly. Universities and medical schools are businesses. Very little research conducted at the clinical coalface, that involves new ways to deliver health care, has commercial value. Therefore to profit from clinical research universities rely on government funding.

The government agenda is driven by political imperative. A government minister unveiling 'whizz bang', shiny machines makes for a far more attractive photo opportunity than one launching a more efficient way to rehabilitate people with mental illness or to manage earache in general practice. Therefore funding is heavily weighted towards biomedical sciences, to curing relatively rare diseases, rather than offering new models of health delivery to the masses. Genetic research, nano particles and the study of prions are far more likely to be generously funded than research on systems that would allow people to die in comfort in their own homes. In 2010 the Australian National Health and Medical Research Council divided its research funding so that 39% of the funds were awarded to preventive medicine and public health; at the same time the overwhelming majority of government funding for health care is in practice spent on primary care services.[8]

For universities the return on investment does not favour research at the bedside, and in the pecking order laboratory based research on a cure for cancer makes a far more compelling business case than research involving occupational therapists or models of disease self-management. And yet, in the scheme of things, research into how more effectively to share limited resources is going to make a greater impression on the community in the short term than research on a cure for cancer that may be 20 years away. Academics understand this; however, universities are financially rewarded for promoting the alternative paradigm by a system that is driven by funding structures.

As if that was not sufficient disincentive for clinical research, there are major challenges to recruiting participants in practice. Patients do not seek help from doctors only to spend most of their time negotiating an opportunity to participate in research that may or may not benefit them directly. When the patient is paying, as is the case in many countries in Australasia, doctors are loath to invest time in something that may be a distraction. In reality, many of the patients in clinical practice are excluded from research studies which usually favour young, articulate, English speaking, literate, relatively healthy people and not those for whom the evidence has apparently been generated.[9]

However, the direction of research itself must be recalibrated.

Reinventing the doctor

Doctors are losing their monopoly on specialist knowledge. That means that there will be significant differences in the way health care is delivered in the future. No longer content to wait in queues, we are now living at a faster pace than a few generations ago – one that does not have room for appointments months, weeks or even days later. Patients are doing their banking at home, they are able to order their groceries on the internet and they can buy tickets to the next show at the cinema at the same time as booking a flight to Melbourne or a seat at the football match on Saturday afternoon. If you do not have to wait more than 15 minutes before a hairdresser can cut your hair, why should you have to wait a week before someone can check your blood pressure or even perform a vasectomy?

The internet, the new high street, offers the prospect of on-line consultations, in the comfort of your own home. The issue of need for a physical examination will also change as we are able to develop devices that will allow the necessary sounds and signals emitted by our malfunctioning bodies to be recorded, interpreted and captured at a remote location. For example, more than three million doctors have downloaded a 59p application – invented by Peter Bentley, a researcher from University College London – which turns an Apple iPhone into a stethoscope.[10] Within a few years it will be possible to sit in front of a computer screen facing a doctor many hundreds (if not thousands) of kilometres away, supported by devices that will allow that doctor to diagnose most of the common and benign ailments that are now routinely identified in face-to-face encounters.

Meanwhile, for those who prefer to see a healthcare practitioner in person there will be the option to consult other practitioners who will also be able to advise about conditions that lead us to doctors today. The reality is that we cannot afford to train or pay all the doctors we could possibly need under the current 'doctor-knows-best' system of health care; patients no longer believe the rhetoric and are already voting with their feet. Pharmacists, nurses and other allied health professionals are set to play a much greater role in offering relief from symptoms and monitoring of chronic diseases.[11]

There will continue to be a need for face-to-face consultations for some people most of the time or most people some of the time. It is likely that the social role that doctors play will continue to be important as humans will always need other humans to respond to their distress.[12] However, the relentless erosion of the time available with medical practitioners will need to be stopped and reversed in the face of evidence that, where the consultation is concerned, patients value the feeling that they have had the doctor's full attention. This will become possible when we acknowledge that much of the time now taken up in the consultation with giving so-called health promotion is wasted. It is claimed, on conflicting evidence, that smokers who consult doctors about their cough are likely to stop smoking in significant numbers if the practitioner advises them to quit.[13] Much less evidence is offered for so-called opportunistic preventive advice, such as when an obese person consulting about an unrelated condition is asked to lose weight for the 'sake of his health'. These notions are encouraged by funding agencies in the mistaken belief that it does good. What it probably does is waste time when compared to the power of advertising of junk food which is laced with subliminal messages.[14]

In some countries such as the UK, which has taken to rewarding doctors for taking a public health approach, the impact on our experience of seeing the doctor is regrettable. Before you get to explain that you have been bleeding after every bowel motion, have lost several kilos in weight and have had diarrhoea for four weeks, the doctor may take your blood pressure, weigh and measure you, ask you if you smoke and record how much alcohol you drink and insist on recording a family history, even if you explain that you have been estranged from your only sister for the past six years and that your father died in a road traffic accident before he had time to acquire any chronic diseases. The doctor will do so because he or she can then tick a box to earn their fees.[15] Even if you are not asked these questions at first they will play on the doctor's mind until they record these details at some point in the consultation. This in my view contaminates and compromises the doctor's ability to give you the full and undivided attention that you deserve.

