



BETTER HEALTH CARE THROUGH ELECTRONIC INFORMATION



GAP Forum
14-15 September 2004
Sydney, Australia
Report

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INTRODUCTION

Continuing the dialogue started in December 2003, at the high-level Forum on Informatics in Biology & Medicine in Melbourne, Global Access Partners (GAP) hosted the Forum on '**Better Health Care Through Electronic Information**'. This two-day, national, strategic workshop in Sydney, in September 2004, was convened with the main objective being to formulate immediate priorities and further steps in building a sustainable and value creating Electronic Health Infrastructure in Australia.

The GAP Forum on 'Better Health Care Through Electronic Information' engaged major players from Australian, State & Territory Governments, senior figures in Business, Research and Industry, health service providers and service consumers, in a roundtable debate around the following four topics:

- **National and International Experience in Electronic Health Records (EHR)**
- **Costs and Benefits for Patients and Health Providers**
- **Change Management Strategy**
- **Technological Challenge**

Discussions focused on new, preventive models of care, and sought to identify digital technology that would enable more self-managed care and improve the quality and efficiency of primary healthcare services.

The sessions were facilitated by **Prof Peter Fritz AM**, Chairman of the GAP Forum Steering Committee. Keynote presentations were made by **Dr Allen Ausford**, Associate Clinical Professor at the Department of Family Medicine, University of Alberta, Canada, Advisor for the Alberta EHR Project, and **Dr Robert Wooding**, First Assistant Secretary, Information & Communications Division, Australian Government Department of Health & Ageing. **Mr Warwick Neilley**, Deputy Chief of Staff, Office of the Hon. Morris Iemma MP, NSW Minister for Health, addressed the Forum on Day One, and **Ms Robyn Kruk**, Director General, NSW Department of Health, attended the Forum's closing dinner on Day Two.

Through its continuity programmes and strong partnerships with Government and Industry, GAP will form a National Consultative Committee of stakeholders across public and private sectors. The Committee will take over the Forum's practical recommendations and will drive a number of commercial projects in information-based medicine, with lasting economic benefits for Australian businesses and communities.

DISCLAIMER

This report represents a wide range of views and interests of the participating individuals and organisations. Statements made during discussions are the personal opinions of the speakers and participants and do not necessarily reflect those of the organisers and/or sponsors of the Forum.

THE STEERING COMMITTEE

Planning of the Forum was undertaken by GAP in collaboration with the Steering Committee – a group of prominent leaders in Business, Industry and Government brought together to refine the Forum's goals and objectives and develop an agenda for discussions. For their expertise, enthusiasm and dedication we thank:

- **Karim Barbara**
General Manager, Business Development, Telstra Research Laboratories
- **Peter Brockhoff**
Manager, Government Business, Australia & NZ Citrix Systems Asia Pacific
- **Pam Clay**
Executive Director, Health Services Association of NSW
- **Dr Stephen Christley**
Senior Vice President, Health Services Association of NSW, CEO North Sydney & Central Coast Area Health Services
- **Malcolm Crompton**
The Trust Dimension
- **Dr Jock Fletcher**
President, Health Services Association of NSW
- **Prof Peter Fritz AM**
Group MD, TCG Group
- **Prof Michael Georgeff**
Faculty of Information Technology, Monash University
- **Michael Gill**
Internet Business Solutions Group, CISCO Systems
- **Amanda Green**
Principal, IBM Public Sector
- **Dr Ralph Hanson**
Chief Information Officer NSW Health
- **Jim Jefferis**
IBM Client Executive, NSW Health
- **Graeme Lee**
National Manager, Telstra Business & Government
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- **Chris Mount**
Director, Design Section, National e-Health Systems Branch, Department of Health & Ageing
- **Warwick Neilley**
Deputy Chief of Staff Office of the Hon. Morris Iemma MP, Minister for Health
- **Dr Julia Nesbitt**
Director of General Practice & e-Health, AMA
- **Dr Andrew Pesce**
Chairman AMA's Medical Professional Indemnity Task Force
- **Martin Stewart-Weeks**
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- **Paul Sulkers**
Principal, Health Industry & Life Sciences, IBM
- **Dr Robert Wooding**
First Assistant Secretary, Department of Health & Ageing
- **Kaely Woods**
Director, Evaluation, Integration & International Sector, Department of Health & Ageing

SPONSORS

'Better Health Care Through Electronic Information 2004' was co-sponsored by GAP and its partners whose role extends beyond the Forum through membership in the National Consultative Committee. Our thanks for their contribution and foresight go to the following organisations:

- The **Australian Government Department of Health & Ageing**

provides expert policy advice, works with communities, industry groups, professional organisations and State & Territory Governments through consultation and collaboration, promotes healthy living and manages the Commonwealth's Health & Ageing programs to ensure the provision of quality, cost effective care. Its major pilot project – HealthConnect - involves consumers, practitioners and the private sector, and aims at building a Health Information Network for Australia. In early 2004 the Australian Government committed 128 million dollars over 4 years to move HealthConnect from its R & D stage to large-scale implementation, starting with Tasmania and South Australia.



Australian Government
Department of Health and Ageing

- **Cisco Systems Inc.** is the worldwide leader in networking for the Internet. A multi-national corporation, with over 35,000 employees in more than 115 countries, Cisco provides networking solutions for small to medium business and enterprise customers, which include corporations, government agencies, utilities and educational institutions. *Cisco Medical-Grade Networks* introduce new ways to leverage networking technology in healthcare, improve diagnostic capabilities and clinical productivity, and reduce time to treatment for patients.



- **Citrix Systems** is the global leader in access infrastructure for the on-demand enterprise and the most trusted name in enterprise access. The Citrix family of products offers both access to centralised applications and individual desktop computers. Citrix Solutions in Healthcare - e.g. the *Citrix Meta-Frame® Access Suite* - enable healthcare organisations to provide easy, secure and instant access to any hospital system or information resource, leveraging existing IT investments and improving the quality of patient care.



- Independent of the State Government and representing members across public health in New South Wales, the **Health Services Association** is committed to fostering excellence in NSW health services with a view to increasing the wellbeing of the community as a whole, including those with particular needs.



- **IBM** offers technology infrastructure in high-performance computing, data integration, knowledge management, storage, e-business and information services. IBM infrastructure solutions provide the scalable tools and systems to help healthcare organisations share knowledge and collaborate in the provision of care. IBM Australia specialises in solutions for Payers (Government/Private Health Insurance), Providers, Pharmaceutical Companies and other Life Sciences Organisations.



- The **NSW Department of Health** monitors the performance of the NSW public health system and supports the statutory role of the NSW Minister for Health. In May 2004 the State Government announced the start of a trial of the new \$19.4 million electronic health record system - *Health e-link* - which will give doctors online access to their patients' detailed medical histories.



- Australia's leading domestic carrier and one of the world's premier long haul airlines, **Qantas Airways Ltd** is an overall sponsor of GAP Forums and Congresses. Established in 1920, Qantas is also one of Australia's most recognised brand names, with a reputation for excellence in safety, operational reliability, engineering and maintenance, and customer service.



- The **TCG Group of Companies** (GAP's partnering company) is an independent group of private, mutually supportive enterprises which have been in operation since 1971, covering five strategic areas - services, computers & communications, business accelerators & technology parks, land & food, and the environment. The TCG companies have created several globally significant technology advances in information systems, data transmission, management structures and the food industry.



KEYNOTE SPEAKER

The GAP Forum on 'Better Health Care Through Electronic Information 2004' featured **Dr Allen Ausford**, from Canada, as a keynote speaker. Dr Ausford has been closely involved in the design, building and implementation of the Alberta Electronic Health Record - a system which is expected to be used by almost all health professionals in the province by early 2005. His direct experience in the development and test-driving of the first Canadian EHR gives Dr Ausford a practical understanding of the system, its challenges and benefits.



In addition to his family medical practice at the Meadowlark Clinic in Edmonton, Dr Ausford was a member of the Steering Committee for the Pharmaceutical Information Network. In 1999, Alberta Wellnet launched the Pharmaceutical Information Network (PIN) that allowed pharmacies and physicians to share information electronically about a patient's prescription history. PIN was successfully piloted in Westloc and Leduc and paved the way for the pharmaceutical component of the Alberta Electronic Health Record.

In 1992, the University of Alberta awarded Dr Ausford the Fellowship in Family Medicine. He has been in community family practice in West Edmonton since 1981 with hospital privileges. He is an Associate Clinical Professor, Department of Family Medicine at the University of Alberta, the Site Director for Meadowlark Family Practice Clinic Residency Teaching Program and the Administrative Director of Diabetes Education Centre at Edmonton's Misericordia Hospital.

Dr Ausford presented on both days of the Forum. He gave an overview of the current e-health projects in Alberta, demonstrated change management and integration strategies, and highlighted the key components of an efficient and sustainable family practice automated office. His presentation was followed by discussions between participants and question and answer time (*for the full text of Dr Ausford's Presentation, see App. 2*).

PARTICIPANTS

Organisations involved in 'Better Health Care Through Electronic Information 2004'
(for the full list of participants, please see App. 5):

- Australian Government Information Management Office (AGIMO)
- Austin Hospital, Austin Health
- Australian Council on Healthcare Standards
- Australian Health Information Council
- Azure Solutions
- Centre for Health Informatics
- CHIK Services Pty Ltd
- Cisco Systems
- Citrix Systems Asia Pacific
- Consumers' Health Forum of Australia
- Defence Health Service
- Department of Communication, Information Technology & the Arts, Australian Government
- Department of Health & Ageing, Australian Government
- Department of Health, South Australia
- Department of Health & Human Services, Tasmania
- Department of Human Services, Victorian Government
- Distributed Systems Technology Centre (DSTC)
- Dtecht Pty Limited
- e-Health Research Centre
- GAP International, Hungary
- Global Health
- NSW Department of Health
- Health Insurance Commission
- Health Services Association of NSW
- IBM Australia
- IBM Business Consulting Services
- IBM Public Sector, Healthcare & Life Sciences Australia/NZ
- Information City
- Merck Sharp & Dohme
- Monash University
- Northern Health
- Office of Information & Communications Technology
- Office of the Hon. Morris Iemma MP, Minister for Health
- Phillips Fox Lawyers
- Prince of Wales Hospital
- Royal Australian College of General Practitioners
- SAP Australia Ltd – Brisbane
- Smart Health Solutions
- TCG Group
- Telstra Research Laboratories
- The Australian
- Trak Health
- Victoria University

SUMMARY OF ISSUES

The GAP Forum on 'Better Health Care Through Electronic Information 2004' was held in Sydney on 14 and 15 September at the NSW Trade & Investment Centre and the Garvan Institute of Medical Research. The following summary of issues is based on the Forum's proceedings. For convenience the issues are arranged under subject headings, rather than reproduced in chronological order.

BETTER HEALTH CARE THROUGH ELECTRONIC INFORMATION

Role of Government and Private Sector in Building a National EHR Infrastructure

- HealthConnect is a cross-jurisdictional board created by the nine Australian state governments to manage the introduction of the national electronic health record system that is currently moving from its R & D stage into implementation in South Australia, Tasmania and the Northern Territory.
- In conjunction with the HealthConnect Board, the state governments have recently created the *National E-Health Transition Authority* (NEHTA) - a connectivity organisation which aims to develop the standards and provider/patient/product/service directories required by the HealthConnect Project and help health sector stakeholders build their own systems for clinical point of care, clinical service, electronic record keeping and electronic transactions.
- In the UK and USA, various health services are attempting to build an entire electronic health environment – a single system solution, or a suite of solutions - for an entire health economy or region. In contrast, the Australian Government seeks to connect existing or planned systems.
- There are 40,000-50,000 separate health organisations in Australia, including hospital services, GPs, pharmacists, allied health professionals and nursing homes, comprising 40,000-50,000 separate information environments. Many thousands currently lack any IT, although the situation is improving.
- HealthConnect will produce a summary patient record similar to the Alberta EHR in Canada, but the involvement of the private sector is needed to build broader health information systems.
- The creation of a national electronic health infrastructure requires the various government and non-government organisations to invest in these systems, the private sector to build, and provide secure access to them, and HealthConnect and NEHTA to allow sharing of key patient information. State governments envision a solution incorporating crucial roles for many private sector organisations.

- The Department of Health & Ageing and State governments have therefore been encouraging private sector companies to discuss ways of improving the IT products offered to the private health sector and their integration with national projects such as HealthConnect and NEHTA.

"There is a pressing need to move forward. As broadband and other telecommunications services are rolled out, the opportunity to advance the quality of IT products and suites and integrate them into the existing healthcare environment forms an important topic for discussion at this GAP Forum."

Dr Robert Wooding
Department of Health & Ageing

- The Southern Tasmanian HealthConnect trial which, like Canada, has used the Orion Concerto system, has demonstrated the viability of an electronic health records system. The second-generation Medicare cards are going to be a feature of full implementation.
- Having conducted the initial HealthConnect trial in Tasmania, the political support exists to move on to a large-scale implementation. The Government cannot demand that practitioners accept a given system, but stakeholders seem united in recognising the benefits of such a system, even though those benefits have not been assessed state-wide and no system exists to put them into action at the moment.
- Despite this, practical steps are being taken. NSW has committed considerable resources to create EHR. Tasmania and South Australia have committed to implement HealthConnect; the Northern Territory is implementing it at the end of their trials.
- The private sector can assist the growth of an Australian electronic health industry and market. The major hospital and community projects tendered out by States and Territories pose a challenge, as do the marketing strategies to be used by private companies to extend EHR to the vast majority of community-based services i.e. medical specialists, GPs and pharmacies.

"Part of the problem of selling the system is that we have not really worked out, on a case-by-case, business-by-business basis, what the value propositions need to be. We have an intrinsic belief that it is going to be of benefit and impact, in particular in chronic situations, and is more efficient in terms of money."

Garry Hulme
Department of Health &
Human Services, Tasmania

Costs, Savings & Incentives – Canadian & Australian experience

- The first two years of the Canadian program cost \$40 million [CAD except where stated], and \$30 million was budgeted for its next two years of operation, including management and infrastructure costs and the development of vendors.
- The expected savings in pharmacy costs are \$60 million per year in Alberta, covering 3.2million people. There is added accountability in regulating hospital admissions and the number of needlessly duplicated medical tests has been dramatically reduced with earlier results available at the touch of a button.
- The Orion product is now used across Southern Tasmania, at a cost of \$10 million (AUD). There are incentives to doctors to use it, and doctors are now its 'sales people', but this requires an appropriate budget. In Alberta, the main financial incentive for GPs to use the EHR system is \$7,000 per year and proves effective.

