

Primary care in 2010

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Technology is changing the way health care is provided. But if doctors seize the reins in this revolution, primary care can get back to its roots in the doctor–patient relationship.

It is a Monday morning in March 2010. Family practitioner Marcus Welby III, MD, and his wife Marcia, a general internist, begin their week. Marcia is jogging with friends, while Marcus feeds the kids – 3-year-old Marcus IV and 9-month-old Marisa. He knows there are no urgent messages on the home computer from patients awaiting his attention because the red ‘alert’ light is not blinking, so he can enjoy this time with his children. At 7.45 a.m., when Marcia gets back from her run, Marcus heads to the office.

First, he checks the office computer for any weekend activity involving his patients, such as admissions, urgent care or emergency visits. He also checks the ongoing evaluation and management tasks done by his staff and colleagues within the regional family care delivery system.

The data reveal an unremarkable list of minor injuries, infections and requests for advice, each of which has been filed automatically in the appropriate patient’s electronic record. Dr Welby sees that one of his elderly patients, Mrs Garcia, was admitted yesterday for an acute exacerbation of congestive heart failure. He enters the hospital database and reviews the admission note and nursing data, plus laboratory and x-ray results. He then video-links directly to Mrs Garcia’s bedside to talk with her, see how she is doing, and let her know he is involved in her care. He promises to call in at the hospital later that day or to see her at home if she has been discharged. Her advance directive and other relevant parts of her medical record are already downloaded into the hospital chart, so he doesn’t need to worry that her attending doctors will make decisions about her care in the absence of any vital information.

More time with patients

Dr Welby then checks his schedule for the day. Six patient visits are booked, each 30 to 60 minutes long. Two of the patients are new, but between the regional health system’s records and an electronic questionnaire patients complete (with the help of the Welbys’ practice staff), before their first visit, most of their history is already in his computer. He will go over the high points with the patients when he meets them.

Two of today’s patients are returning for annual visits. Each has a combination of chronic health problems: diabetes and



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hypertension for one; obesity and a lipid disorder for the other. Dr Welby and his staff have managed these problems online over the course of the year: the patients enter weekly data on blood pressure, weight, glucose levels and the like, and the clinicians answer questions and adjust regimens through ongoing electronic dialogues. Dr Welby will spend an unhurried, time-intensive visit of up to an hour with each of these patients, as he will with the two new ones. His extended visit includes the appropriate hands-on physical examination, but its focal point is the face-to-face discussion of the patient’s overall health. Dr Welby will explore the biopsychosocial, spiritual and family system dimensions of each patient’s situation, getting to know them and firmly establishing a healing relationship that can then be reinforced during the year – mainly through electronic communication.

Dr Welby will perform a no-scalpel vasectomy on one of his patients today, a procedure he does weekly and teaches to residents. It is one of a variety of procedures he regularly performs. Colleagues in his practice, including his wife, perform others, such as colposcopy and pelvic ultrasound.

His final scheduled visit is a counselling session for a family struggling with two rebellious teenagers. He delivered both children and has a close relationship with their parents. Together with a psychologist, Dr Welby has been meeting with the family every two weeks for three months. The progress is good – the children’s truancy has decreased, their grades have improved and the family is enjoying more time together.

Besides these six scheduled visits, Dr Welby will see four to six more patients in brief, face-to-face visits for acute problems not easily handled by email or video communication. With the office’s open access scheduling system, these visits are arranged as the patients call in. Usually he sees same-day appointments at the end of the morning or mid-afternoon.

A cornerstone of Dr Welby’s care for his 2000 active patients is daily electronic communication. He spends up to an hour and a half each day in online patient care, interacting with 20 to 30 patients. They write to him with enquiries and results, and he monitors or manages common acute problems, follows up on chronic ones, gives pep talks to patients working to improve their health, and reviews laboratory and other data. Virtually all patients by now have an email address or access to

Dr Scherger was Editor-in-Chief of the US journal *Hippocrates* (published by The New England Journal of Medicine) at the time this article was first published (March 2000).

the account of a trusted friend or relative.

