

# The 'wired' practice

## – what's new in Primary Care IT?

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### Introduction

Physicians have always recorded information arising from the consultation to use in the diagnosis and management of the patient's complaints. The evolution of computerised systems commenced in the 1960s when enthusiast general practitioners in the United Kingdom developed and used computers in their practice.<sup>1</sup> Interestingly, these were designed to collect epidemiological data rather than manage the practice.<sup>2</sup> Today, information technology (IT) has become an integral part of the business of general practice.

### New Zealand GPs lead the world

New Zealand is recognised as a world-leader in the use of computerised medical records and electronic prescribing in primary care.<sup>3</sup> In a 2000 survey of physicians in five countries, New Zealand was second only to the United Kingdom in the use of electronic medical records. The survey reported that 52% of primary care physicians in this country reported 'sometimes' using electronic medical records, a little less than their counterparts in the United Kingdom (59%) but more than double of those in Australia (25%). These levels of usage are much higher than in the USA (9%) or Canada (8%).

### Reasons why some countries use computers more than others

It is suggested that the higher usage correlates to the provision of a national single payer (usually government) funded universal health service where that payer may support the use of information technology. This is definitely so in the United

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Kingdom where computer use in primary care has been greatly facilitated by several government-backed incentive programmes since the early eighties.

In Australia, the introduction of the Commonwealth Government's Practice Incentives Program (PIP) in 1998 made a significant impact on the purchase and use of computers within general practice. A continu-

ing programme, the PIP includes an incentive for electronic prescribing<sup>5</sup> (Commonwealth DHAC 2000).

The provincial government in Ontario, Canada, provided the following statement in its Primary Care Reform Information Package to doctors in 2000:

*'Health care delivery is an information-based process, and health information as a strategic resource can*

Figure 1.

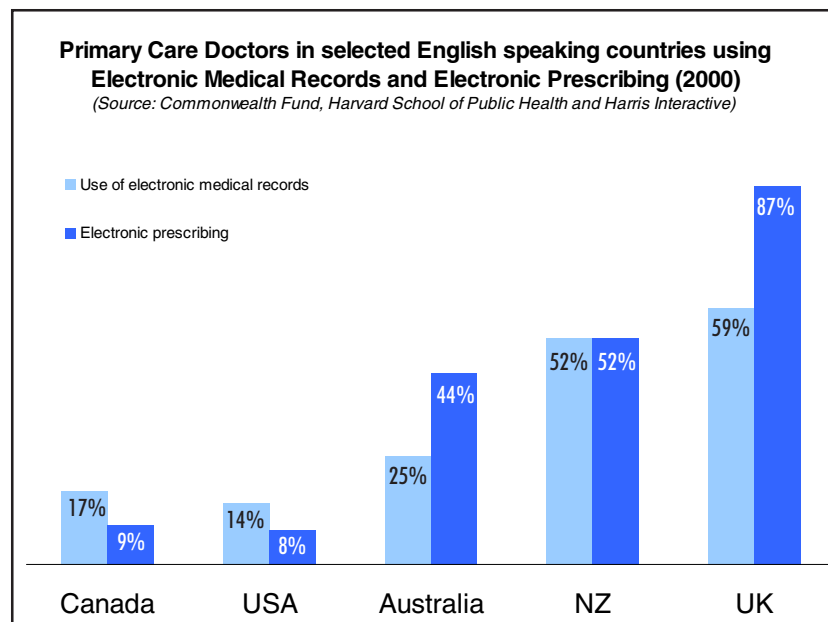


Figure 2. Incentives for computerisation of primary care in the UK (RCGP 2000)<sup>4</sup>

- The Department of Industry's 'Micros for GPs' scheme in 1982.
- The introduction of 'no cost' computer schemes in 1987.
- The introduction of the new GP Contract and the publication of the 'Health of the Nation' in 1991 with its emphasis on information collection and analysis, particularly in relation to health promotion targets.
- The agreement by the Department of Health in 1990 to reimburse part of the cost of purchasing and maintaining computers in general practice.

be used effectively to support change and to improve patient care. Under Primary Care Reform, the vision for information technology is based on the premise that better organization of this health information and its timely availability will result in better service quality, reduce duplication of care, and enable better health care planning.

It backed this statement up with a budget allocation of C\$150 million for IT support, which would cover two-thirds of the costs to physicians.<sup>6</sup> It will be interesting to observe whether this incentive is sustainable, scalable and improves the usage figures.