- **The cost of new IT technology to measure inputs and outcomes effectively might be as high as 5% of the total health care budget, but savings in primary care costs achieved through EHR can cover the costs of adoption in five years.**

- Doctors in NSW use the latest version of DocFax, where information is faxed to doctors from emergency departments, but only a tiny percentage of GPs currently use electronic methods of medical record transfer, even despite free provision of modems by the Australian Government.
- The EHR in Alberta is populated by lab tests coming back to the doctor and discharge summaries from hospitals, both of which are relatively dislocated from the general business of the GP. This makes it easier to start such a system in Australia, as it does not require much input of information from the GP to begin with and over time it can become more sophisticated.
- Progress has been made in pilot programmes, but a sense of the big picture is needed to excite stakeholders and therefore encourage participation.
- In reality, neither Government nor health professionals can afford to increase IT expenditure from 1.2% to 5% of the total budget, regardless of the future savings and improvements in care. It was suggested that the IT industry must subsidise its introduction, with a view to future ongoing profits, if it is to happen at all.

"There is a vital need for a change of culture in the medical profession. We need to show the capabilities of the big picture so people realise the massive improvement in quality and safety. In both primary care and hospitals there are no shortage of champions. Our challenge in Australia is to find some way of breaking through."

Prof John Dwyer AO
The Prince of Wales Hospital

The need for an Australian EHR system

- IT incentive payments brought a lot of GPs online, but they had no central or unified system to link to, as hospitals were not online. GPs are sceptical of new EHR schemes because their past experiences were disappointing. There is therefore a need for a re-stated vision and a comprehensive integrated approach that people can commit to. Though up to 90% of GPs have desktop systems, they fail to use them appropriately. The practices lack the skills needed to manage the IT environment, to integrate the information into their systems. Generally, they do not use them to plan their care for the future, merely record the care completed in the past.
- It makes no practical or economic sense for a GP to have different computer systems for billing, administration and medical information. Only a common infrastructure makes economic or practical sense. The Medicare Benefit Schedule, designed as an incentive, acts as a disincentive through its cumbersome administrative demands. An EHR system, which automatically invoiced Medicare, saving time rather than adding a new complication, would encourage GPs to participate and leave them more time to practise medicine.
- The Department of Health & Ageing collects an extraordinary volume of patient data around Australia, but though it fills up computers everywhere, it is not manageable in terms of actually helping people run the system. Hospitals spend tens of millions of dollars but the breakdown of how that money is used is unavailable. Better computer systems would ensure this information is used to target and improve care and eliminate wastage and duplication. Oracle can already supply products to facilitate data mining.

- A huge amount of pharmaceutical information is similarly stored around the country in a plethora of different formats. If co-ordinated into an accessible system, it could save millions of dollars and improve patient care. To achieve this, the Department of Health & Ageing and Department of Communication, Information Technology & the Arts must work together. The transitional agency [NEHTA] might deliver co-operation, but some stakeholders feel it lacks funding and, while asking others to take action, is unable to take any itself.

- **Many GPs feel marginalised in the Australian medical system and lose touch with patients once they are admitted to hospital. GPs would be more likely to use an EHR system if it allowed them to track their patient's hospital treatment and so be better prepared to deliver aftercare.**

The disconnect between GP and hospital care means an efficient EHR system is vitally important as GPs cannot afford the time to visit their patients in hospital. Better primary care will reduce the demand pressures on hospitals. EHR would be less useful in hospitals, as the Hospital is a vast health-providing machine which takes over the patient so the past clinic record appears to be less crucial.

- The medical system suffers from its multiplicity of funding mechanisms. Knowing whether to bill the Government, hospital, GP or patient is an administrative problem, and hospitals and GPs may compete to minimise their costs by passing responsibility to another provider, rather than co-operating to deliver the best possible patient care in a holistic manner. The fundamental obstacle to this happening is the disconnect between State Government controlled public systems, whether they be hospital or community health, and Commonwealth funded private practice systems.

"Both Canada and the UK, exemplars for electronic health record implementation for good or ill, have the funding in a single hand. In the US, where there are also successful implementations, those implementations are associated with financier integration, where a single health maintenance organisation or a major organisation like Kaiser Permanente or the Veterans Administration, can force integration. "

John Rimmer
Australian Health Information
Council

- Only 30% of patients admitted to public hospitals can nominate a doctor who is their sole and exclusive GP, and this lack of registration undermines attempts to integrate the health system, especially in metropolitan areas. Hospitals have fixed budgets, whereas GPs work for fees, and though political parties and the medical establishment are united in seeing this as too complicated to reform, structural reform is an imperative.

Virtual networks of doctors can care for groups of patients. They do not have to be in the same clinic if they can share information online. Each doctor could receive a fee per patient, the patient would be on a national, rather than individual roster, and the health providers could use those fees to create the infrastructure needed to make it work smoothly to meet national targets for immunisation, cancer tests etc.

"75% of New Zealanders are registered patients for a primary integrated healthcare team. 80% of GPs have bought into a part capitation system. Fee for service is much harder to administer in complex care, as has been found in the UK."

Prof John Dwyer AO
The Prince of Wales Hospital

- Two current pilots in NSW, one through Westmead Children's Hospital, another in the Hunter, attempt to engage GPs, specialists, hospital personnel and patient in a unified system. Communication between stakeholders is vital, as health professionals can develop systems much more efficiently than government agencies.

- Hospital clinical staff carry a huge administrative burden which is very inefficient in terms of time, cost and manpower. Technology should replace trained medical staff where it can in the compilation of records to allow trained professionals to spend more time with patients. Shared information, clinical and knowledge tools must be integrated to function properly and bridge the gaps between hospitals, doctors and the community.

• **In summary, integrated patient records would make it easier and safer for the patient to access care; easier for the clinician to provide that care and allow the sharing of information across the continuum of care between the GP, the specialist in the community and the hospital setting.**

A logical connected system would address the current situation of a plethora of local systems operating in isolation. Technical solutions are available now. The implementation of EHR is hampered by broader management issues which are much more complex and harder to resolve.

Public demand for an efficient electronic system

- Patients get very tired of answering the same questions many times when going into a hospital, and doctors are frustrated when their answers are incomplete. Patients are familiar with computers in every other setting and readily accept their use in medical consultations. Use of IT systems is time neutral, but improves the quality of care and increased connectivity removes the need for time consuming phone calls and faxing. Focusing on how the system improves patient outcomes, using true examples, is the best way to market the system.
- Systems have evolved from **pharmaceutical databases** to create **electronic medical records (EMR)**, which then aggregate into **electronic health records (EHR)**. This is natural, as if you know what medication a patient is taking, then you know what conditions they have now, or may have had in the past. Similarly they spread from individual practises and hospitals to state and nationwide coverage in an organic, evolutionary way.
- Simple **instruction sheets**, generated by the pharmaceutical information system, save time and improve the chances of medication being taken properly while online tools allow the creation of handouts covering every conceivable condition in every language, vital in city practises.
- **Media launches** can help introduce the public to the need for electronic records. The public understand the need to control soaring costs and improve health service efficiency by concentrating on the type of evidence-based medicine which electronic records help facilitate.
- Many patients have experienced finding a medical record lost or incomplete in a visit to a doctor or hospital. In such a computer-dominated age, this seems very old fashioned. Patients are surprised that their records are not computerised, and that pharmacies, hospitals and doctors are not interlinked.
- Even the amount the military knows about its personnel is often greatly over estimated. Military health records are usually completely separate from civilian ones, creating inefficiency and delay.
- There is a need to provide healthcare organisations with **easy, secure and instant access** to any system across varying networks from many different devices.

Introducing a system – the Canadian experience

- Clinicians were provided with a range of tools to take them through the POS [*Physician Office System*] program, help them apply for their funding, and evaluate their state of readiness and their requirements. The web page of the Alberta Medical Association links to the PLSP system [*Physical Layer Signal Processing in broadband communications*], the Alberta system program, and gives an online set of tools while experts physically go out, meet the physicians and run a membership program.
- Enthusiasm for the system grew in Alberta as practical benefits were seen. The pharmaceutical system reaped rapid benefits, in terms of cost and patient safety and led to confidence in further development. The system will grow to cover ever more aspects of medicine – pharmacy and lab information, diagnosis etc. It is dynamic and flexible and its advantages demand more and more information be included. If a consent process is required at every stage, such progress would be needlessly slowed and erode confidence in its utility.
- There is a danger in over engineering systems before their introduction, when evolution offers a more efficient system of progress. In Canada, the medical and health records involved different approaches. Stakeholders chose a common EHR system using existing IT products, while physicians chose whatever MHR system they wanted, so long as it met the minimum standard set by the Physician Office System Program. There is quite a range, with 4 different systems covering 90% of usage, and around 8 more on the fringe. This is a very individual preference, taken for many reasons.
- One third took to it immediately, one third were persuadable, and one third rejected the concept. Within a year two thirds of doctors will be using it, and in 10 years everyone will be as part of accepted practise.
- Doctors may have had patients for 20 years, who have accumulated huge sheafs of charts, which are impossible to consult properly to help make appropriate decisions. Paper records are not organised in an accessible fashion so relevant points may be continually missed. Only the introduction of electronic systems highlighted the amount Albertan physicians were missing. The systems improve the care offered by the patient's own doctor, as well as facilitating information exchange between doctors.

Lessons for Australia

- The systems are in place today, and are used in similar applications where privacy and security are absolutely paramount. The challenge lies in bringing disparate systems together, particularly within the hospital system in NSW where multiple systems have operated for many years. The data integration for patient records is a real challenge.
- People will only buy a new product if it is demonstrably better than the old. The marketers measure value by the product's quality divided by price, stress and time. If the product reduces price, stress and time, and quality is maximised, then customers will buy it. Prior consensus will not be achieved among Australia's 20 million people; the product must be marketed to them on a utilitarian basis.
- Or perhaps an Act of Parliament. The GST was not implemented through consensus agreement. Human beings can be motivated through pain and reward, and pain is much faster.

Standards for Vendors

- The primary care software currently available fails to automatically pick up data feeds, place them appropriately or display them in a way which aids clinical decision-making. Doctors must scroll through screens of pathology results to find the one they want. The National E-Health Transition Authority was created to set common standards to ensure that every piece of data is formatted, encrypted and tagged appropriately to render them accessible to the hospital or GP when required. Patient admin systems must be integrated with billing and clinical systems to ensure that when patients change address, or update their Medicare card, the information enters the common system, instead of being isolated in separate databases.
- Many small companies provide IT services and so face difficulties in achieving common industry standards. Encouraging consultation and co-operation creates common bonds and facilitates the formation of a shared platform from which to make progress. Physicians fear investing in a particular firm's product, only for it to disappear, so common platforms are vital to encourage participation.
- Companies must constantly improve their products to satisfy ever more advanced standards of operation. The system could support single or multiple vendors.
- In time vendors evolve from selling applications to selling services, aggregated in different ways by national bodies or individual doctors.

"GPs cannot be forced to adopt systems they do not like."

Dr Allen Ausford
Alberta, Canada

GAP Forum Global Panel – A State, Federal & International Perspective

Katherine McGrath is Deputy Director General for Health System Performance in New South Wales, responsible for IMT [*Information Management & Technology*] across the state (see *Profile in App. 4*). She underlined the Government's commitment to working towards the introduction of electronic health records and electronic medical records but recognised them to be very different functions. Electronic health records are eminently achievable whereas the Holy Grail is the vision of comprehensive electronic medical records shared everywhere.

She emphasised that programmes needed to start in a limited, pragmatic fashion as the full roll out is incredibly expensive and with so many demands on a modern health system the billions needed for full implementation were unaffordable. She acknowledged that medical practitioners were extremely busy, that time is very short and that any system needs to work extremely well or it will be ignored. The best drivers are GPs, particularly in the Australian health system where they are remunerated per patient. Other elements, such as booking systems, rank very high in a patient's perspective.

"EHR offers enormous benefits for safety and quality and moving patients smoothly through the service. It highlights the lack of a system to underpin the delivery of health care from a patient's perspective. This need to monitor the patient journey, to get the information flowing, forces us to look at how we provide care, how the system works, and then bring the IT in to put in the system we want, not necessarily the one that we have today."

Katherine McGrath
NSW Health

John Rimmer (Member of the Australian Health Information Council and Board Member of the Royal Children's Hospital Melbourne – see *Profile in App. 4*) stressed the need to move towards patient-centric, network-enabled health care systems. Patient-centric because patient-related rather than silo organised systems of care are necessary; network-enabled because many episodes of care occur in different settings, even within many of our hospitals, and there is no real networking of information across different departments; and health care systems because we now have disparate health care elements failing to form a co-ordinated system.

Fewer than 5% of patients consume more than 50% of care, and EHR would greatly improve the efficiency and effectiveness of their treatment. However, EHR would not change the fact that 50% of health care never gets delivered. The doctor might tell the patient what to do, the patient might go to the pharmacy with the script, but in 50% of the cases, the patient will not take the medication as prescribed.

Electronic health records and decision support systems with evidence-based protocols offer a method to improve the health infrastructure, though EHR might be relevant to only 20% of consultations. With the costs of full implementation out of reach, the health service must focus on priority groups. It is not necessarily important that 100% of the population is covered within the first year, or the first five. It is absolutely critical that that 5% of the population that use the bulk of health resources, and so are most at risk in terms of quality and safety, use them straight away.

"In targeting priority conditions, child development records are a special case. The episodic infections, which form the meat of general practice, are really not particularly relevant to electronic health records until there is a chronic condition or a recurring pattern."

John Rimmer
Australian Health Information Council

We may already be too far down the competing rail gauge trajectory in electronic health records in Australia, but to fix the system we have to keep trying to achieve integration, which will require modern adaptive business network models, similar to those in private practice. We need a strategic framework, clear standards, and absolute commitment to distributed systems architecture and to building adaptive modules rather than thinking that you can have a traditional industrial age single large system.

Dr Allen Ausford (see *Profile on page 7*) explained that the Canadian province of Alberta is currently working on a system-to-system pilot project between the Pharmaceutical Information Network and the Physicians Electronic Medical Records office system. They also have two complementary, rather than competing, electronic health record systems - the **Provincial EHR** (with a patient identifier, the Pharmaceutical Information Network and a Lab browser); and the **Regional EHR** serving the Greater Edmonton area (the Orion Concerto product containing Lab, DI, reports, discharge summaries, a patient event history). Although these are two different tools, doctors can easily launch into either of them.