The practice broadcasts messages periodically to all patients with specific diagnoses. For instance, on this day, all patients with type 2 diabetes will get a message about a new recommendation for monitoring liver function tests in patients taking a common drug. The system can automatically arrange the tests for those patients on the drug. Dr Welby will also communicate electronically with two or three consultants that day, sharing patient data.

Staff and colleagues

The Welbys' office is small but highly skilled. One front office worker, specially trained in communications and information management, interacts with patients, gathering data, scheduling appointments and assisting patients with insurance information. There is no waiting room, because patients no longer have to wait. A library equipped with workstations has replaced it, where patients can update and review their medical records and view CD-ROMs and websites the practice recommends for patient education. Some patients come each day just 'to spend time there', even though most of the information is accessible from their home computers.

The office nurse also corresponds electronically with 20 to 30 patients that Monday, giving advice on common problems, arranging preventive services and laboratory work, and screening communications for Dr Welby. The nurses are especially good at gathering data from patients, using a bank of questions drawn from guidelines and the Welbys' experience to help clarify complaints such as fatigue, abdominal pain and headache.

A nurse practitioner shares the office with the two Drs Welby, helping care for their patients and for about 600 others who specifically identify her as their primary source of care. Her schedule resembles Marcus Welby's except that she will hold two group sessions that day, one for patients with type 2 diabetes and another on weight management. Ten to 15 patients will attend these sessions, with several more linked by video. Because of the high quality of its patient management, the Welbys' office recently won two awards given by the local family care system: for lowest average glycosylated haemoglobin (HbA_{1c}) and greatest body mass index drop in the network.

Meanwhile, Dr Marcia Welby enjoys an interim practice style that lets her spend time at home with her two young children while the baby is breastfeeding. She has office hours three afternoons each week, with four scheduled patient slots (like her husband's, these are for 30 minutes to an hour) and two or three brief same-day appointments. Daily, from her home computer, she corresponds with 20 to 30 patients, so she can continue to monitor and manage them, as well as deal with common acute problems, without spending a lot of time in the office. Her practice specialises in the care of women and the elderly, and she is medical director of a senior care centre. In that latter role, she

manages care through daily electronic messages and uses a video link to 'see' selected patients, as well as to participate in meetings and other administrative matters. She visits the senior care centre every two weeks and when patients are acutely ill.

Both Welbys are very active with the local hospice, and about twice weekly one of them makes a home visit. They share in the care of dying patients.

Getting there from here

This vision of the future does not have to be implausible. We are at the dawn of a new century. How we deliver health care in America is ripe for radical change. Average life expectancy in the USA increased from 47 years in 1900 to 76 years in 1999. Immunisations, antibiotics and modern surgery – as well as improvements in diet and public health – have prevented scourges and extended life.

The 20th century also saw dramatic changes in how primary care was delivered, from house calls to the modern medical office with its episodic visits, hectic schedule and multiple dissatisfactions for both doctor and patient.

Information technology has the power to change medical practice as much as the automobile and telephone did. As Bill Gates describes in *Business @ the speed of thought*, information technology will transform health care into an interconnected system that operates accurately and automatically.¹ At first glance, email may seem impersonal and a poor substitute for face-to-face contact. It's true, email cannot replace necessary visits. But it can provide an alternative for handling routine problems, and it can enhance relationships by making communication between doctor and patient – albeit online – more frequent and more responsive to patient needs.

Information technology will also allow primary care physicians to improve the quality of care. Electronic clinical decision support systems will automatically double-check all orders, including drug prescribing, and will routinely assist with diagnosis and treatment, alerting physicians to clinical guidelines from the moment the medical assistant enters the main complaints into the electronic record. Michael Millenson, in his 1997 book, *Demanding medical excellence: doctors and accountability in the information age*, powerfully describes how computer technology must be routinely used to achieve medical excellence.² He quotes David Eddy, MD: 'The complexity of modern medicine exceeds the inherent limitations of the unaided human mind'.