### The New Zealand scene

Although the New Zealand government has expressed a change in the way it views the value of health information management and technology from one of administrative cost to one of strategic investment, it has stopped short of providing any direct incentive for general practice computerisation and its use.<sup>7</sup> Indirect financial incentives such as electronic claims may play a part, but as Dr Arn Sprogis, Executive Director of the Hunter Urban Division of General Practice, Australia, comments *'It is a paradox that some of the best IT solutions are coming from NZ, a country where there is no patient subsidy for the majority of patients'*.<sup>8</sup>

Incentives notwithstanding, the government's strategic view recognises the ability to exchange high-quality information between partners in health care processes, which will be vital for a health system focused on achieving better health outcomes. Bet-

ter access to timely and relevant clinical information can improve clinical decision-making and, therefore, health outcomes for individual patients.

### Provider networks

These strategic views are also embraced by primary care organisations including the Independent Practitioner Associations (IPAs), which represent the 3 300 or so general practitioners around the country. The government recently moved to take IPAs to the next stage of development by announcing Primary Health Organisations (PHOs). These hold capitated contracts, are aligned to a hospital system, include non-physician health providers, take a population perspective and are accountable for care quality. In short, they are a very close fit to a 'Provider Network' that emerges as the model of today.

Like most nations, we are 'bumping up against a health care affordability barrier'. The scope of health care and the range of what's possible are continuing to expand rapidly while the demand from an aging populace places ever more pressure on fiscal controls. Socialised systems tend to hold the line before bucking, breaking and entering into major change programmes, including accepting some style of partnership role between private and public funding and delivery.

In almost every major health economy, there is considerable Health Reform activity charged with the challenging task of controlling cost, improving quality and doing so despite increasing demand.

Many interventions no longer require the expensive resources of a hospital so the opportunity to deliver them in a low cost ambulatory or community setting is appealing. Home-care ('Hospital at Home', 'Wards without Walls') is still in its early stages, but technology such as telemedicine and the internet is dramatically improving communication with home-based patients and will allow this style of medicine to continue growing.

Health management has responded to this by attempting to accelerate the trend away from large hospitals to smaller, multi-local primary care based delivery. It is, however, not sufficient to simply downsize hospitals. The facility must be part of a network of primary care based providers and patients have to be managed through all the elements in a coordinated, integrated way.

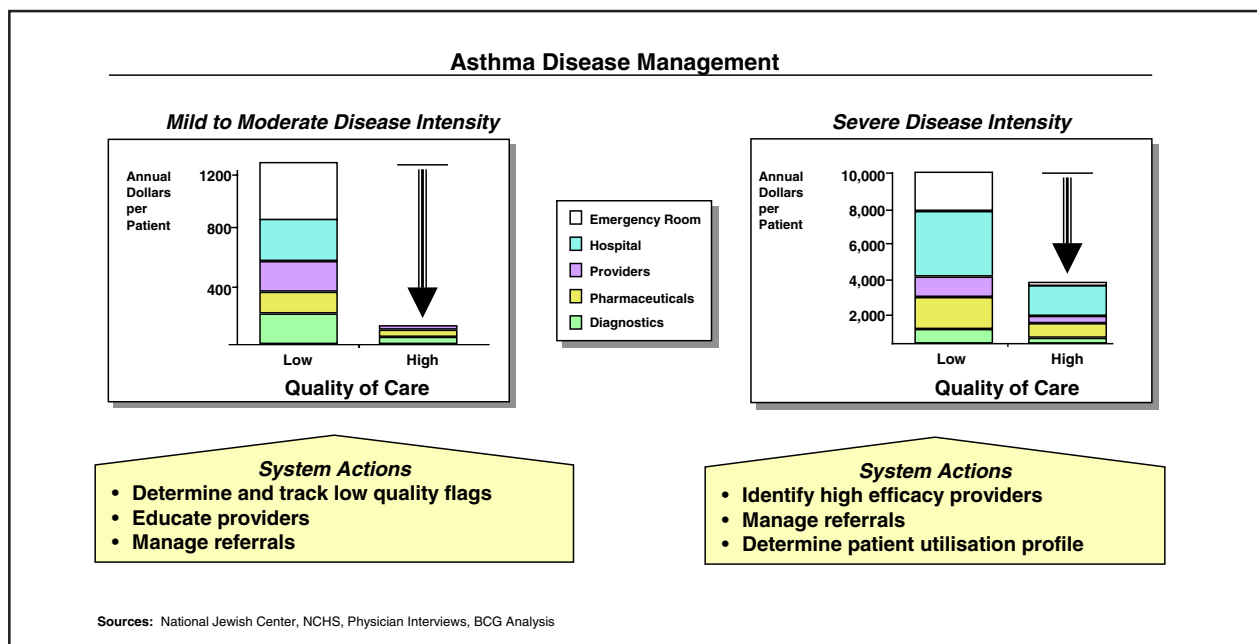
This is sometimes called 'integrated care' and its goal is to intervene in the most cost effective location, at the most cost-effective point in the condition's lifecycle, with all elements of the health system working together rather than independently.