Physician incentives to encourage participation

1. **Pay Doctors a fee** for every patient entered into the system, as this is the main admin task. Entering additional information is time neutral and offers obvious clinical and administrative benefits. The availability of information to other doctors would ensure high standards of data entry.
2. Encourage insurance companies to **offer reductions on medical liability premiums**, which are currently very expensive for obstetric doctors. The health benefits of EHR would reduce claims of malpractice, and so save insurance payouts.
3. **Pay nurses to enter the records**. Nurses are better at the long-term management of chronic conditions in primary care than GPs, and complaints such as asthma and heart problems are the area where EHR would be most useful. Nurses have been utilised in this way in England, Ireland, Holland, New Zealand while Australia has lagged behind in engaging nurses in primary care.
4. **Fund the result you want** rather than the type of input that produces it. Allow GPs to choose to enter data themselves, or pay others to do it, depending on their circumstances.
5. **Encourage a sense of 'ownership'**. The Canadian experience favoured the involvement of all stakeholders, physicians, nurses, pharmacists, IT companies, researchers and government representatives in system design from day one. People took ownership 'right off the bat' and this created powerful incentives to use the system when it came into operation.
6. **Reassure doctors that EHR will not be used to investigate malpractice** any differently than paper records. Ease of access did not increase the frequency of investigation after complaints or comparison with other doctors' outcomes in Canada.
7. **Appeal to professional pride and practicality**. Thanks to medical advances, there is information 'explosion' in family medicine. The amount of new information is huge, the pace of change ever increasing. No doctor can now deliver the best healthcare available by relying only on the knowledge in his head. Labelling the information, putting it at the point of care, and making clinical decisions in discussion with the patient, maximises best practise. A doctor's quality of life would not be improved by endless hours typing in old information, but the improvement of patient outcomes through better information acts as a powerful incentive in itself. Doctors are motivated more by professional dedication to the welfare of their patients than short-term financial gain. If the system works, they will use it.

Privacy Issues

- It is important to share the same definitions as people can discuss EHR and mean quite different things. Whether the tool is a record only the patient's doctor can access, or something every health worker in Australia can see, defines the difference between electronic medical records and the electronic health record. The EMR is an open tool that a patient's doctor protects in his office. Partners can access it, if on call, but it is a separate entity. The electronic health record is a subset of information that is necessary to share, with the exception of conditions like medications and allergies.
- Concern was raised about privacy issues and the Government's competence in such areas. Though most people would welcome their medical records being available if they went overseas on holiday, they did not necessarily trust an electronic system, which might be abused. If people do not think a system is secure, they will distrust it, regardless of reality. Perhaps advocates should not try to convince people mistakes will never happen, but assure them that they will be dealt with if they occur. The AMA warned the system would not be 'robust', if there were no penalties to protect privacy while experts in national privacy policy advocated a code of practice based on self-regulation, rather than substantial sanctions of whatever kind.
- In contemplating the possible security problems of electronic systems, we ignore the highly porous security of the current paper system. The electronic world is far more secure than the paper one.

"If I want to know your lab results, I can phone the lab and they fax it to me, or they can read it to me over the phone, there is no security at all. In an electronic system, you have a login, there is an audit trail and every use can be traced."

Dr Allen Ausford, Alberta, Canada
- The Canadian pharmaceutical information network is completely independent of any pharmaceutical company. Drug companies have no input or control over which medication is put into the system. There can be no hint of any perceived or actual benefit to a particular business when the issue is improving health care as a whole.

Day Two Closing Panel - Summary & Next Steps

(Dr Ausford, Peter Fritz, Michael Georgeff, Bruce McEwen, Ralph Hanson, Dr Wooding)

Privacy issues were raised, and answered in reference to the Australia Card debate. An important privacy concept is the notion that while organisations may collect personal information for their own use, they may not share or trade it without that person's permission. The health system, comprised of perhaps 50,000 different organisations in Australia, must share that information for the system to be worthwhile. There are enormous barriers to Government departments sharing information, and the EMR debate must address these barriers.

The National E-Health Transition Authority recently came into existence and aims to address many of these issues. It is backed by the State Governments and is the best hope of increasing the pace of implementation.

Any decision on IT standards results in some companies going out of business, if they are actually implemented. Pathology IT standards have been agreed for some time but very few of the companies providing pathology software actually follow them, because the cost and time required to change is beyond them. They will gradually evolve to meet these standards and a heavy-handed approach to compliance would be counter productive.

A national electronic health register is a perfectly viable option for the IT industry where secure and complex software has been used to share sensitive information in the banking system for years. Canadian information was automatically encrypted in the AlbertaWellNet and, though this has not been Australian practise before, it could certainly be introduced.

The focus of the Health Technologies Institute (Victoria) on developing value-added services to sit on a HealthConnect system was emphasised. Decision support systems, simple alerts and therapeutic guidelines that help put evidence into practice, will lighten the load of GPs and nurses monitoring chronically ill patients. Once HealthConnect is established, this area will explode in terms of the benefits it brings to the health community, and will encourage private investment into constantly improving these systems without continuously relying on the Government.

Cisco Systems praised the Alberta Wellnet System as embodying a patient-centric connected health system accessible anywhere anytime. The need for recurring funding in building a sustainable system was contrasted with Australia's tendency to fund one off projects.

Dr Ausford, a driving force behind the successful Alberta EHR system, closed the Forum. The title of his opening talk was 'The Journey.' He noted that the destination could change along the way, as the idea behind bringing this information was to share it and Australians can apply it in any way they see fit, as it relates to their situation.

"The key message is "it works". It saves lives, improves efficiency and quality and it's do-able. So the main issue is getting on with it. It is complex to put together. I would caution people not to make assumptions based on a forty minute presentation that I made that we don't have alerts or that we're simple and only have two types of providers. It's more about giving you the general thrust of where we were going."

Dr Allen Ausford
Alberta, Canada

(For the full text of Dr Ausford's Presentation, see App. 2)

APPENDICES

Appendix 1 – Global Access Partners Pty Ltd

Global Access Partners (GAP) is a proactive and influential network which initiates high-level discussions at the cutting edge of the most pressing commercial, social and global issues of today. Through forums, conferences, missions and advisory boards, GAP facilitates real and lasting change for its stakeholders, partners and delegates, sharing knowledge, forging progress and creating input for Government policy.

GAP promotes Australia's capacity to find novel solutions to the challenges facing the global community, and translates these innovative solutions into business opportunities. It focuses on practical economic outcomes for Government and business, and offers a landmark opportunity for those involved in the GAP process to discuss Australia's future in a high-powered environment.

GAP's reputation for excellence is founded on its strong record of successful high-level national and global initiatives covering a wide range of industries and issues. In seeking to foster the links between Government, Business, Industry and Academia, GAP has developed its unique model of an interactive multidisciplinary task force. Each GAP project, be it a national round table or an international symposium, constitutes the beginning of a process. One of the major outcomes is the formation of Australian Government Consultative Committees, which work to ensure the recommendations flowing from each GAP initiative become reality.

Global Access Partners is part of the TCG® Group of Companies – an Australian-owned group of independent, mutually supportive private enterprises. They have been in the business of building businesses for over 30 years.

GAP INITIATIVES

- *Vendor Management and Outsourcing Forum 2002*
- *Australia/Central Europe Entrepreneurial Study Mission 2003*
- *GAP Forum on Informatics in Biology and Medicine 2003*
- *Virtual Opportunity Congress III: Security and Risk 2003*
- *GAP Forum on Ecological Sustainability 2004*
- *OECD Ministerial and Business Symposium 2004:
SMEs Competing in a Knowledge Economy, Istanbul*
- *Better Health Care Through Electronic Information 2004*
- *GAP Forum on Commercialising Nanotechnology 2005*
- *Australian Trade Mission to Central Europe 2005*
- *GAP Forum on Leveraging Global Networks 2005*
- *Virtual Opportunity Congress IV on Knowledge Capital 2005*
- *GAP Congress on Small and Medium Sized Enterprises 2005*

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Appendix 2 – Dr Allen Ausford: "The Electronic Health Record Journey – The Alberta Experience" (Presentation at the GAP Forum on 'Better Health Care Through Electronic Information 2004')

Thank you very much. I am very appreciative of being invited to your country and this beautiful city. When I left Edmonton a few days ago, it was snowing, there was two inches of snow and the temperature was about five below centigrade, so it is very nice to be here. We sometimes have winters that get as low as minus 40, but we do also have quite nice summers of about 25 degrees, we are used to all the different seasons.

Today we are going to talk about the journey we have had in Alberta, and a lot of things we will probably parallel with the experiences here. Some of the projects may be on a different scale. There is more than one project that I am going to talk about - at a federal level which are close to your Commonwealth level, at a provincial level which would be equivalent to your States, and at a city level, what we call regional level, which would be equivalent to health regions being the size of Sydney. One of our main challenges is integration and how we pull it all together.

I have been in practice for 23 years; it is a suburban practice. In Canada, family physicians in suburban centres have hospital privileges. So I admit to a suburban 550-bed hospital, take care of patients there and work the rare shifts on occasion. There are about 3,000 patients in my practice. I am a fee-for-service physician paid per encounter, about \$30 per visit. We get paid that fee regardless of the complexity of the patient and the number of things we deal with. We are also involved in teaching medical students and residents, which keeps us smart. Our clinic is fully automated: everything we do is electronic.

I am going to talk about what I consider to be the components of medical information technology. We will review the projects in Alberta, will talk about team management strategies and areas often under-resourced and critical to the success of these projects; about the importance of integration and having an integration plan so that all these different systems do have some way of fitting together. And I will summarise our experiences and what we have learnt in Alberta.

CANADA



- 9,984,670 sq km
- Population 32,507,874
 - 0 -14 18.2%
 - 15 - 64 68.7%
 - 65 + 13%
- Birth Rate 10.9/1000
- Death Rate 7.7/1000
- Life expectancy at birth 80.26

AUSTRALIA



- 7,686,850 sq km
- Population 19,913,144
 - 0 -14 20.1%
 - 15-64 67.2%
 - 65 + 12.8%
- Birth Rate 12.4/1000
- Death Rate 7.38/1000
- Life expectancy at birth 79.96

Source: CIA World Factbook May 2004

There is not a lot of difference between our two countries. If you look at the ratio of population to size and the breakdown by age, it is similar. Your birth rate is slightly higher, and our death rate is slightly higher as well, so eventually you will be the same population as we are. Life expectancy is around 80 versus 79.9. Our countries are very similar in what they do and how they function. Australia probably has a more developed private system than Canada, but you cannot get a private surgical technical procedure, most of the physicians function within the public system only.

Edmonton is a city, and the city and the surrounding areas is about 1.2 million people.

My involvement with different projects has been at the clinical level, in the design level as far as the applications go, and at a strategic level, looking at how we are going to launch these things. We have the project known as Alberta Wellnet, an ASP pilot project looking at remote delivery of applications. We have the pharmaceutical information network called PIN - a program that was built from the ground up as a shared information tool for pharmaceutical information with decision support embedded. That process in Alberta is about to roll out to another province in Canada called Saskatchewan, and the plans are federally to roll out right across the country, so we will have one common pharmaceutical decision support recording system looking at all 32 million involved.

Our regional electronic health record for the city of Edmonton aggregates information together from all the different hospital systems and the laboratory systems in a single portal view. It is the Orion product which you are familiar with (here I believe you are working through Concerto). We started working on that in 2003 and launched it in March 2004. It is fully functional, running in Edmonton, with 1.2 million patients on it, and we are using that system amongst all our providers.

We also have the Physician Office System program - an Alberta, or state-based, program. It is about infrastructure and making sure every exam room and every doctor's office has a computer. We get paid \$7,000 per year per physician to have that infrastructure in place. It is not done on a per-encounter basis, but on a global basis. The requirements are that the physician must meet certain levels of function. For example, 100% of my patients must be digital in terms of the database on the demographics. 50% of my patients within the first year of having this system must be in the pharmaceutical information network, a shared information field. If I do not meet those requirements as a physician, they will pull my funding.

The Physician Office System program also provides change management support. There is a large robust budget to help physicians and other allied healthcare providers go through the journey of transforming through their workflow into a running an electronic system, including supporting networking within their office for high speed, backup contingencies, security, privacy, etc. That program is run through the Ministry of Health in Alberta, in concert with the Medical Association in Alberta, which is combined of specialists and family physicians.

Alberta used to have hospitals with their own hospital boards. About six years ago it was considered inefficient so they dropped the number down to 17 regions in the province. In 2003 they went down to seven; two of them are the main urban areas - Edmonton and Calgary - and all the rest are a rural type. So when it comes to system function, we have only three systems: an Edmonton type, a Calgary type and a so-called non-metro system.

The Physician Office System program creates guidelines and standard performance user requirements. If vendors do not meet those, they do not qualify for POS positional system funding, and the funding gets pulled from them to run their system. It is a real drive for them to meet the standards. All the different vendors got together and formed an association to make sure they were represented well and had a common goal towards working through this.

At the federal level, there is Canada Health Infoway responsible for making sure that the electronic health record agenda goes right across the country, with a budget of \$1.6 billion Canadian dollars.

I chair the Technology Information Committee at the College of Physicians and Surgeons, our regulatory body which sets the healthcare standards for physicians. At some point in time, if a physician is not electronic, he/she will not meet the standard of care in medicine. It will be equivalent to not using a stethoscope when listening to somebody's heart. The standards of care are changing, and a big part of that is the transition piece - when you are part paper, part electronic, there are holes, and patient care has suffered significantly in those situations.

Components of an automated office are:

- scheduling
- billing
- office support tools (examples of that would be Microsoft Word or Excel)
- the electronic medical record
- the electronic health record
- knowledge tools that are the equivalent of a textbook online or a textbook on a CD
- shared information tools, i.e. a lab browser with the information of all the labs on a patient pulled together
- clinical decision support tools.

Some of the products we have, i.e. the Pharmaceutical Information Network, cross those lines.

It is a knowledge tool because it has information on medication. It is a shared information tool because it shows the restriction information on patients across providers. And it is a clinical decision support tool because as you prescribe on it dynamically, it will flag drug to allergy, or drug-to-drug interaction, or dosing problems. And it forces you to record your management because when you share this information, it is very important that any other provider understands your reasonable thinking. It is different than a local system where you have a little bit of feel for what everybody does, when you share this across 5,000 doctors that are in Alberta.

The electronic medical record (EMR) is an electronic equivalent of the chart of patient information, it contains what I would make a diagnosis on, whether I decide to make that diagnosis into a problem on the problem list, and what therapeutics and treatment I may do. For the most part, that tool in Alberta is not a shared tool. It is a local tool that I use, and it is the centre of my universe. I am very EMR-centric in what I do as a family physician.

The electronic health record (EHR) is a shared tool that has a subset of information that is out there: it may contain laboratory results, diagnostic imaging results, operative reports, consultant's reports, etc. But it does not have detailed encounter information: nobody really needs to know on a shared information tool that four and a half years ago you had bronchitis and were treated with medications for 10 days, it went away and is no longer a problem. So we do not merge EMR and EHR in Alberta.

The other issue between those two is, we recognise that if you provide me with all the laboratory data on a patient in EMR, I will spend six hours per day reading my inbox and three hours a day seeing patients. If a patient ends up in an intensive care unit, the amount of data coming in is overwhelming and out of context. I do not know what anybody is actually doing, or why they even ordered that, and so for me to make a good clinical decision is difficult to do.

