

Discussion Paper – Whole of Health ICT Strategy for Victoria 2009-13

DHS is working closely with health services to develop a new Whole of Health ICT Strategy 2009 -13, with the aim of ensuring ICT in health continues to support improved health outcomes, quality and safety in a sustainable manner.

1. Purpose

The purpose of this paper is to stimulate thinking amongst service providers, policy makers and funding bodies about the ways ICT can support the effective delivery of health services in Victoria.

The paper will inform a consultation process to develop a Whole of Health ICT Strategy 2009 -13 to meet health system challenges such as demand and cost pressures, public concern with treatment quality and safety, rising community expectations and changing Victorian and National health priorities.

2. Context and Business Drivers

In 2003 the Victorian Government developed and published the Victorian Whole of Health ICT Plan 2003-07 to provide direction for the development of ICT across the public health sector in Victoria, to assist with meeting health system demand over subsequent years. Funding to implement this plan was provided through the 2003-04 State Budget and the HealthSMART Programme was established to implement the strategy.

A major emphasis of the 2003 strategy was the need to move away from the discrete islands of ICT that have been developed within each health service toward a solid, shared baseline of ICT capability that is used by all health services. This capability includes a range of shared infrastructure, networks of core applications, incorporation of standards and a shared ICT services to manage these new systems into the future.

Over the past few years there has been an increased level of activity across the country to develop national standards and infrastructure that will be required to support a national e-health capability. The National e-Health Transition Authority (NEHTA) was established, with funding committed by all jurisdictions, to develop standards, clinical terminologies and national health identifiers.

Victoria needs to develop the Whole of Health ICT Strategy 2009-13 to ensure that development of ICT across the public health sector continues to support the delivery and management of health services across the State and that further leverage is made from the foundation established through investment in HealthSMART to date and to take advantage of advances in ICT that are helping to transform service delivery. A strategy is also important to ensure that Victoria is positioned to be able to leverage, and participate in, the emerging national eHealth strategy and address the challenges and opportunities that may arise.

2.1 Whole of Health ICT Strategy 2009 – 13 Objectives

The primary objectives of developing the next Whole of Health ICT Strategy are to:

- Ensure that investment in health ICT actively and effectively supports the Victorian public health sector in addressing its major priorities, challenges and opportunities;
- Provide an overall framework, principles and direction to guide investment in Health ICT over the next four years;
- Ensure that investment in ICT across the Victorian public health sector is applied to deliver outcomes that impact the priority business issues across the sector (including minimising risk); and
- Ensure that Victoria is positioned to leverage from, influence and participate in, the emergent national agenda for e-health while building on investments made to date.

“Investment in, and adoption of, new forms of information technology must be understood to be as vital to good patient care as the adoption of new technological tools for diagnosis and treatment.”¹

3. Objectives of Consultation

Consultation with health service providers, managers, policy makers and funding sources is a key component of the development of the Strategy. The main elements of the consultation process are:

- To gain an understanding of the strategic ICT imperatives and key stakeholder needs required to support delivery of effective and sustainable health services across Victoria.
- To gather information on how ICT is helping to support the priorities of the public health sector and how it may better do so in the future.
- To refine and develop, through an iterative process, the preferred future state Strategy and priority initiatives.

3.1 Consultation Process

The ICT Strategy consultation process provides a framework for service providers, policy makers and other relevant groups to contribute their views on how ICT can support delivery of high quality, sustainable health services.

The consultation process will explore the challenges, the priority needs for delivering health services in Victoria and how ICT can respond to help address those priorities. The consultation process will also consider how ICT needs to be accompanied by changes to policies and processes, skills and knowledge and the culture surrounding the delivery of health services.

¹ Institute of Medicine, Committee on Health Care in America. Crossing the Quality Chasm: a new health system for the 21st Century. Washington (DC): National Academy Press; 2001.