We should call these 'Provider Networks' and while they are comprised principally of physicians practices, their behaviors and requirements are much more profound than a single doctor-patient relationship.

### Provider networks must:

1. Understand, share and drive the system to use consistent, evidence based clinical guidelines.
2. Manage not only individual patients ('named lives') but also populations ('statistical lives') to treat earlier in the disease lifecycle, even to prevention and population health initiatives.
3. Allow the individual physicians to earn a livelihood, operate an independent business and deliver high quality care.
4. Take on some degree of financial risk as governments attempt to push health funding risk onto those who make the resource and rationing decisions.

Figure 3. Disease Management



## Disease management

There are several methodologies employed for this purpose, but one of the most popular was developed by the Boston Consulting Group during the nineties. Originally called the Economic Structure of Disease, the implications of understanding both clinical and management behavior of disease caused it to be renamed Disease Management Strategies (DMS).

Figure 3 is an example of one of the early insights. The cost of asthmatic patients was assessed against clinical treatment parameters and the cost allocated by quality and disease severity segments.<sup>9</sup>

The low treatment-quality patients were then targeted and transitioned to improved quality. This resulted in both an improvement in health and a reduction in total system costs. For the first time, managers and clinicians shared a common ethic.

However, almost all share the cost-quality relationship, with pay-back periods for the health investment activities ranging from months to years. Since then, DMS's have been augmented with other frameworks, including population health,

Figure 4. Worldwide health care reform and its impact on IM/IT

- Escalating costs of health care provision and the changing demography of populations have resulted in worldwide healthcare reform activity.
- Primary care is often seen as the 'gatekeeper' of health care provision, or as the principal patient interface. It is central to all current health reforms.
- Information management through technology has been identified as critical in achieving the desired outcomes of health care reform and involving primary care.
- Many government initiatives are either starting or planned to invest in IM/IT solutions for primary care. Such nationwide strategies are establishing provider networks that are community orientated.

the disease lifecycle and bolstered with evolution in clinical attitudes with Evidence Based Medicine, Clinical Pathway compliance development and sharing, and peer review.

## Technology to achieve better health outcomes

Traditional primary care technology does not have the ability to support these types of initiatives and programmes. In addition to this, participating from home during treatment, the consumer's role is re-emerging as one of the key long-term future factors in both choice of health care provider and in treatment decisions. Lack of information is no longer constraining a patient's ability to make informed decisions.

Use of the internet for health information access is one of the principal and fastest growing uses of the Internet. Numerous studies show that consumers are likely to play a greater part in health choice. In the United States managed care and employer-driven health plan selection is being capped with the addition of employee choice and risk holding products.

Attempts to build internet based health care programmes for consumers ('eHealth') vanished with most pure Internet plays during the 2000/2001 'dot com bust'. These initiatives attempted to disconnect patients from the health system and were stand alone, rather than part of a fully integrated offering that strengthened the patient-physician relationship.

Figure 5. What is ASP?

- ASP stands for Application Service Provider. It refers to a way of delivering software capabilities by centralising management.
- Although the 'dot com' collapse saw many general commercial ASP operators fail, it offers some great advantages for health care.
- Primary care based providers generally have low IT capabilities, but the technology is advanced and demanding. ASP allows them to remain independent, but utilise full technology power.
- ASP is attractive for this market because the aggregated data holds great value to a health system manager and justifies the investment required.
- ASP is increasingly seen as the future of primary health care software but few vendors have the capability today.

Investment in developing Information Management and Information Technology (IM/IT) typically has been directed towards the hospital and payer markets, yet most physicians work in practices of five or fewer doctors. Primary care is now being targeted by an emerging generation of integrated solutions based on a sophisticated Electronic Medical Record (EMR) system and the most modern IT architecture.