A typical day for me: I get up at about 6.45am, have breakfast and dial in. Through a high-speed connection, I connect to NetCare, the Orion EHR product that we use, and pull up a list of my patients that are in hospital, a list that shows me where all my patients are in the system. It aggregates everything in that Edmonton area of 1.2 million people. At the same time, I review from my in-hospital patients all the laboratory results that have come in for that day. So before I even get to the hospital, I have looked at all that stuff. And it is just a basic browser.

I then check my scheduler at the office, which is looking at my electronic medical record and how many patients I am going to see. I look at the email. I see all the laboratory results on the patients' information that I have ordered over the last few days (that is electronically sent at 6am in the morning and goes directly into my patient chart). It appears on my inbox in the same way as in Outlook.

So I go through 50-55 pieces of information on my patients, and when needed, I can put the equivalent of a sticky-note on it saying to the nurse, 'please make sure that they come in and we can follow up on this', or 'please order this additional test', or 'set up a consultation for this person' and I will email that to her internal email.

Next I go to the hospital and make rounds on four or five patients that I will have in the hospital on internal medicine, paediatrics, or sometimes under psychiatry ward. Our hospital system is paper based; there is nothing electronic there at all. I can connect from the hospital into either the EHR or the EMR and look at data that I need to make clinical decisions. That is my morning at the hospital which goes from 7.30am until 9am.

At 9am I end up at my office, and see between 35 and 40 patients, most of them complex. It is rare to see a sore throat or a cough present to my office; it is usually somebody with congestive heart failure, diabetes, hypertension and problems with an adverse drug reaction as a single visit.

Occasionally there is lunch; usually there is no lunch. Get home around 7pm in the evening. Later that day, if I have not completed my charting, I finish it online, and probably 30% of the work that I actually do clinically I do remotely. In fact, yesterday I dialled into the clinic in Edmonton from the hotel, read the lab work that was coming in on my patients, sent some messages and dealt with some things, and actually emailed one of my colleagues and said that 'I am a little worried about this guy, can you please see him right away because I do not like seeing these numbers changing'. I can do that remotely from Sydney to Edmonton.

When you are on call, covering for yourself or for a group of physicians, you can pull up that information remotely as well. If the hospital phones about a patient that is not yours but you are covering for them, and they are having chest pains, you can look and see what the pattern is going on; it is very good medical care.

Our scheduler is very robust and allows you to set things in terms of how you like your day versus your partner, or you can set it differently. The scheduling component is very important because everything hangs off your scheduling and the way it works. Our electronic medical record has a summary of information, clinical notes, a problem list, cc'd information that comes in every morning, the medication list, the allergy list, and the encounter.

We use a program called Purkinje - a series of pick lists, so when you are doing a physical exam, you can click on lungs, open up chest sounds and see wheezes - marked wheezes, high pitched wheezes, low pitched wheezes - every one is a single word that you click. Every one of those words is codified in HL7, it is structured data in context.

You can create summary information off your electronic medical records. This would be a summary sheet showing active problems, allergies and medications, e.g. a risk calculator. For example, we do a lot of palliative care, so this is a list of narcotics on a simple Excel spreadsheet showing the equivalent doses when we are switching things around.

For example, cholesterol: we can show patients who have high risk for heart disease that they have a 60% chance of having a heart attack on the basis of the risk factors. We can say 'okay let's get rid of your smoking', and then that 60% bar drops to 30%, so we can visually show them the changes.

For patient instructions, we use a simple Word document in big font for our elderly patients. Hand them the sheet and it says, 'stop the orange pills, start the white pills, lab work in three days, come back in one week'. And that information is actually right in the electronic medical record as well. You would be surprised how something so simple dramatically improves care.

The electronic medical record that we use is the Orion product called Concerto. It is a portal which grabs information from all the different hospital systems and aggregates it into a single view. It is a configurable type of panel, so you can customise it the way you like. We also have an 'event history' which grabs and lists all the events within the system, so if the patient were in emergency or in an outpatient clinic, you would know it, who chose, when and who they saw. The document tree can be sorted by acuity (abnormal result, normal result), by type (blood test, urine test), by doctor (which doctor ordered it). I do not necessarily use this with every patient encounter, I make a decision whether I need to use this in my exam room or in my office prior to seeing the patient. This is a browser-based tool, there is no order entry and it is used when convenient. Its adoption has been fantastic.

90% of our reports in the Edmonton region are dictated and typed, so all of our discharge summaries, consult reports etc are all sitting on that one tool.

Alberta Electronic Health Record is a different project that contains three components. First is a registry using an EMPI type of technology, a Line-dex that merges all the demographic information so we have a unique patient identifier. Number two is the pharmaceutical information network, which is a shared information clinical decision support tool for all of Alberta for prescribing. Number three is lab information for the whole province.

The pharmaceutical piece of this system took a long time to build. This was the project that we were involved in with IBM Canada. We had to build this from the ground up. We spent a lot of time looking at workflow before we designed this; it was built in terms of function by clinicians. It was not some programmer that said, 'I think this is how it will work'. We spent six months of the project just doing mapping of workflow in the doctor's office, in the pharmacy, before we even started.

Prescribing takes about 20 seconds if there are no drug interactions, to manually write actually takes about 17 seconds. When you are doing complex things, it takes you a longer time. The payback that we have embedded in this system allows us to do a mass renewal of all the medications in the single click of a button. It is time neutral, which means it is acceptable. You are doing a better job in the same amount of time.

PIN was the first project that we started to work on, there was no infrastructure in doctors' office to deal with it, so we had to build a front-end browser-based interface, because nobody had anything else to use. The basic plan with PIN is that it would function in the background. It would be a background piece of software that would message back and forth between the different electronic medical records, and you would never actually have to use this browser. And we are just about to get to the point of turning that on.

What people forget about with these kinds of tools is, when you have a shared information tool, it is very important that the management piece is recorded. A classic example would be allergies - if you have a true allergy to a medication, that is different than intolerance. Intolerance means you get the hiccups or it gives you some kind of a problem, it does not mean you cannot have that medication. If we start sharing information amongst 5,000 doctors and especially pulling it out of their chart systems, and we do not define very carefully what those are, very quickly we will muddy this up - everybody will be branded allergic to everything and you cannot prescribe.

We also have to have the process of actually refuting an allergy. Somebody says they are allergic to penicillin, you look at their chart and say, 'I have given you penicillin three times in the last two years, you are not allergic to it,' we can go in there and post our reason so that people in another city or another area of the city can understand why Alan Osborne said this guy is not allergic to penicillin. The tool has got to be very robust in order to do it. When you share tools, it is very important.

Security & privacy is always a really hot topic. In Alberta we started on the path of looking at patients' consent to be in this process. And we ran into a lot of problems. The first one was who does the consent. Is it the practitioner, the physician, or a government agency that does the consent? The load fell on the practitioner. If you look at a physician's level of decision-making, they actually have to determine the capacity, the capability of the patient to understand before you can even consent them in, because they have a duty and obligation as their practitioner. It is almost an extra work piece to do. With 15 to 20 minute per patient time, and 3,500 patients in my practice, I will not do it.

Another issue that we found is, about 1% of people wanted to opt out, everybody else was consenting in. So we were spending an enormous amount of energy consenting them in when in fact really what we needed to do was spend that energy on the 1% of people wanted to opt out. After about a year, we changed our health information act legislation so that people were in unless they opted out. We had a major reversal, we had no problems with that at all. If you have the need to manually consent everybody in, chances are you are not going to get that application up and running in the shared information environment - you just do not have the time and you almost create more problems.

Within that though, we built in something that we called 'masking'; there are two concepts, masking and blocking. Masking means, you can take information and have it in the system but it is not viewable unless you go through a consent process to unmask it. Blocking means, it never even goes into the system. We do not do blocking in Alberta, all data is in the system all the time, the same way it is in a paper system. It is a matter of whom you reveal to and how you reveal it. Masking is done either as partial masking or a global masking. In the provincial electronic health record that has the pharmacy information system, you can mask on an individual drug basis or on an analogy basis. The drug-to-drug interaction check will still check against masked information, and if it finds an interaction it will say, 'warning, what you are prescribing will interact with a masked medication, what would you like to do? If you want to unmask that medication, you get the patient's permission, they sign a form to unmask it. That is partial masking. In the provincial system, that works well.

In the capital health, in the city system (the Orion product), we have global masking. You are in or you are out in terms of the masking part of it. When somebody goes to look at it, there is just a picture of a lock, and you have to unlock it in order to see anything. The reason for that is we have a lot of text-based data; you cannot individually mask text-based data that is not discreet data. We have had that solution and people have been very comfortable.

In terms of security, if you are on the intranet of a hospital, you have a user name and a password to get into the system. We do not go with role-based authentication: there are some nurse practitioners that need to see everything, and there are some doctors that do not need to see everything. Outside that intranet, we use a standard fob, it has six digits and the number changes randomly every minute, so in order to log in, in the morning in my office, I go through a user name and a four digit PIN number. I do not have to keep doing it every time I use it in the office. And I do that in my office and at each of my exam rooms, I can do that from home as well.

We have a privacy impact assessment that has to be done on all systems, including our office systems. You generate a document that must be reviewed by the privacy officer for the province or state of Alberta, and you must review that every six months and show that you have reviewed it, you must have a staff manual that you show them on and they must sign that they agree to it. The Health Information Act has a fine of \$50,000 per item viewed if you did not have permission to view it. There are strong deterrents for people to browse this or to surf this.

The audit trails are designed in such a way that there is a general audit done randomly for masked information, and a full audit so every single one of those is audited and there are different systems in picking up unusual behaviours.

Email is another thing with privacy and security. With the Health Information Act, any external email must be encrypted in both directions. What surprises me is that because of the work that I do, I have a number of CIOs who are patients, and they regularly email me without encryption telling me about their this, or their that.

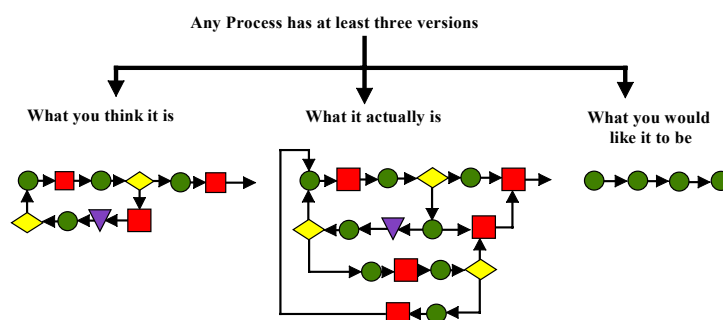
Contingency & backup are very important: when the system goes down, how you function from a backup perspective. We tend to use a 30 gigabyte hard drive that has a USB plug and costs \$150 in Canada. Virus protection is another very important issue as well.

Talking about change management, in Alberta we started by building the pharmacy information network. The reason we picked that was because the savings in terms of patient health and in terms of dollars was the biggest ticket item. Then we realised we did not have infrastructure. From infrastructure we moved the agenda towards the electronic medical record, the office electronic chart, and then from there we went to the electronic health record.

If we were doing it again today, we would probably start with the infrastructure piece first, and from there evolve the medical and health records, and then from there get into clinical decision support tools with order entry. Getting people to do order entry is the first step when they are not used to automation, and in our opinion is a real challenge.

When you are transitioning, it is very important to be flexible, to make sure there is protective time for your people to go through that transition. You must have champions. If you do not have champions at a clinical level, we found this does not work. You need to make sure your staff know what is going on to empower them to help you with your decisions. You need to make sure you empathise with the fact that there is going to be a lot of pain, in particular in an office setting when you are doing an electronic medical record. For the first six months you are running a dual system, you still need your paper. Understanding and knowing that you probably will lose either a staff person or a colleague when you do this is also important.

Have a plan for dealing with the surprises because what you are told by the vendor and what actually works in terms of functionality are different. We use workflow analysis when we do any kind of an installation, whether it is at a regional level or at an office level; you have a picture about what you think is going on, you have a picture of what is actually going on and then you make a map of what you really want to have done. Doing a pre-measure is crucial because you identify the problems you have prior to automation - a lot of times automation magnifies the problem that was pre-existing, it gets blamed for the problem, but in fact the problem was a system problem and had nothing to do with the electronification of the process.



The newest challenge we have now is information overload. How do you deal with all the information coming through? Standards are very important in what you do. The HL7 standard and the CCOW clinical context protocols are very, very valid as we started to look at how we integrate and pull all of these systems together.

There are various ways to integrate. You can have no integration at all and run multiple desktops, you can cut and paste identifiers from one into the other and launch the system that way. We have some programs that are parameter based - if I am on one application, I can push a button and launch application in the other application.

We have system to system information for the pharmaceutical piece in the long run within about a year, and you will not even see that browser, it will all function in the background. The pharmacies will load into it, the physicians' offices will load into it, and they will talk back and forth in the background. You can have application-to-application messaging as well. The idea of a single master application is the Holy Grail; I do not think it will ever improve. I do not think the culture will allow for it, I do not think the dynamics of change will allow for a single application.

This is a screen shot of a program, which we use in Edmonton. It is a desktop tool, not an actual program, otherwise that allows you to do a number of things. It does single sign-ons. You do not have to have your sign-ons for all your different things, you click it and it already knows what your sign-ons are and works with that. It works with clinical context very well. I can have four things open - my electronic medical chart, the two electronic health charts, a knowledge tool, say a medical textbook, and by double-clicking one word in my electronic medical record, it simultaneously changes all those other programs running to the same thing, so that I can see them at the same time. I do not have to go through searching.

The other thing that this program does is that it actually tracks my use of technology in terms of medical education, and we use that tracking for getting our credits in terms of medical education. We also monitor who uses what. There is a program called Up-To-Date: if you put Up-To-Date into a thing versus other types of knowledge tools, 90% of people go straight to that and only use that. We can track and measure these sorts of things, both with residents and family physicians.

So what have we learnt? You must have executed backing, you must have senior government level backing in doing this, and you must believe in this. You need to align the stakeholders, and aligning the stakeholders involves dealing with medical care, with patient care, that is the one common element. You have to have privacy legislation that is balanced. If there is too much of it, no-one will use the system. If there is too little, you will lose patient confidence. You need a privacy impact assessment protocol of some kind to look at this to reassure patients. You must have peer champions - not just physician's champions, but staff champions, regional champions, network champions, state champions. You need people who really believe in this and push this forward and function as good change agents. You have to have integration as part of your plan, recognising that things will fully integrate. To us the EMR and EHR are two distinctive elements. You have to have an infrastructure piece, you need the technology at the point of care in the exam room, change management has got to be properly resourced, and order entry is a challenge.