Effective delivery of health services requires collaboration and information transfer between the public sector, the not for profit sector and the private sector. The strategy's scope is the health of Victorians. While the focus is on the public sector, it must consider the full range of service providers, including those it does not fund and how it may influence them. The consultation process will consider how public/ private health interaction should occur and how ICT can better support the interface with private hospitals, GPs, NGOs and aged care services.

Consultation with health service providers is essential. The approach to the development of the Strategy is to provide multiple ways in which service providers, policy makers and others can contribute but to ensure that all contributions are within the project timeframe. The process involves opportunities for contribution through:

- existing forums and representative committees
- focus groups in metropolitan and rural areas
- interviews with professional groups and peak bodies
- invitations to make written submissions.

There will be two rounds of focus groups. The first round enables contribution to the plan development through exploration of the current state and opportunities to move to a preferred future state. The second round will review the initial set of preferred initiatives to progress to that future state and strategies for overcoming any barriers.

The approach for the targeted focus groups will be to invite a cross section of professionals and other staff that represent the influences on the consumers' journey through the health care system.

4. Current State of Health ICT System Implementation

Substantial progress has been made implementing the Health*SMART* program. The infrastructure is now in place, state-wide configurations have been established for all state-wide shared applications and the shared ICT Service (Health*SMART* Services) is fully operational. A foundation has now been put in place to support health services, which includes a state-wide high speed communications network, scalable storage and a range of shared services.

As at July 2008 the Health*Smart* achievements include:

- All eight HR/Finance systems within the Health*Smart* scope have been implemented.
- Four integrated Patient Administration Systems (PCMS) are now operating.
- Seven implementations of the TRAK CMS for community health services have been completed and implementations are proceeding at the rate of one per month.
- Clinical systems now have a Release 1 build e.g. clinical workbench, ePrescribing – and three implementations are soon to commence.

The applications have been progressively implemented into health services and these implementations will continue until, at least, June 2009. In addition to Health*Smart*, progress has been made implementing imaging systems with four PACS implementations having been completed and two more are underway. In

collaboration with the Commonwealth, there has also been developmental work on eReferral and shared care.