In the future, primary care physicians could spend an extraordinary amount of time with their patients. Most human problems require substantial amounts of time for healing – both more time when we see them and more care over the long interval it may take for a treatment to have its effect. We routinely spend half an hour to an hour on administrative and teaching appointments. Why should patient care get less? In a

landmark book, *Time to heal*, Kenneth Ludmerer, MD, calls the lack of time the greatest obstacle in today's healthcare system.³ He cites compelling data that busy office schedules and short appointments reduce the quality of care and cause job dissatisfaction, burnout and poor mental health among physicians. A new care model such as that described here can give the physician time to heal and can return satisfaction to primary care.

Three things need to happen to bring about this future vision. The first is information technology, which is available today and is likely to become far more widely accessible in the coming decade. For those persons who will not have computers at home, kiosks will be available – like public telephones are now – in addition to the computers already available in public places such as libraries.

The second is reimbursement that supports such a model and does not depend on office visits. Fee-for-service, where the service is measured in visits, will become increasingly obsolete, replaced by better designed (and more realistically funded) capitation that pays for the overall care of the patient over the course of the year. The cost of innovations such as email care

and elaborate practice websites could be defrayed with prepaid patient contracts for online access.

Finally, this model requires that physicians regain control of their work schedules. Physicians taking responsibility for 2000 or more patients should have a more executive level of responsibility and be free to use the most convenient and effective means of serving patients' needs. Whether that means using nurse practitioners or email messages for routine care, physicians should be concentrating their efforts where their specific training and skills do the most good.

Marcus Welby III's fictional grandfather is well known to most baby boomers. Made famous by a hit 1970s TV show, he was the prototype of the primary care physician helping patients and their families with complicated problems. Marcus Junior practised during the managed care era of the 1980s and 1990s. Frustrated with mandated busy office schedules that required him to see patients every 10 minutes, he stopped making house calls and even gave up hospital practice.

But if he can achieve this new care model, Marcus Welby III can return to something resembling his grandfather's style of practice, with its enhanced, personal patient relationships. Electronic communication, sharing of information and freedom from visit-based payment will allow him to focus on the important issues in his practice and make his routine care more efficient.

This future will not be handed to primary care physicians on a silver platter. Indeed, if primary care physicians stand by and let others implement information technology in health care, they run the risk of being relegated to the role of service workers on production-line schedules, while others in the emerging delivery systems provide electronic communication and information sharing. Primary care physicians must be proactive to make this future happen and preserve the time-honoured tradition of providing comprehensive care through intense doctor-patient relationships. The future rewards and satisfaction of primary care depend on it. MT

Consultant's comment

This article was first published in 2000, and real life is already overtaking one of its predictions. Within the next few years we can expect to see extensive use of mobile phone short messaging services (SMS) to remind consumers of their healthcare appointments, to prompt them when medication is due, and even to reinforce lifestyle advice. By 2010, SMS technology will itself be obsolescent, superseded by applications supported by the convergence of mobile phones and wireless hand-held computers. Web-delivered information for patients will also be far more sophisticated, perhaps augmented by artificial intelligence capabilities that personalise the advice to the individual.

Nevertheless, as Dr Scherger points out, 'most human problems require substantial amounts of time for healing'. However sophisticated the technology becomes, personal contact in a trusting relationship with an empathic and competent clinician will remain the cornerstone of health care. It is for this reason that I doubt the value of extensive diagnostic data collection by an assistant.

Although it reflects the US system of health care, the article's conclusions ring true in the Australian context. In particular, we need to regain control of our lives in general practice; the current Medicare schedule does little to encourage this.

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Further reading

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