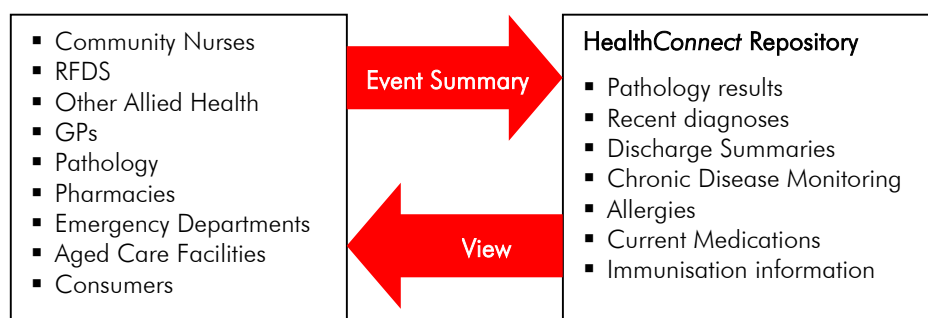
(See Dr Ausford's profile on page 7)

Appendix 3 – Dr Robert Wooding: 'HealthConnect' (Presentation to the GAP Forum)

Dr Robert Wooding is the current head of the Information and Communications Division in the Department of Health and Ageing. The Division is responsible for e-Health, Health Information Management, Online Communications and Media and Public Relations work. The Division manages important Commonwealth health information initiatives such as HealthConnect, MediConnect and Health Insite. Until May 2002 Dr Wooding was the First Assistant Secretary of Portfolio Strategies Division in the Department of Health and Ageing. The Division is responsible for central policy co-ordination and economic analysis, budget and financial management. In 1999-2000, Dr Wooding was Assistant Secretary of the Private Health Industry Branch, which implemented several major Federal Government initiatives, including the 30% Private Health Insurance Rebate, Lifetime Health Cover and Gap Cover. Dr Wooding holds a PhD in History from the University of Sydney. His research topic related to urban development in colonial India. In 1987 he joined the Department of Housing and Construction to work on policy issues relating to housing and urban administration. Since then, Dr Wooding has had a varied public service career encompassing the areas of policy development, program administration, financial management and corporate services. He has held senior positions in the departments of Finance and Administration, the Prime Minister and Cabinet, Immigration and Multicultural Affairs, most recently, Health and Ageing.

Presentation Brief

What is HealthConnect? HealthConnect is a national health information network designed to improve quality and safety in Australia's health care system. It has always been predominantly seen as quality and safety (although I do take Brian Richards' point that efficiency is an important element too). It is a joint initiative of the Australian Government and the State and Territory Governments. The HealthConnect board has been operated for three years, it was called an interim board. It has some private sector and community people on it, but predominantly it [represents] the nine jurisdictions. It ran for the first two and a half years as a research and development project, and in the last six months it has moved to an implementation phase.



HealthConnect is a very simple concept. On the left hand side [of the table above here] we have all the potential users and creators of *event summaries* - our version of what has been described as the electronic health record. Event summaries are not all the clinical notes. (I have seen overseas systems that are designed around collecting all the clinical notes about a patient and creating an electronic record. I think it is completely over the top and will not deliver benefits, it just delivers a large amount of information that no-one knows what to do with.) Our approach has been based on creating summary information. HealthConnect is using that approach, so is the New South Wales Health e-Link project, which is closely related to HealthConnect. Whether the people on the left can all see everything that is in the repository is something we are still working through; I know that has also been a problem in Edmonton and in other countries.

Key elements of HealthConnect

- 1) **Stores summary information** sent from point of care
- 2) **Use is limited** to registered and identified health care providers; it is not to be used for administrative or financial purposes
- 3) **Consumers can view their own records**
- 4) Exchange of health information normally requires the **consumer's consent**, apart from emergency access.

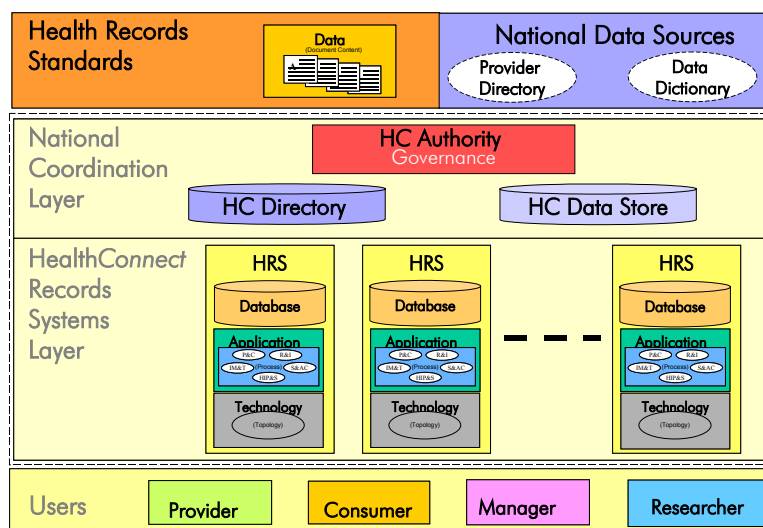
The smartcard concept (to be tried out in Tasmania in HealthConnect implementation): every time consumers see a new provider, they give that provider access to HealthConnect through the smartcard and a PIN number. It would not have to be a case-by-case or an occasion-by-occasion access: once a provider has accessed HealthConnect, they would have it left on, until the consumer decided for some reason they did not want that provider to have access any more. A direct emergency access to HealthConnect would be available in some way to ambulance officers or emergency departments.

- 5) HealthConnect is **opt-in for consumers and providers**

The model that we have been using in the trials has varied over time and has been refined; it is important to keep working on it and get it right. The Edmonton opt-out model is based on predominantly hospitals and GPs. In Australia, there are 40,000 to 50,000 separate organisations, and any one of them can refer any patient to any other one of them, be it a private hospital, private specialist, nursing home, public hospital etc. People go across state boundaries, between the public and private sectors. The opt-out model is attractive, but I do not know if it is feasible in Australia. There is always a trade off between how much savings consumers are going to have over what happens to their information, how much consent they get to give over their participation in HealthConnect, how much time they are having explained to them before they sign up, against how many you are actually going to get. The more difficult it is for people to sign consumers up to HealthConnect, the more complex the process, then it becomes less attractive.

- 6) **Identification and directories**

We need to have an identification element. Whether we need to have a national health identifier or universal patient identifier before we can build HealthConnect, I would question. One of the good things that came out of [today's workshop] was a sense that people cannot wait for the perfect system. Things like national health identifiers and standards are probably examples of perfection that you may not have time to wait for. We have been able to build HealthConnect type systems (in Tasmania and New South Wales) without national agreement on standards and without a national health identifier. Maybe we should be not waiting to do things until we have all those things in place.



HealthConnect -
current system's
architecture

It is not the final system's architecture but it is as good as we have at the moment. The key elements are four groups of users: **providers** who will use it to give care; **consumers** who are the people whom it is about and who may want to have access to it; **managers** meaning the managers of HealthConnect in particular, but there may also be some sort of data available to managers; and **researchers** which are for epidemiological tracking and for other things, perhaps trying to stop some of those jumbo jet loads of patients dying because of errors, so the researchers may be able to see patterns of care delivery and other things that are worth addressing.

The key to the records are actually database plus the technology that enables the access to the records. The database is ultimately just a relational database of objects; there will be a series of these databases, and we are not proposing just to build one national one. There is probably neither optimal in terms of governance and public presentation. I do not think we are ready for one great big database with everybody's health records. The key to our system is, whichever database you are on, you are only on that database.

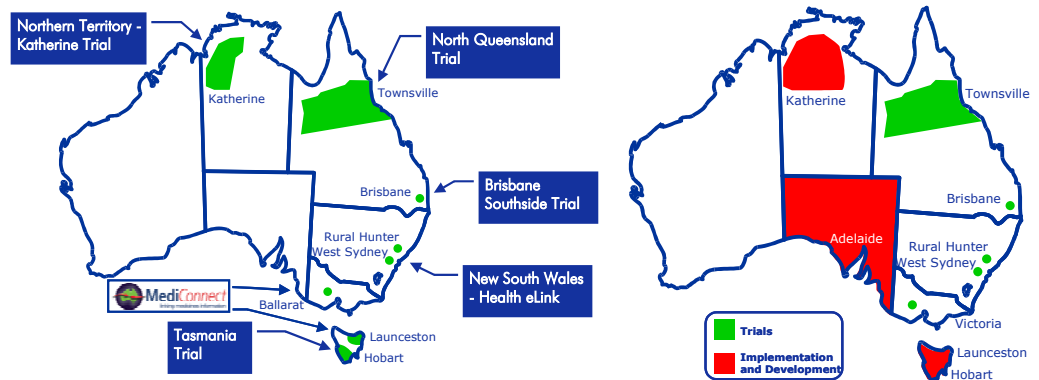
It is essential for each patient to have all their records stored on the one database. If you start on the Tasmanian database and then move to Melbourne after a few years, your whole system records would either remain on the Tasmanian database, or we would move it to the Melbourne database, if that was for some reason thought to be easier in systems term. If you have good switching and good connectivity, this will work quicker. The other option - to be able to be stored on any number of databases - runs into the problem of pulling it all together in the amount of time that clinicians are going to wait for something to come up on the screen. Our work so far has shown that it will take longer if my information is scattered across a series of databases to pull it together, then it would if I was only on one.

Above that, we have directories. The key one is the patient directory, which at this stage we are hoping to ultimately build on the basis of a national health identifier. In the interim we are going to have a number (the plan that the Government has approved so far for Tasmania and probably for South Australia) to identify each patient - not the Medicare number, but the one related to the system the HIC uses for trail of all identifying and indexing patients.

There would also be a data store to backup the data and all the HealthConnect record systems. We need to have backup arrangements - one or more data stores, redundancy arrangements. There may also be a need to warehouse: some of the data or selected aspects of the record systems could be warehoused or turned into and made available for data mining by researchers, and we are still working that through. And above that governance, there is a need to decide how all this data is going to be managed, who can have access to it, etc.

And then right up the top are the key things, which are now going to become the work of the new National E-Health Transition Authority (NEHTA): the standards that define the structures of the documents, the clinical information, how it is defined, how the event summaries are structured - the provider directory and the data dictionary cover a wide range of things including terminologies, medications, descriptions, procedures, tests. The systems that have been built around the world are really comprehensive electronic health systems, enormous menus have to be created of all the possible things you can do with a patient in terms of the services you can provide them, the places you can refer them etc. It is a big job, although thankfully a lot of it has been done in various places already.

The original HealthConnect trial was done in Tasmania, and the Northern Territory came next. The Tasmanian trial was in Southern Tasmania focusing initially on diabetic patients. It has now been expanded - almost every health provider in Southern Tasmania participates in it. We have the Northern Territory trial centred on the Katherine region focusing on remote Aboriginal communities.



Current HealthConnect activity HealthConnect Implementation

Following that, we have had the North Queensland trial and the Brisbane south-side trial (focusing on the open EHR standards, another possible way of defining and structuring clinical information). Health e-Link - not called HealthConnect in New South Wales but closely related - is operating in Western Sydney (focusing on children around Westmead Hospital in particular) and Rural Hunter (focusing on chronically ill people).

We also had **MediConnect** - our version of the Canadian Pharmacy Information Network with the Alberta Pharmacy Information Network - based on medications. We did find some very useful things in developing MediConnect, and we do have two existing implementations, in Ballarat and in the Launceston area, which we will be rolling up into HealthConnect, and using many of the learnings and some of the intellectual property in MediConnect to build into HealthConnect. HealthConnect will provide the same functionality that MediConnect was going to provide, among other things.

Since earlier this year we decided we would implement HealthConnect in Tasmania and South Australia, so it is going to be rolled out to the entire states and persist rather than just be a trial. Also the Northern Territory, Katherine area trial has now been turned into an implementation, in the sense that it will now continue and not going to be wound up according to its original timetable. We are also talking to Queensland about their two trials, still trials at this stage; similarly in New South Wales. We would also like to have trials in Victoria and Western Australia, and we are talking to them as well.

HealthConnect Version 1.0 is planned to be available nationally by June 2006, but we are contemplating how we can do a quicker implementation - probably using a portal type arrangement such as Orion, or one of the other products that can provide the same functionality - to get as much HealthConnect activity happening as we can. We will have something that probably does not look quite like that model I showed before, but will at least provide electronic health records in a useable form for the time being. It will be in Version 1.0 that we will make a final decision on whether or not the open EHR standards and structures should be an intrinsic part of HealthConnect, and we will have enough information from the Queensland trial by then to know that.

The aim of the **National E-Health Transition Authority (NEHTA)** is to manage the transition to a new entity. The States, Territories and the Commonwealth decided it would be useful to have a body to run aspects of e-Health that would transcend any individual jurisdiction and be controlled by all nine jurisdictions, or work to all nine.

At this stage, rather than give it projects such as HealthConnect, it was decided to give NEHTA a responsibility for that kind of shared building block, shared info-structure layer that will cut across the top of HealthConnect, and will also be useful for every other IT system implemented in the health sector - issues such as directories, standards, terminologies, data definitions, etc. It has a twelve-month work programme in its transitional phase; it is a *transition* authority after which it will be contemplated turning it into an ongoing organisation. It will focus on the areas where it was agreed an urgent national progress was required. There is an advisory committee, which is meeting for the first time in September. There will be a CEO; the process for choosing the CEO is almost complete. There is also an AHMAC working group - five of the CEOs of the nine government health departments will be providing guidance on the work programme and on how we may establish an ongoing organisation.

One other project, **the Broadband for Health Initiative**, was announced by the Government in July. This initiative is intrinsic to the implementation of HealthConnect. HealthConnect will not work if we do not have the pipes there to deliver broadband. There are ideas to try and get broadband widely across the health sector to make sure that broadband is delivered to a consistent standard and there is interoperability in terms of security and speed. All these things are rather hard to achieve, and have not been achieved anywhere in the world yet. \$35M of funding is the part that has been agreed until now, and that is for general practitioners and Aboriginal Community Controlled Health Services, or Aboriginal Medical Services as they were called until recently. This will give them connection to high bandwidth broadband and the list of benefits, including security and efficiency of access, and also promote the HIC online claiming process.

Beyond that, we have a broader strategy, the first part of which is the **Kalgoorlie 'Site of Excellence'** announced in August, where we are using IP Systems Pty Limited to build a virtual private network by the end of 2004. That will cover all health services, not just general practice. It is an attempt to trial the benefits of advanced broadband, virtual private network services or the equivalent for health services; to look at video conferencing, voice over internet and other sort of advance services.

The **National Strategy** is the first manifestation of the electronic health project. We have selected providers and qualified services that general practitioners can access; some of them are free of charge, and some of them will require an additional payment. For all regions of Australia, there are some services that no more than the subsidy and therefore will be free of charge to the general practice. And that uptake has commenced. We are going to re-open the opportunity to qualify services on 1 October, some companies missed out because they were not aware the process was on. The intention at this stage is to enable more services to become qualified because we have found many general practitioners have services that are not in the 19 that have been qualified.