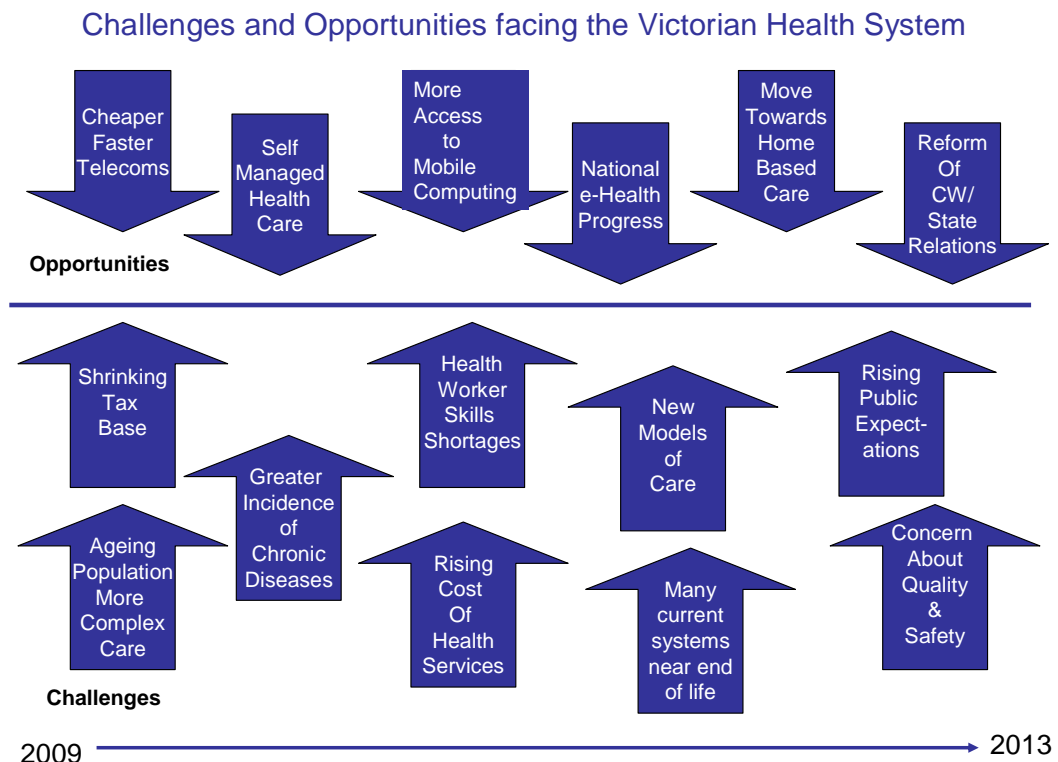
4.1 HealthSmart Lessons Learned

Given the size and diversity of the Victorian health sector, implementing the systems identified in an ICT Strategy can present substantial challenges. Many lessons have been learned from implementing the HealthSmart program. These include:

- Ensuring that investment in eHealth happens in a coordinated way, driven by the business in a way that supports a patient centred approach.
- Extended lead times and implementation delays can lead to frustration, which needs to be addressed by continued dialogue with those affected.
- Clinicians and local services need to be given clear incentives (savings of time and effort) to overcome the short term disruption when new systems are implemented.
- The implementation focus must be on the delivery of benefits and service outcomes and not on deploying the technology.

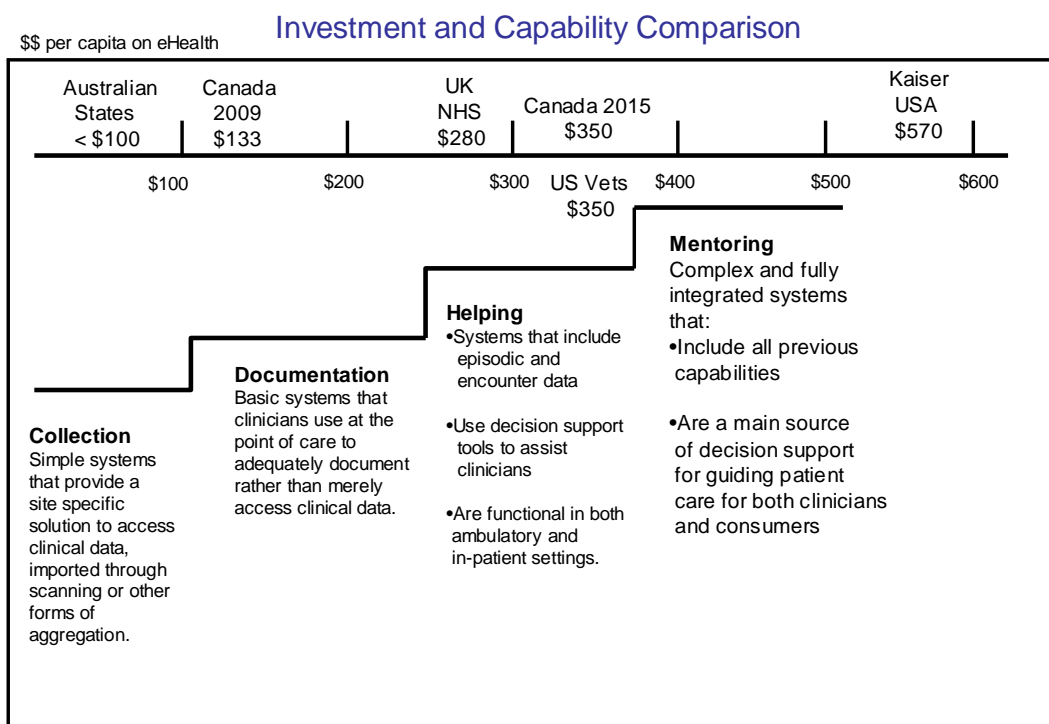
5. Current and Emerging Health Challenges

Continuing to deliver quality and sustainable health services across Victoria in the face of a complex environment with the challenges and opportunities identified above will require doing more within constrained resources. Improving health outcomes, safety and quality and dealing with pockets of disadvantage will require innovative approaches that can be supported by modern ICT.