This would allow the technology to meet the business and clinical requirements of three key groups of primary care stakeholders:

1. Medical practitioners and other primary care health professionals with requirements for both clinical and practice management.
2. Health System Managers who are responsible for coordinating care, understanding population health needs and ensuring that resource

allocation is effective and efficient. They are also increasingly managing and operating the IT infrastructure of health professionals.

3. Consumers or patients who seek to engage with their health professionals using the growing capabilities of the internet.

## The 'Application Service Provider' model

Within the emerging solutions there appears to be a common trend towards an Application Service Provider (ASP) model (Figure 5) of clinical systems management. However, most ASP implementations within primary care to date have been somewhat basic with operating a shared general practitioner system. The drivers behind such implementations include: economies of scale; lack of local IT resources; security; multiple physical locations and the need to share data.

The critical success factors for a system to respond to this trend are that it:

Figure 6. An ASP offers full clinical and practice management with centralised business and health process support

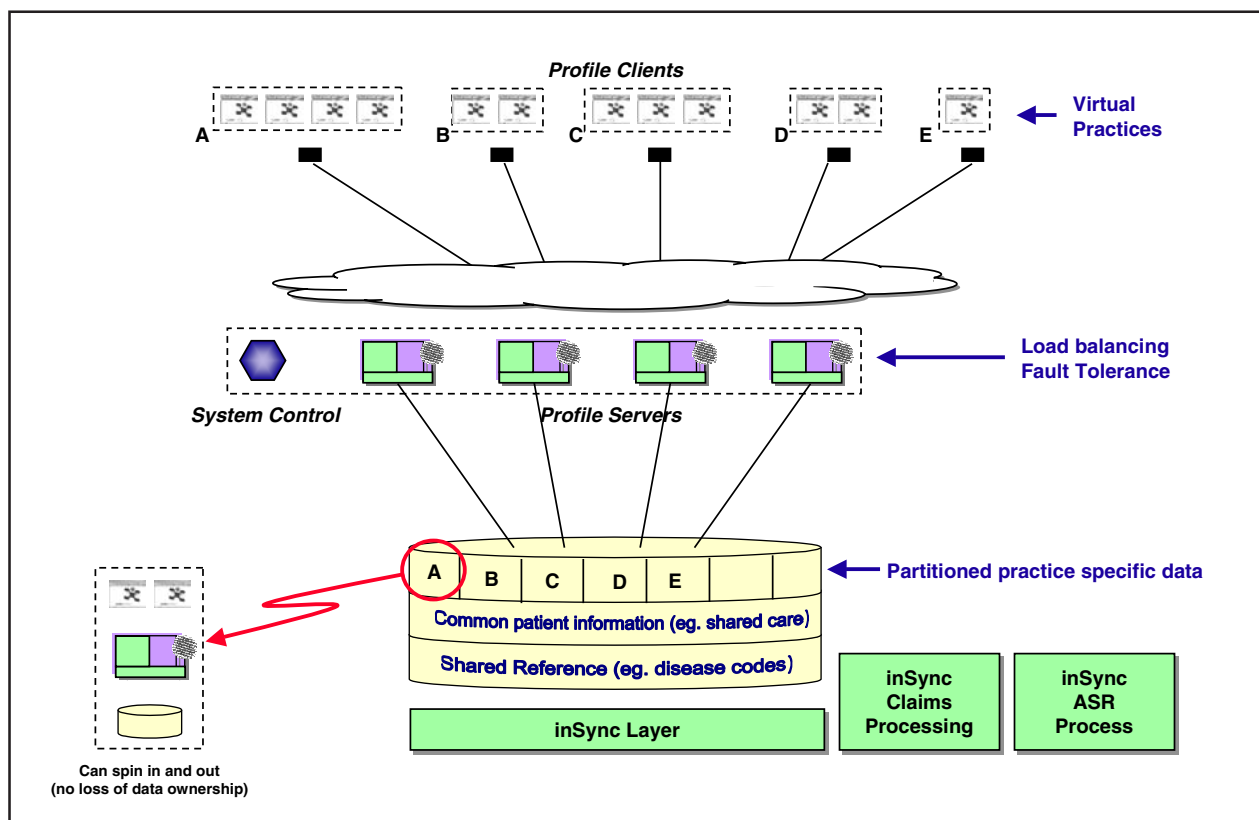
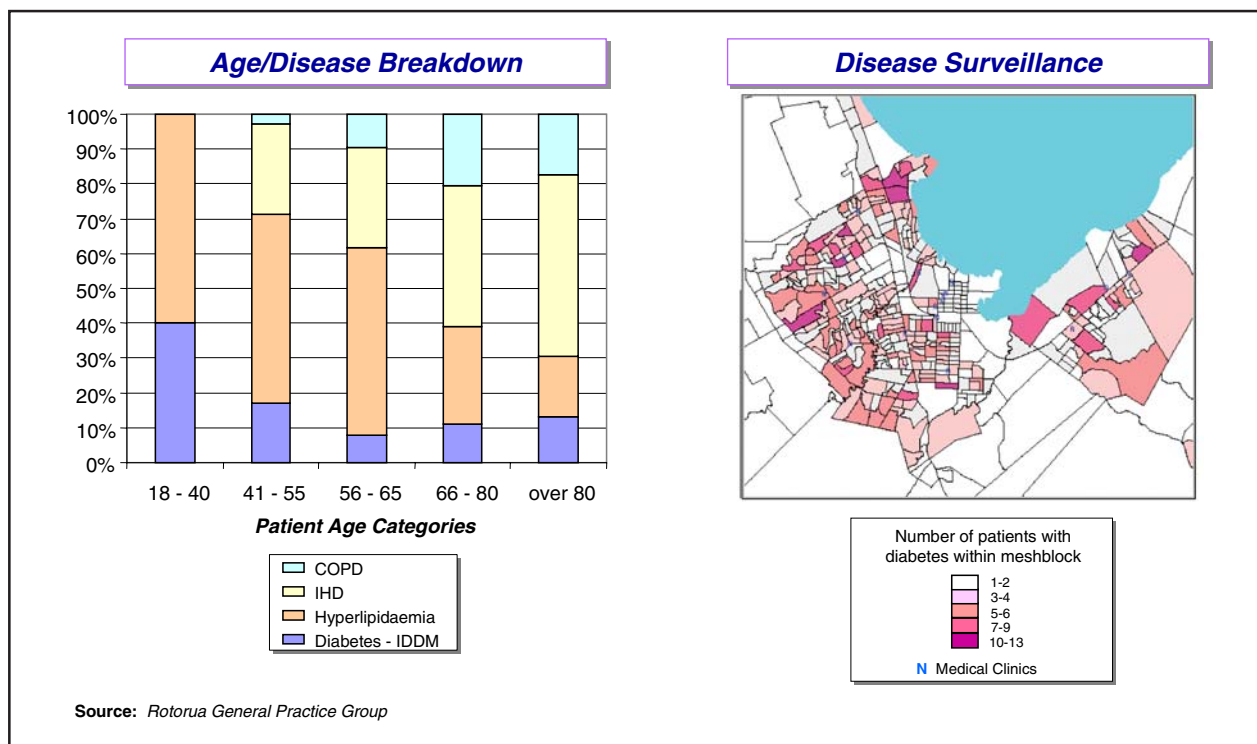


Figure 7. An ASP binds the individual physician systems into a coordinated network delivering new insights in real-time



- Allows physicians to continue functioning as independent health providers, and to enter and exit from the ASP arrangement (they still own their data).
- Is a 'no compromises' front-end solution to busy primary care practices.
- Centralises management of critical IT functions and maintenance of reference information.
- Allows the ASP operator to implement advanced clinical pathways and quality control mechanisms.

Functionality delivered to the physicians on the ASP is the same as with

a stand-alone version of that software. Centrally created objects (such as disease codes) cannot be edited by the practice (although they can add their own which remain local and private). All practice data remains private to the practice (Figure 6).

#### What can an ASPs do for primary care?

The power lies in the health system managers' ability to undertake population level health management, claims processing, capitation processing, case management, and implement system-wide clinical pathways. For example, when combined with Geo-

graphic Information System (GIS) software and other tools, the system would be capable of delivering a range of population level clinical analyses (Figure 7).

Such advances in information technology promise to facilitate many improvements in the way primary care is managed to deliver better health for all New Zealanders. The question is 'Are we ready for the implications of such a wired practice?' Responsibility, privacy, accountability and how these innovations will be funded are just a few of the issues, which will no doubt continue to be debated here and overseas.

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