Anyone who wants to know more about this should go to our website. It is a very interesting programme and an example of how you can do something where all the supplying is done by the private sector; we are subsidising people to get things of a certain standard (www.health.gov.au/ehealth/broadband).

I think the key to electronic health is not for the Government to try and build everything – railways, rolling stock etc. That would be a mistake. And I am not entirely sure about the idea of just one product. What I am sure about is that most of what is going to be built, will be built by the private sector, and what we have to do is find and clever ways of ensuring that the private sector can operate in competition – but by competition not segment the market and lead to that lack of interoperability that is the real danger in this area, where in fact people will not be able to have their medical records or other information follow them around the health sector.

Appendix 4 – Speakers' Profiles

Prof Peter Fritz AM

Peter Fritz is Managing Director of TCG, a diverse group of companies which over the last 33 years has produced many breakthrough discoveries in computer and communication technologies. In 1993, some of the 65 companies in the Group were publicly floated on the Australian Stock Exchange as TechComm Group Limited (now called Utility Computer Services UXC), with great success. Another former TCG company floated on the New York Stock Exchange in November 1997 for US\$600m, making it the largest technology company to be established in Australia until that time. Peter's innovative management style and corporate structuring has lead to the creation of a business model which is being copied by many successful entrepreneurs, and has become part of university undergraduate and masters programs in business management in Australia and around the world. Peter Fritz chairs a number of influential government and private enterprise boards and is active in the international arena, including having represented Australia on the OECD Small and Medium Size Enterprise Committee. He is the holder of six degrees and professional qualifications, is a recipient of the Order of Australia, and has received many other honours.

Mrs Catherine Fritz-Kalish

Catherine Fritz-Kalish is General Manager of Global Access Partners Pty Ltd (*for more information on GAP, see App. 1*). Over the last three years, GAP has established a number of national consultative committees across a range of industries, which are working to shape the face of the Australian business and policy environment. Catherine's broad business experience includes working with the OECD, small and medium sized enterprise unit at headquarters in Paris, France; working across all 7 divisions of the George Weston Foods Group and prior to establishing GAP, working within the TCG Group of companies, particularly in the area of start-up incubator establishment.

Mr Bruce McEwen

Bruce McEwen is the Business Unit Executive for the Health and Life sciences sector covering Australia and New Zealand. He was appointed to this role in March of 2004. He is responsible for defining and setting the IBM strategy associated with this industry sector and in co-ordinating and leading the sales and services capability of the IBM company. Bruce's previous role was as the Executive leading the establishment of IBM Asia Pacific ISV partner program for the Financial Services Sector. His responsibilities were to identify and select strategic Business Partners that offer application software and services to the Financial Services Sector (banking, insurance and financial markets) and establishing formal joint business plans to secure new business for both parties. Mr McEwen has held a number of senior management positions within IBM since he joined the company in 1981, including as one of the Development Managers in Denmark for IBM's next generation Corebanking system, Asia Pacific Sales Manager for Retail Banking; Branch Manager for the IBM Sydney Finance and Insurance Branch; Executive Assistant to AP Finance Executive and AP Management Services Executive; and Marketing Manager (Finance Sector), IBM New Zealand. He has worked for IBM in New Zealand, Australia, Japan and Denmark. Mr McEwen has a Bachelor Degree in Management Studies with a double major in Computer Science and Operations Research. He was selected in 1976 for IBM's first University Scholarship in New Zealand.

Ms Katherine McGrath

Katherine McGrath is Deputy Director General, Health System Performance, NSW Health. Originally trained as a haematologist, Katherine worked as an active clinician, academic, laboratory director and Divisional Chair at the Alfred and Royal Melbourne Hospitals in Victoria until 1995. She moved to the Hunter in 1995 initially as Director, Hunter Area Pathology Service, and later as the Chief Executive Officer, as well as honorary Professor of Pathology, in 1997. During her appointment, Hunter Health enhanced its reputation as a highly innovative health service both through its own initiatives and through partnerships with organisations such as the Hunter Urban Division of General Practice. Those partnerships have led to the development of new models of care such as Transitional Care for the aged and After Hours GP Access in Emergency Departments. In March 2004 Katherine commenced in the position of Deputy Director-General, Health System Performance, with the NSW Department of Health, which includes responsibility for performance improvement, quality and safety, information management and technology as well as private hospital regulation.

Mr Warwick Neilley

Warwick Neilley is Deputy Chief of Staff at the Office of the Honourable Morris Iemma MP, Minister for Health, New South Wales. Since mid-1997, he worked for Ministers in NSW Labor Governments as a Senior Advisor on Fair Trading, Home Building Industry, Community Services, Public Works, Sport and Recreation, Disability Services and Ageing. In 1990-1997, Warwick has been running his own consultancy company specialising in workplace reform, industrial relations, training reforms, housing and construction industry policy, and home building warranty insurance. In 1974-1989 he was a trade union official for a range of unions. Warwick holds a BE (Hons) in Chemical Engineering (1970) and a Masters in Health Administration (1972).

Mr John Rimmer

John Rimmer is Member of the Australian Health Information Council and Board Member, of the Royal Children's Hospital Melbourne, Victoria. He has been a senior executive in government, with experience in health policy, intergovernmental relations, economic development and e-government. Most recently Mr Rimmer was CEO of the Australian Government National Office for the Information Economy. He has also been a consultant to public and private sector agencies on corporate strategy and the application of new technology to organisational transformation. His interest in e-health applies across the board: from application of advanced supply chain management techniques in health agencies to the use of well-targeted information tools to assist clinicians and patients better collaborate to achieve improved health outcomes. Mr Rimmer is currently a non-executive director. He is a Director of the Royal Children's Hospital in Melbourne, a Member of the Council of the Australian Film Television and Radio School in Sydney, a Director of Information City Australia Pty Ltd, a partner in Joint Technology Partners Pty Ltd, and President of the Melbourne Vicentre Swimming Club.

Dr Robert Wooding

First Assistant Secretary, Department of Health & Ageing, Australian Government
(See Profile on page 29, App. 3)

Appendix 5 – List of Participants

- **Dr Allen Ausford**
Department of Family
Medicine, University of
Alberta, Canada
- **Karim Barbara**
General Manager
Business Development
Telstra Research Laboratories
- **Tony Best**
General Manager
Public Sector
IBM Australia Ltd
- **Peter Brockhoff**
Manager
Government Business
Australia & New Zealand
Citrix Systems Asia Pacific
- **Patrick Callioni**
Chief General Manager -
ICT Infrastructure &
Governance, Chief Financial
Officer, Australian
Government Information
Management Office
- **Mathew Cherian**
Managing Director
Global Health
- **Pam Clay**
Executive Director
Health Services Association
of NSW
- **Karen Dearne**
Health Writer, The Australian
- **Prof John Dwyer AO**
Chairman
Division of Medicine
Prince of Wales Hospital
- **Peter Flower**
Managing Director
Smart Health Solutions
- **Dr Tomas Forrai**
Principal
GAP International
Hungary
- **Prof Peter Fritz AM**
Group Managing Director
TCG Group
- **Prof Michael Georgeff**
Research Professor
Faculty of Information Technology
Monash University
- **Mark Gibson**
Chief Executive Officer
Distributed Systems Technology
Centre (DSTC)
- **Michael Gill**
Lead, Internet
Business Solutions Group
Cisco Systems
- **John Glass**
Director
CHIK Services Pty Ltd
- **Sally Glass**
Managing Director
CHIK Services Pty Ltd
- **John Grant**
Chief Executive Officer
Australian Government
Information Management Office
- **Amanda Green**
Principal
Public Sector
IBM Australia

- **Dr Ralph Hanson**
Chief Information Officer
NSW Health
- **Ass. Prof Graeme Hart**
Deputy Director
Department of Intensive Care
Clinical Coordinator
EHR Project, Austin Hospital
Austin Health
- **Richard Hill**
Healthcare Partner
IBM Business Consulting
Services
- **Helen Hopkins**
Executive Director
Consumers' Health Forum
of Australia
- **Garry Hulme**
Chief Information Officer,
Information Management
TAS Department of Health
& Human Services
- **Dr Bob Jansen**
Senior Research Fellow
Centre for Health Informatics
- **Jim Jefferis**
Client Executive NSW Health
IBM Australia Ltd
- **Brian Johnston**
Chief Executive Officer
Australian Council on
Healthcare Standards
- **Darren Jones**
General Manager
Asia Pacific
Trak Health
- **Dr Larry Kalish**
Surgical Registrar
Prince of Wales Hospital
- **Joanna Kelly**
Associate Director
Health Informatics
Information Management
NSW Health
- **Prof Michael Kidd**
President
Royal Australian College
of General Practitioners
- **Robyn Kruk**
Director General
NSW Department of Health
- **Helen Leonard**
Health Care Strategy Manager
Merck Sharp & Dohme
- **Robert Lippiatt**
Director of Business Development
Distributed Systems Technology
Centre (DSTC)
- **Pilar Martin**
External Communications Manager
IBM Public Sector
Healthcare & Life Sciences
Australia/New Zealand
- **Bruce McEwen**
Business Unit Executive
Health and Life Sciences
Australia/New Zealand
IBM Australia Ltd
- **Prof Katherine McGrath**
Deputy Director General
Health System Performance
NSW Health
- **Gary Morgan**
Chief Executive Officer
e-Health Research Centre
- **Dr John Nearhos**
Chief Executive Officer
Dtecht Pty Limited

- **Warwick Neilley**
Deputy Chief of Staff
Office of the Hon. Morris
Iemma MP, Minister for
Health
- **Phil Osborne**
Senior Consultant
for Enterprise
Citrix Systems Asia Pacific
- **Dr Mark Parrish**
Principal, Azure Solutions
- **Dr Andrew Perrignon**
Chief Executive Officer
Northern Health
- **Dr Andrew Pesce**
Specialist Medical
Practitioner
- **Prof Leon Piterman**
Head of School Primary Care
Monash University
- **Dr Brian Richards**
Chief Information Officer
Health Insurance
Commission
- **John Rimmer**
Member, Australian Health
Information Council
- **Leo Silver**
Director, Information City
- **Dr Tim Smyth**
Partner, Phillips Fox Lawyers
- **Andrew Stanley**
Director, Strategic Planning &
Research, Department of
Health, South Australia
- **Martin Stewart-Weeks**
Internet Business Solutions
Group, Cisco Systems
- **Kim Sweeny**
Senior Manager, Centre for
Strategic Economic Studies
Victoria University
- **Dr Jeffrey Tobias**
Internet Business Solutions Group
Cisco Systems
- **Tu Tran**
Client Representative, State
Government, Public Sector
IBM Australia Ltd
- **Dr Julien Vayssiere**
Researcher
SAP Australia Ltd
Brisbane
- **Robert Wheeler**
Deputy Director General
Office of Information &
Communications Technology
- **WGCDR Peter White**
Directorate
Health Capability Development
Defence Health Service
- **Helen Williams**
Secretary
Department of Communication,
Information Technology & the Arts,
Australian Government
- **Fiona Wilson**
Director, Office of Health & IT
Department of Human Services,
Victorian Government
- **Dr Robert Wooding**
First Assistant Secretary
Department of Health & Ageing,
Australian Government
- **Krzysztof Zielinski**
Marketing Manager
Health & Life Sciences
IBM Australia Ltd

Appendix 6 – Workshop Facilitators' Profiles

Prof Michael P. Georgeff

Prof Michael Georgeff is Principal of Precedence Research Institute (Europe) and Research Professor in the Faculty of Information Technology at Monash University. He has been at the forefront of software innovation and commercialisation for over 25 years, published over 100 papers on artificial intelligence and information technology, and has two pending patents claiming 115 innovations in intelligent systems and adaptive business software. In 1988, Michael was invited back to Australia by the Prime Minister Hawke to set up the Australian Artificial Intelligence Institute (AAIL). As Founding Director, he established AAIL as a world leader in intelligent agent technology. In 1997, Michael founded Agentis Software, a US software company that provides adaptive enterprise management products for Fortune 1000 companies. Prior to 1988, Michael was Program Director in the Artificial Intelligence Center at SRI International (formerly Stanford Research Institute), one of the world's most respected research establishments. During this period, he and his team created one of the first implementations of an intelligent software agent, deploying it on NASA's space shuttle. Prof Georgeff is a principal advisor to governments both in the US and Australia on information technology strategy and commercialisation. He regularly conducts reviews for government, research, and academic organisations, including the National Aeronautics and Space Administration and the US Defense Advanced Research Projects Agency; provides strategic advice to major corporations on adaptive e-business technologies in both Europe and the US. Prof Georgeff was elected Fellow of the American Association for Artificial Intelligence in 1995 for his "pioneering theory and applications of reactive planning systems and agent architectures". He is also a Fellow of the Australian Computer Society. In 1990, Newsweek proclaimed Prof Georgeff one of Australia's "national assets", the only technologist among the fifty-five persons so recognised. Michael has a B.Sc. in Physics and Mathematics from the University of Melbourne, a B.E. in Aeronautical Engineering from Sydney University, and a Ph.D. from Imperial College, London. He holds a University Medal from The University of Sydney. He was awarded the Beit Fellowship by the University of London and was GEM Scott Visiting Fellow at Ormond College (University of Melbourne).

Michael Gill

Michael Gill is the Internet Business Solutions Group (IBSG) lead for Australia and New Zealand. He also manages a small team of consultants covering the major enterprise, telecommunications and public sectors. His primary role is to work with executives of Australia's largest firms and assist them in moving their online business agenda forward. Michael is a senior management consultant with 20 years experience across both public and private sectors. As a licensed management consultant (CMC), he specialises in the evaluation of service delivery and organisation restructuring. Michael has a degree in Statistics and Sociology and post-graduate qualifications from the Australian National University in the same subject arena. As the IBSG lead Michael is concerned with general Internet enablement, e-business planning and has specialised in the areas of financial services, national online health and retailing. Michael is currently heavily involved in supporting and promoting the national debate associated with better health outcomes supported by IT online enablement. In the Australian context, IBSG activity operates across market verticals. In the past 18 months Michael has conducted over 10 e-Business strategy workshops, project planning sessions, numerous speaking engagements and demonstrations; has facilitated over 80 workshops and scenario planning sessions. Examples include State and Federal Government, National Australia Bank, ICBC Bank in China, Pasminco, Santos, Coles Myer and Royal Sun and Alliance. He lives in Sydney with his wife and two teenage children and loves cycling and surfing.

Amanda Green

Amanda Green has 17 years experience in information technology, with a focus on information management and health and social sector business issues. Her knowledge of the strategic benefits achieved by accessible information across public sector service delivery has enabled her to communicate effectively to executives, service delivery staff and IT professionals. She has gained her experience through many years of consulting and implementation of systems, as well as the associated projects such as business case development, financial management and HR solutions, data warehouses, claims processing and utilisation of web services. As Associate Partner for Health Industry within IBM Business Consulting Services, Amanda is currently responsible for IBM's consulting and integration services business for health across the federal government.