Technology can be expensive and experience in Victoria and other places tells us that on its own, it is not a panacea. If it is to make a difference, ICT needs to be applied as part of a broader reform process that engages service providers to create a culture of continuous improvement. This is why the project team is seeking the views of service providers, policy makers, consumers and others that may be affected by the application of ICT. A key aim of the consultation process is to forge a shared vision of how ICT can be applied to improve the way health services are delivered.

Australia's historical average IT spending of 1.5 to 2 per cent of total health budget is very low compared to other developed countries. See the diagram below:



* Adapted from Vision > 2015 > Canadian Infoway

In addition, many other healthcare priorities are competing for funds – such as investments in more front-line staff, medical devices – and other resources. Political tradeoffs may tend to favour these more visible items. Sophisticated information systems will require much greater investment than has historically been the case in most Australian states.

Changing consumer expectations are presenting new challenges for health practitioners. Older people with more complex health needs are increasingly expecting more tailored treatment received at a time and place convenient to them. As people continue to live longer, they will continue to access services for longer, and are likely to live more of their life with one or more long-term conditions.² They will make demands on our system that are not just greater but different. They will still expect the clinician to lead, but expect a bigger role for

² E. Nolte and N. McKee, Measuring the Health of Nations, updating an earlier analysis, 2008, Health Affairs 27:10, 58 – 71,

themselves in decision-making during their care. Well publicised incidents regarding patient safety have also raised public concern in all States about quality and safety of care.

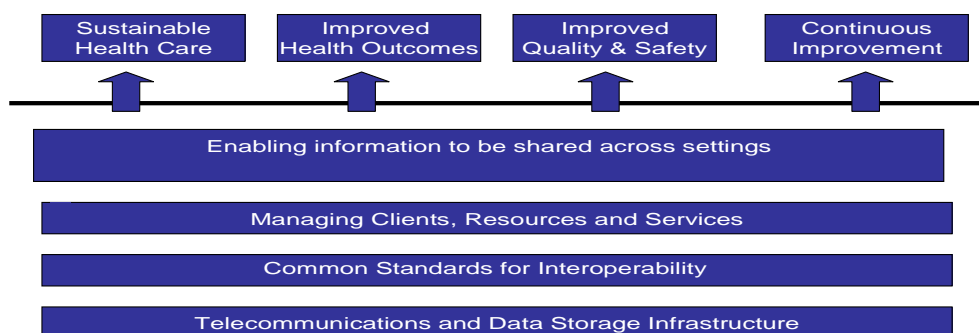
More recent generations – the children of the last three decades of the 20th century are also raising expectations. These generations are influenced by new technologies that provide unprecedented levels of control, personalization and connection. They expect not just services that are there when they need them, and treat them how they want them to, but that they can influence and shape for themselves. They will want services that ‘instinctively’ respond to them using the sophisticated marketing techniques used by other sectors.³ This is more than just a challenge for healthcare, but for our whole model of how we think about *health*.

The Internet has transformed our relationship with information. Now we are moving towards a situation where the majority of homes in Victoria will have high speed web access. Health information is consistently the most searched for information on the Internet. The implications for health and healthcare are profound. It is easier to access information on how to stay healthy than ever before.