It may be argued that our relatively small army of expensively trained and busy medical practitioners cannot stem the growing demand for health care generated by a food and alcohol industry that is able to promote excess much more effectively than the counter advice delivered to the sick and suffering, and a drugs industry that profits from the creation of new maladies for which drugs and not common sense must be prescribed. The drugs industry takes the message directly to the prescriber with a professionally trained crew of smartly dressed, beautiful young representatives, rewarded with bonuses for changing the doctor's prescribing habits. The result is an increasingly obese population of people who have become confused about their own capacity to maintain health and wellbeing. The evidence includes the outcry following the over-

prescription of antidepressants, the questionable use of drugs to 'manage' female sexual dysfunction,[16] and now the evidence that treating the female menopause for life leads to an unacceptable rise in breast cancer.[17] There may perhaps soon be a swing against the use of statins for every possible indication.

Young people who enter medicine in the future will also want a greater variety in their career. No longer will they be content to remain in one role over a lifetime. The future training of doctors will need to facilitate multiple opportunities for people to move in and out of clinical practice. This will be possible as we acknowledge the role of other disciplines in the business of healing. Engineering, design and the humanities offer much more radical solutions to what we can do to improve the health of humanity. Doctors will be called on to harness the power of handheld and desktop information technology, or to redesign the built environment in which we serve patients. These new roles in innovation must involve doctors if we are to generate the tools to improve the health in partnership with an increasingly empowered community.

REFERENCES

1 *Chronic Diseases and Associated Risk Factors in Australia, 2006.* www.aihw.gov.au/publication-detail/?id=6442467914 (accessed March 2011).
2 *Australian Demographic Statistics, June 2010.* www.abs.gov.au/ausstats/abs@.nsf/mf/3101.0 (accessed March 2011).
3 McAteer A, Elliott AM and Hannaford PC. Ascertaining the size of the symptom iceberg in a UK-wide community-based survey. *British Journal of General Practice* 2011;61:12–17.
4 Summerton N. Cancer recognition and primary care. *British Journal of General Practice* 2002;52:5–6.
5 Katerndahl DA, Wood R and Jaén CR. A method for estimating relative complexity of ambulatory care. *Annals of Family Medicine* 2010;8:341–7.
6 Glasziou P and Haynes B. The paths from research to improved health outcomes. *Evidence Based Medicine* 2005;10:4–7.
7 Cain M and Mittman R. *The Future of the Internet in Health Care: a five-year forecast* www.chcf.org/documents/intreport.pdf (accessed June 2011).
8 National Health and Medical Research Council. *Current Outcomes of Project Grants Funding Rounds.* www.nhmrc.gov.au/grants/rounds/projects/index.htm#2010 (accessed June 2011).
9 Herland K, Akselsen JP, Skjønsberg OH and Bjermer L. How representative are clinical study patients with asthma or COPD for a larger 'real life' population of patients with obstructive lung disease? *Respiratory Medicine* 2005;99:11–19.
10 *ipad iphone ipod update.* ipad-iphone-ipod-update.com/2010/09/iphone-set-to-replace-the-stethoscope (accessed June 2011).
11 Zwar N, Harris M, Griffiths R *et al. A Systematic Review of Chronic Disease Management.* Research Centre for Primary Health Care and Equity, School of Public Health and Community Medicine, UNSW, 2006.
12 Lakasing E. Michael Balint: an outstanding medical life. *British Journal of General Practice* 2005;55:724–5.
13 Kottke TE, Battista RN, DeFriese GH and Brekke ML. Attributes of successful smoking cessation interventions in medical practice. A meta-analysis of 39 controlled trials. *Journal of the American Medical Association* 1988;259:2883–9.
14 Dixon HG, Scully ML, Wakefield MA, White VM and Crawford DA. The effects of television advertisements for junk food versus nutritious food on children's food attitudes and preferences. Original research article. *Social Science and Medicine* 2007;65,1311–23.
15 Fleetcroft R and Cookson R. Do the incentive payments in the new NHS contract for primary care reflect likely population health gains? *Journal of Health Services Research and Policy* 2006;11:27–31.
16 Moynihan R, Doran E and Henry D. Disease mongering is now part of the global health debate. *PLoS Med* 2008;5:e106. Published online 27 May 2008. doi:10.1371/journal.pmed.0050106
17 Ross RK, Paganini-Hill A, Wan PC and Pike MC. Effect of hormone replacement therapy on breast cancer risk: estrogen versus estrogen plus progestin. *Journal of the National Cancer Institute* 2000;92:328–32.

PEER REVIEW

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CONFLICTS OF INTEREST

None.

ADDRESS FOR CORRESPONDENCE

Moyez Jiwa, Curtin Health Innovation Research Institute, Faculty of Health Sciences, Curtin University, GPO Box U1987, Perth, Western Australia 6845. Email: m.jiwa@curtin.edu.au

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