Dr Ralph Hanson BSc(Med), MBBCH, MPH, MRACMA, FRACP, FACEM

Ralph Hanson joined the Children's Hospital at Westmead in 1982. After successfully completing his training in paediatrics, he was appointed as Staff Specialist and subsequently Head of the Emergency Department and Outpatients. In 1997 he was seconded to the position of Manager, Clinical Services Network Taskforce and subsequently appointed Chair of Information Services in 1998 and Director of Information Services in February 2000. Dr Hanson is both a fellow of the Australasian College of Physicians and the Australasian College of Emergency Medicine and has a Masters in Public Health. He has extensive experience in Casemix and its application in the Public Health Sector, as well as Information Management and IT. In these roles, Dr Hanson has been in the fortunate position of guiding the development of the Electronic Medical Record at the Children's Hospital. In addition to working to at The Children's Hospital, Ralph combines this role with that of Acting Chief Information Officer at New South Wales Health at North Sydney. This is a position he has been undertaking since April 2004.

Dr Jeffrey Tobias

Internet Business Solutions Group, Cisco Systems

Appendix 7 – Workshop Groups' Presentation Briefing Notes

Each workshop group was given the same task - within the scope of the topic "Developing Better Health Care Through Electronic Information", to address the following four questions:

1) What does the patient want? 2) What are the benefits of an electronic health system? 3) What are the barriers to implementation of this system? 4) What do we want to build, what are the components that underpin this system, and what are the priorities? Discussion outcomes and findings were summarised and presented to the Forum by workshop groups' nominated speakers.

Group 1

Facilitator / Speaker – Prof Michael Georgeff
Faculty of Information Technology
Monash University

"We have combined the first two questions into one that we called 'the value proposition', one of which was, '*what were the benefits to the patients?*' and the rest of it was, '*what are the benefits to the other stakeholders?*' Then we looked at the barriers and how we get over those barriers and deliver the value.

Value Proposition

- **Patient: safer, higher quality, more accessible, easier care**
It is very important not to think of the data but the services that are being delivered to the patient. By itself, the electronic health record does not deliver much value, it is the things that sit on top of that - decision support services, alerts, sending the right information to the right person at the right time, etc. - that really add value. There are many studies that have been done internationally and in Australia, that [EHR] makes significant differences to the quality, safety and accessibility of care for patients, as well as simply being easier.
- **Government: more efficient, more effective care; votes**
For the Government, the benefits have also been well proven. It is definite you get more efficient and more effective care, and the value proposition should be that you get more votes.
- **GPs, etc: altruism: more effective care; Economic: risk mitigation, more efficient care**
For GPs and the other healthcare providers, the value proposition was probably not as strong as it was for the other two; in other words, if you were altruistic, giving more effective care is a clear benefit.

The patient today does not realise that IT can give such significant benefits; in fact, we are losing one jumbo jet of people per month in Australia simply because we do not have an IT systems that share information around. And the Governments, at least at certain levels, do not seem to be convinced that you get more efficient, more effective care [through EHR]. In other words, we do not believe the business case probably has been made in a compelling enough way.

Barriers

- **Costs concentrated, benefits dispersed**
It is not a normal market - the costs are concentrated, the benefits are dispersed, the beneficiaries and the payers are not aligned - which makes it a difficult market to get into.
- **Significant investment required prior to realising the benefits**
If the Government is trying to keep that shaky system operating day-to-day, to be asked to put in a hunk of money, in order to get some benefits that are going to come on 3-5 years downstream, is a tough proposition.

- **Trust in implementation lacking**

The Government lacks trust in the ability of the current providers to get the stuff implemented.

- **No public pressure (no votes)**

We do not believe there is any public pressure. There is no votes in it because the public is not aware of the huge benefits that IT can make, and in fact that they are missing these benefits because IT is not there.

- **Whole of government issue – across departments**

There is no single department that you can make the case to.

There are other barriers - e.g. fragmentation, privacy and security issues etc. - but none of those we consider to be as significant a barrier as these.

Solution

1. **Develop a complete, compelling business case in Australian context**

Despite all the studies that have been done, we are not convinced that a compelling business case in the Australian context has been put together. The way the Government sees most of these things is as a capital investment or an R&D investments; we believe it needs to be seen as a *recurrent funding model*, and a business case built around that which should detail the benefits to each of the stakeholders.

2. **Consumer awareness**

Another component of the solution is raising consumer awareness; doing the same that the Greens have managed to do with the Environment; think the way safety belts were introduced throughout Australia (when a number of people were killed on the roads one Easter weekend). We need people to realise that *one jumbo jet of people are dying every month* unnecessarily because we are not doing anything.

3. **Develop trust of government in realising value**

We have to develop trust of the Government so that once it agrees to give the money, it happily parts with that money knowing that it is going to have a good chance of getting the outcomes. It should be *milestone-driven, objectively measured, incremental funding*.

4. **Invest in R&D for health business (economic models, technology models)**

There is a need to invest in the R&D side of the health business (not academic research). We need to understand how to get maximum value out of electronic health records. Every decent large-scale business invests in R&D. In health, under a recurrent funding model, there should be a significant amount put aside to do that.

5. **Develop strategy that encourages private investment**

We need a strategy that encourages private investment. There has to be a system where private, small entrepreneurial companies can plug their solutions in and get a decent return on investment.

In Victoria, we are setting a Health Technologies Institute that is intended to be national. It is a consortium of industry, health, economists and IT people, and its idea is to develop these economic models and the technology models that answer some of these questions.

The other important element is, we need to get a group of people together that can start developing these compelling business cases, that can do the PR necessary for consumer awareness and so on. "

Group 2

Facilitator - Dr Ralph Hanson
CIO NSW Health

Speakers – Sally Glass
Managing Director, CHIK Services
Dr Larry Kalish
Surgical Registrar, Prince of Wales Hospital

"Our group had quite a broad, occasionally heated, discussion. We answered the questions directly, and the following is just a very brief summary of what we discussed, not necessarily what we entailed.

Patient wants: Best practice, Continuity of Care, Coordinated Care

These three major points encompass most of what a patient would require from the system. We discussed a whole range of issues: best practice - incorporating the use of information gathered by a range of physicians that are vital to protocol; continuity of care - making sure that the information provided as part of the system was personalised and picked up on the specific issues for that individual patient; and co-ordination of care - making sure the information was provided in a systematised, co-ordinated manner across each of the care-provider sector.

Benefits

Following on from the first point, the benefits are **better practice, continuity of care and co-ordination of care**. We thought that it was **better for stakeholders** - patients, governments, healthcare providers. The development of the system would **drive innovation**, and not only innovation into bettering systems in healthcare, but also innovation which can be utilised in other aspects (an example was brought up about similar systems that have now been adopted in the military sphere). It would also **improve information management**. And there were definitely going to be **efficiency gains**.

We thought that overall the system was **necessary, but not sufficient in itself**. In other words, it has a great benefit in terms of safety, but it will still be reliant on doctors to input in safety features, so it is **not an excuse for doing nothing**, doctors are still going to be necessary. The EHR has to be seen as an enabler of a change and not the major mechanism to bring that change about.

Barriers

The overall barriers are general **lack of support**, and often a **lack of focus** (where everybody is focusing on their own ideas, but not necessarily on the whole project).

Looking at the key enabler of the change being the physicians, in an environment where **time is extremely precious**, being able to move people out of that environment for enough time to understand the capability and the way to best use the EHR is a challenge.

And linking in with that, the **education, training and development** are a great barrier, especially from the medical providers. They incorporate a change management capacity, and that often gets railroaded as projects progress, and does not necessarily have enough focus.

When looking at the **scope**, sometimes we try to apply this to too great a scope while we should be looking at a smaller scope to begin with. **Co-ordinated investment** is also a barrier.

Priorities

We looked at individual priorities, and discussed them in some detail. The experts on our panel suggested what of Canadian experience would work here in Australia, and it was quite interesting how similar, or how much overlap there actually was. The bottom line, the take-home Statement, was **"Just do it"** - just implement it, it will not kill you; not to start off with pilots but to start off with actual systems. "Just do it" is really acknowledging the fact that we cannot wait for the perfect system. We recognise the various issues with the systems that are out there currently, but we need to start somewhere.

We have to look for **quick wins**, to do a project that is Statable and can be enlarged nationally. The **scalability** of the projects needs to be focused to be included in the scoping of the system, and once again, it is focusing on the small wins that can be delivered quickly and really provide value to the people interacting with the system.

We have to **manage scope**, do all these things in a **timely** fashion and avoid duplication of systems through **a shared toolset**, making sure that we pass on the learnings from those projects and do not keep re-inventing the wheel."

Group 3

Facilitator - Michael Gill

Lead, Internet Business Solutions Group, Cisco Systems

Speaker – Helen Hopkins

Executive Director, Consumers' Health Forum of Australia

What does the consumer want?

"Our first discussion was about what somebody who is not very sick wants, what expectations might be, not in terms of an electronic health record, but in terms of health outcomes (because that is really what people are thinking about, not the tools for getting there). People often have **higher expectations** than were actually met. But they are looking for **more control of quality** and the **cost of their services**, for knowing why they are having the service that they are there for, and that it is the right one.

What does the patient with a chronic condition want?

We then moved onto what would a patient with a chronic condition want, and we did get the sense of **better health outcomes**. They do want to achieve better health outcomes through **better communications** between patients' health services providers and referrals between different parts of the health system. They want **one set of patient information**, so they do not have to keep telling people the same thing over and over again.

With some sort of **comfortable engagement** with that process, we noted we had not mentioned **privacy**. There are not terribly many privacy issues for most patients, and most people would make some very real assumptions about their health information being confidential and going to the appropriate people.

We then thought about the shift from GPs managing their patients, to **patients managing their health**, their **access and control** to their health records, and to **managing health rather than managing disease**, because so much of one's health care happens outside of the doctor's office or even the hospital, unless you are very unlucky.

Benefits

Some of the benefits we saw from an electronic health record system were around **access** to our health records when we need it, and having **one set of information**. For people that are in and out of the health system a lot, it is really important that all information is consolidated for them and they don't have to reiterate time and again, and recall bits that they did not necessarily know well in the first place.

It can **reduce errors**, particularly **around medication**; promote **patient control** and **consumer choice** through access to their data and being able to check it. There was at first some discussion of **wider uses of the record**, around predictive health as an example. It can help practitioners to **improve health delivery** for their set of patients, make sure that the right services were in place and use the data to support the appropriate delivery of health care for the benefit of their set of patients.

Build an e-health system

We did not specifically talk about barriers, but we did talk about how to build the e-health system that we wanted. There was a suggestion that we **develop and follow a plan**, which can be flexible and which you can take through, rather than develop a new plan in 12-month time. That plan included **connectivity, standards integration** and **governance**. There was some discussion about the fact that such plans did exist and HealthConnect was in place. We harped back again to the reduction of errors and the medication issues and whether that might not be the opportune place to start such a system.

We also talked a lot about the importance of **change management** in making the whole thing happen, and **partnerships with industry**, health care providers and consumers as being integral to that. There was some need for leadership as well as consensus discussion around the table, and I think we used some less nice words about what might happen if nobody actually picks up and commits to and takes and moves forward.

In summary, we decided that we needed (as the banks did when they decided to move ahead with an electronic system that was going to work around the world) **commitment to the common issues** rather than discussion about what all the differences might be. And to take those moves to **protect the interests of all stakeholders**, perhaps making some rules around **what government was going to do, what industry was going to do**, what the different stakeholders were going to do, rather than all having a little bash at the same things, coming to disagreement and not actually progressing as much as we like."

Group 4

Facilitator - Amanda Green

Principal, Public Sector

Speaker – Joanna Kelly

Associate Director, Health Informatics, NSW Health

What does the patient/consumer want?

- **Information wherever they need to use it**
"We were looking more broadly at the general community, not always in the person with a real illness at the time. [Consumers] want to know that when they turn up at a health service, the person that they are talking to has all the information they need. They want simplicity in the process.
- **Confidence that the right information is being used for their care**
Patients want to make sure they are getting the best quality care, to be assured that it is being delivered safely.

- **An easier path through the health system**
People want a good outcome at the end of the journey through the system, but they want that journey to be straightforward and for everyone to be in sync as they move through it.
- **Accountability to be in place**
It is very tied back to having the right information to make decisions: people want to know the right information to base the best treatment decisions.

Benefits

- **Improved convenience for patient**
Making things quicker and easier; less duplication
- **Consumer empowerment**
Being able to be more empowered in your own care was seen as a really important benefit, but it was recognised that may take a little while to get its full potential. People want to know they have access to their records; they want to have the ability to look at them, to make sure the information is correct. A comparatively small but increasing number of people want to be able to contribute to that and use that information for their own health management.
- **Better informed decision making; information sharing to support the continuum of care**
Knowing clinicians have the information they need to make decisions about diagnosis and treatment, and being able to then share that information on to support the whole continuum of care.
- **Improved quality and safety**
Reducing adverse events, but also being able to look at outcomes and patterns of health services in order to provide a better service as part of that process.
- **Improved data to enable informed policy decisions**
There were a number of things that came into that, partly from a clinical perspective and in relation to the measurement of outcomes, but also being able to inform the management of health services, resource planning etc. - these are seen as an additional and very valuable benefit.
- **Improved security**
The system is offering a higher level of protection for information and improves security over the current environment.
- **Improved economic efficiency**
Not having already overworked clinicians spending three hours trying to track down records; not repeating tests that somebody did yesterday.

Barriers

- **Lack of long-term vision in short cycles**
People often assume that the electronic health record is already there and that it is being used. Certainly one of the barriers is losing the long-term vision when you are dealing with short political cycles, rapid turnaround in State health, all of those factors that make it difficult to keep the long-term vision and move towards it. But equally related to that is perhaps not seeking perfection but getting on and doing something. You need to accept something a little less than perfection, but get on and do it, and improve on it, but keep that long-term vision in mind.
- **Managing change effectively**
Getting people moving off their paper systems into electronic systems is perhaps a major challenge rather than a barrier, but certainly one that has to be managed.

- **Competition can inhibit change**
Competition in itself can inhibit change to a degree, so managing all the stakeholders' competition is important.
- **Governance & Jurisdictional Complexity**
Getting efficient governance process in place; governance arrangements around management of electronic health records from a health management and information governance. The complexity and the environment about Commonwealth/State relationships, how you manage the multiple layers of EHR in the health environment, competing legislation - all of those things have been a barrier in the past.
- **Information standards**
Getting common standards and accelerating that work
- **Lack of common identifier**
Not an overwhelming issue but it certainly complicates the implementation
- **Privacy concerns; fragmentation of legacy systems**
The legacy environment we are dealing with has certainly been an inhibiting factor; we need to try to bring it together as much as we can."

Group 5

Facilitator - Dr Jeffrey Tobias
Internet Business Solutions Group, Cisco Systems

Speaker – Dr Brian Richards
Chief Information Officer, Health Insurance Commission

What does the patient want? Different types of patients want different things

- Trust/security/privacy/confidentiality
- Knowledge/decision support available to GPs, JMOs, nurses etc.
- Flexibility in involvement of patient in care
- Ensure 'best/better' practice & outcomes (recover as fast as possible that is affordable)
- Personal 'holistic' experience – being a part/'in control' of process

"Different people have different expectations. Some are just totally apathetic and see no need to have anything for them at all. People with chronic illness often assume there is already a system looking after them, and are appalled to find there is not. And there are others who want to be involved in absolutely every decision about themselves and argue with the doctors about the latest evidence from the medical journal etc. So we should not assume that there is going to be a one-size-fits-all system - we need to have a flexible system that adapts to the differing needs of different groups in the community.

But one thing that we felt all consumers wanted was a **trust in the system** and the way it looks after their autonomy. They want to be sure that the system is secure, that their confidentiality is well managed, that they have sufficient privacy and can discuss and be involved in care decisions. People want to have critical bits of their medical history, such as their allergies or their drug interactions, available at the point of care when needed.

What are the benefits of an Electronic Health System?

- Health status improvements to individual and population
- Financial efficiency – change \$ mix (current \$ wastage)
- Time utilisation: workforce constraints, chronic future staff shortages
- Resource distribution and mix; skills shortage

- **Records - security/risk of loss, availability, privacy enhancements, single authoritative source of information**

The group looked at the benefits of an electronic health system and focused particularly on health status improvements, not only to individuals but also to populations - to reduce risk, increase patient satisfaction and provide workforce satisfaction for physician and other health care provider. It was felt that electronic health records have in and of themselves, substantial benefits over paper-based systems in terms of security, backup, availability outside the physical location where the paper is stored, access to a single authority of source for all levels of practitioner so people are making decisions based on the actual information rather than someone's interpretation of information, avoiding the Chinese whispers.

What are the barriers to implementation?

There is a range of barriers to successful electronic health system implementation. First of all, **the structure and the culture of the health system**, the dichotomy between Commonwealth and State, the legislative issues, the turf wars and silos (not only silos in terms of jurisdictions, but in terms of provider groups and institutions). Particularly in terms of IT vendors, there was at the moment quite poor engagement with the private sector, quite a poor focus on the business case, and a lack of any real emphasis on the **need to assess and re-design a number of work practices** which have just often been handed down. In medical circles, there is often a distinction between EBM which is evidence-based medicine, and GOBSAT which is 'gold old boys sat around the table', and a lot of things that the medical profession and health care has accepted as received wisdom and not challenged. Often the implementation of technologies does give an opportunity to critically analyse the way services are actually provided, and look for opportunities to improve the efficiency and effectiveness of care. The **defensiveness of current investment models** is another barrier.

We talked about the **decision making processes** and the whole system of how things align, difficulties with engaging political will simultaneously across nine jurisdictions, developing a **shared vision** and getting an **agreed approach**. There is a lot of discussion on 80/20: in Australia there has been **a tendency to look for the perfect solution** and keep researching and piloting, when we actually need something now for a lot of problems we are facing.

Barriers around **timing**: trying to put in electronic health systems into an existing and functioning system is like building the aircraft while it is flying. The change management challenges in the timing are difficult. We cannot say to St Vincent's Hospital to shut down for a week while we put in a new IT system, and take busy clinicians off for training courses. Of course, there are the barriers inherent in the lack of agreed common **standards** (which is one of the key tasks of the new National E-Health Transition Authority). We also need to **sell the EHR concept to the community** and get consumer understanding.

What are the priorities?

There is so much that needs to be done. The first and highest priority is to get an **agreed architecture**. How are we going to **acquire, present and communicate knowledge** that we have already gained, not only from our own pilots and research, but also the international experience? We should not wait for the perfect system to be built, we should build an **80/20 mousetrap** and then provide for **modular upgrades**, ensuring **backward compatibility** and **interoperability** of the various models. It is a pretty common approach across all of IT industry - if at first you do not succeed, market it as version 1.0.

The second highest priority is to address the **legislative and privacy framework** and get that right from the ground. The first thing that will kill off a major national approach to electronic health records is a major deficiency in the fundamental design around privacy, and we need to do that in a national approach so that the **information flows across jurisdictional boundaries** can be adequately **facilitated**."

Appendix 8 – Privacy Paper (By Malcolm Crompton, The Trust Dimention)

THE PRIVACY OF HEALTH INFORMATION – A KEY ENABLER OF ELECTRONIC HEALTH RECORDS

Helping Australians to be comfortable with electronic health records is absolutely essential if our health system is to optimise health outcomes and reduce the rate of growth of outlays on health. Respect for the patient including their private lives is also an integral part of their treatment. Lack of trust will be fatal.

These gains are first seen in better clinical outcomes, but also in improved data for health research and better safety and quality of health care.

The same concerns apply to the essential pre-requisites for an effective electronic health record system. Two of these pre-requisites are critical:

- the deployment of any unique patient identifier;
- the controls that individuals see as necessary over access, use and disclosure of health information about them.

Health consumers do worry about the privacy of their health records. In the words of the California HealthCare Foundation¹:

"... 18% of California adults say they have done something out of the ordinary to keep personal medical information confidential. The steps people have taken to protect medical privacy include behaviors that may put their own health at risk or create financial hardships. These behaviors include: going to another doctor, or paying out-of-pocket (when insured) to avoid disclosure; not seeking care to avoid disclosure to an employer; giving inaccurate or incomplete information on medical history; asking a doctor to not write down the health problem, or to record a less serious or embarrassing condition."

Similarly, a survey of South Australians found that²:

- 9.6% of survey participants "were not confident that healthcare providers keep and use information responsibly"
- 3.6% "reported that healthcare providers had released information without their consent (although at least 48 of these disclosures were legally defensible)", and
- 1.9% "reported harm arising from unauthorised disclosures by health services".

It does not take much to fuel these fears. Regardless of the merits of the case, reports of the accidental publishing or loss of electronic health records do cause damage.³

¹"Americans Worry about the Privacy of Their Computerized Medical Records", California HealthCare Foundation, Press Release and supporting study, 28 January 1999, online at: www.chcf.org/press/view.cfm?itemID=12267

²"Confidentiality in health records: evidence of current performance from a population survey in South Australia, Ea Mulligan, *Medical Journal of Australia*, 2001; 174: 637-640, online at: www.mja.com.au/public/issues/174_12_180601/mulligan/mulligan.html

³"Sex-change patient's file put on the net", *Sydney Morning Herald*, 6 June 2004, online at: www.smh.com.au/articles/2004/06/05/1086377188047.html

Even worse when trust is compromised by authorities, such as the attempt by the US Federal administration earlier this year to access late term abortion records, which would be so much easier if all records were easily collated electronically.⁴ In an environment that lacks demonstrable response to such concerns, Australia Card worries can be re-ignited.⁵

In summary, the arrival of new technologies without appropriate safety procedures has the potential both to render greater good as well as greater harm, ranging from the malevolent to the unwitting to the highly debatable. An electronic health record has great potential to remove the protection of health consumers' health records by the breakdown of the "practical obscurity" of past practice and technologies.

Thus equal attention is needed to protection of patient privacy as is given to the development of the new technologies. Otherwise the balance found in the current "practical obscurity" of the health records is lost. The Boston Consulting Report to the Australian Health Information Council recognised this, considering privacy as a priority for rapid delivery with the most compelling case for priority of all the issues they identified.⁶

An information life cycle response is clearly essential to help make sure that the concerns of the health consumer are addressed so fully that they trust the new arrangements and can see the benefits because privacy is no longer an issue. Such a life cycle response includes:

- A clear legal framework of protection, preferably harmonised across Federal, State and private sectors
- The best technological protections that demonstrate that this legal framework is solid and credible, especially as regards:
 - the nature of any health identifiers
 - support of fine grained requirements by health consumers to allow them to control different parts of their record differently including restrictions on the use and disclosure of health information
 - 'function creep'
- A strong, well resourced transparency and framework including means of righting the inevitable wrongs when they do happen

A number of the components of this life cycle framework are beyond the scope of this GAP forum, but the forum is a place to reiterate to public policy makers the need to break down the barriers to the framework being put in place. More importantly, the technological component of this framework is something the forum can address directly in any action plans, making sure that privacy is 'built in now, not built on later' in order to minimise inefficiencies and maximise credibility and consumer take-up.

⁴"A Federal Appeals Court Bars Release of "Partial Birth" Abortion Records, And Offers an Interesting Perspective on Privacy Rights", FindLaw, 31 March 2004, online at: <http://writ.news.findlaw.com/dorf/20040331.html>

⁵"Advance Australia card", *The Bulletin*, 26 May 2004, online at: <http://bulletin.ninemsn.com.au/bulletin/EdDesk.nsf/All/A873239CCE1C3557CA256E9D007931E6>

⁶"National Health Information Management and Information and Communications Technology Strategy", Boston Consulting report to AHIC, April 2004, online at: www.health.gov.au/healthonline/docs/bcg.pdf

Appendix 9 – Position Paper (Discussion Draft)

Topic: National E-Health Transition Authority

Description: The case for Australia-wide collaboration in the area of healthcare IM&ICT standards and related issues provides potential cost efficiencies and is an imperative for an interconnected health information 'system'. This 'system' will be crucial to support the sharing of patient information among providers across the country, supporting continuity of care delivery, improved quality and safety of care and improved health outcomes.

As a consequence, the Australian Government and State Governments have recently decided to establish the National E-Health Transition Authority⁷ (NEHTA). The initial design is for a CEO to be appointed for 12 months and an interim budget allocation of about \$7 million. This position has yet to be filled.

NEHTA will function to provide authoritative, independent advice across by all jurisdictions and will facilitate and broker agreement on e-Health deliverables. These deliverables are, in the main, quite technical and focus on agreed national priority areas including:

- Clinical data standards
- Patient, provider and product identification standards
- Patient directories based on a National Health Identifier
- Provider directories
- Product directories
- Supply chain procurement standards
- Consent models
- Secure messaging and information transfer
- Technical integration standards

Initial Position: The following position statements have been endorsed by the GAP Forum:

1. The concept of a national authority to operate across and between jurisdictions is supported.
2. There is an urgent need for the government(s) to consider and implement appropriate governance and advisory arrangements for NEHTA.
3. Crucial to NEHTA's success will be its ability to harness the skills, experience and expertise of the private sector, key professional and related organisations within the health sector as well as the cooperation across the different public sector jurisdictions. A partnership approach should inform the Authority's strategy, planning and implementation.
4. Members of the GAP Forum provide a solid base of industry and health sector non-government organisations whose combined expertise could be used; To act as an advisory body
5. To provide the necessary technical support services. Such arrangements could include GAP Forum members in the following ways:
 - GAP Forum members to act as an advisory body
 - GAP Forum members provide the necessary technical support services
 - Engagement via a rotating contact point

⁷ August meeting of the Australian Health Ministers' Conference (AHMC)

Appendix 10 – Pressroom

BETTER HEALTH CARE THROUGH COMPUTERS?

Global Access Partners hosts a national forum on the benefits of Electronic Health Records

"September 2, 2004 – Sydney, Australia: Scrawled and incomplete handwritten notes scattered among a host of healthcare providers may soon be a thing of the past, replaced by accurate, integrated computerised medical records available at the touch of a button. Digital technologies which sort, store and securely deliver patient information could, by eliminating duplication in pathology testing, reducing serious errors and improving clinical decision-making, cut our spiralling medical bills and greatly enhance the quality of care.

To examine the benefits of government's move towards systematic e-Health standards, Global Access Partners (GAP) will host a cutting edge debate involving high level health executives, policy experts, service providers and consumer representatives on the 14th and 15th of September at the NSW Trade & Investment Centre and Garvan Institute of Medical Research.

Canadian guest speaker Dr Allen Ausford will offer an international perspective. Closely involved in the design, implementation and testing of the Alberta Electronic Health Record, Dr Ausford was one of the first Canadian physicians to use the service in general practice.

According to Mr Bruce McEwen, Healthcare & Life Sciences Executive, IBM Australia - a major sponsor of the initiative – the development of a framework to obtain real-time information in the handling of medical records will play a pivotal role in bringing about improvements in medical care and overall human health. "Through the introduction of information-based medicine, data such as genetic profiles, medical images and other research can be integrated with clinical information to give healthcare providers a more complete picture of factors that may have influence on a patient's medical condition. Additionally, the automation of records for networking across institutions and departments will offer immediate operational efficiencies to the health services," says Mr McEwen.

With a variety of e-health projects and trials underway in different States, the need for continuing collaboration is paramount to gain consumer and clinical endorsement. "There are lots of people involved and projects need to be well coordinated," says Prof Peter Fritz AM, chair of the GAP Steering Committee. "A multidisciplinary approach is the only way to crack the problem. [...] We measure success by how well our initiatives satisfy stakeholders' needs and deliver on their economic aims," says Prof Fritz. "This business focus makes GAP Forums unique".

The costs of initially entering patient data might prove a barrier in the absence of incentives for GPs to join. "We have to invest to motivate people to create the initial database," says Dr Andrew Pesce, Chairman of the AMA's Medical Professional Indemnity Task Force. "Once records exist, and require mere updating, the costs are greatly reduced."

Under the national HealthConnect program, Electronic Health Records are a high priority, with a Statewide rollout of the initiative planned for Tasmania and South Australia. For the NSW State Government, "the 'Health e-link' initiative, announced recently by Minister Iemma, will demonstrate the benefits such a system can deliver at a national scale", says Dr Ralph Hanson, CIO NSW Health.

After examining the costs, benefits and implementation issues of EHR and the reliability of existing technologies in boosting standards of care, the GAP Forum will create a National Consultative Committee to carry forward its recommendations and pursue practical outcomes with lasting economic benefit.

GAP Press Release

Appendix 11 – From the letters of thanks and congratulations

"Thanks a lot for having organised the meeting on e-health last week, it was very interesting and also very professionally run, so I think you deserve some congratulations."

Dr Julien Vayssiere

Researcher
SAP Australia Ltd
Brisbane

"Thanks for all your help in getting me to right place at the right time saying the right thing! I know how much effort goes into organising these kind of events and you did a great job of making it all seem effortless!"

Amanda Green

Principal, Public Sector
Business Consulting Services
IBM Australia Ltd
Sydney

"Thank you for all the work you did on my behalf. I was honored to participate and look forward to future involvement."

Dr Allen Ausford

Department of Family Medicine
University of Alberta
Canada

"Thanks again for including Sally and me in the forum. We found it useful. Congratulations on the success of the event. Hopefully it will translate into commercial success for you and your sponsors".

John Glass

Director
CHIK Services Pty Ltd
Gosford, NSW

Appendix 12 – Photo Gallery