People are able to quickly and conveniently find information about treatment and diseases in a way that was previously impossible. They are able, and want, to engage with others online, sharing information and experiences. They want to do their own research, reflect on what their clinicians have told them and discuss issues from an informed position. The challenge is ensuring that people are able to access reliable information. Evidence shows that clinicians have sometimes been slower in exploiting the potential of new information sources, such as the internet, than others.⁴ If that trend continues, there is a danger that people will have to navigate through myth and hearsay, rather than get easy access to evidence-based medical knowledge.

There will be an expectation from consumers that in the 21st century the health system will be capable and able to make effective use of technology in delivering care and services to them.

How ICT helps meet the Challenges



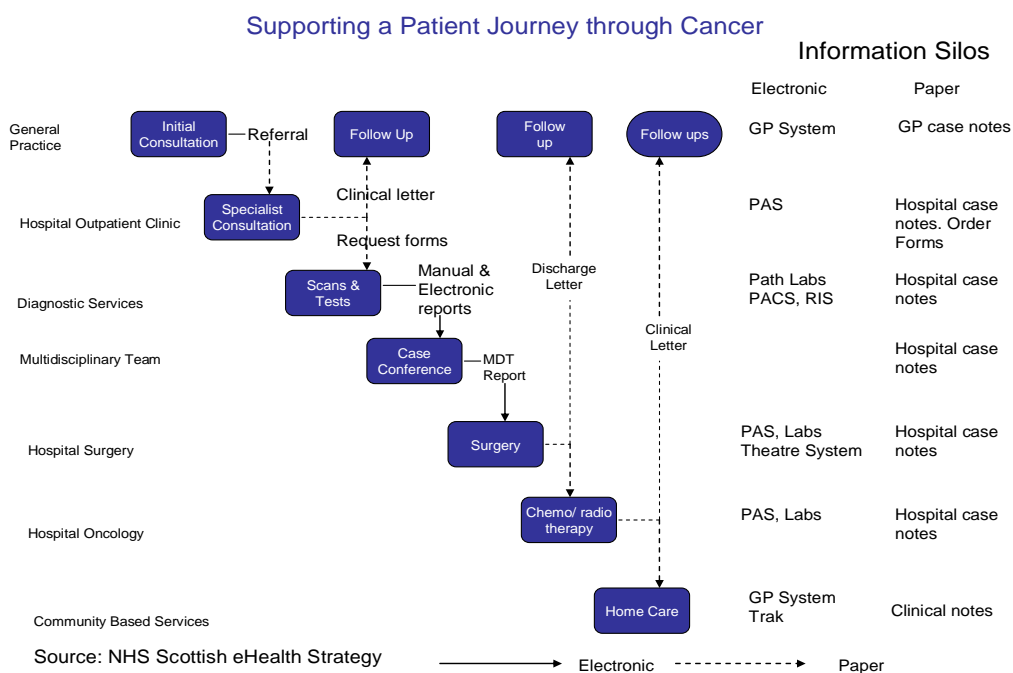
³ e.g. personal recommendations given by Amazon and other retailers

⁴ Kaimal AJ et al. "Google Obstetrics: who is educating our patients?" *American Journal of Obstetrics and Gynecology*, June 200

6. A Desired Future State - Overcoming the Challenges

The Whole of Health ICT Strategy 2009-13 is seeking to develop an information system capability that will address these challenges. The Strategy will promote more effective use of the resources health services already have and make the case for further investment in ICT.

The diagram below shows a patient's journey through cancer related services. Even though simplified it demonstrates the extent of handovers of care and the multiple silos of patient information which can currently exist at each stage of this journey and the opportunities to better connect and integrate these silos to deliver a more streamlined information management experience for both the patient and clinicians.



A more seamless Victorian health service will offer fast, local and reliable access to health services through the use of appropriate technologies. Achieving this will require investment and systematic change in the way we work. The approach to achieve this will be step-by-step: building on what we have already successfully achieved, carefully addressing risks and resources to gain benefit from our effort as we go.

6.1 Desired future state

Similar issues are being confronted in other developed countries, where the application of ICT is being undertaken as part of a wider process of health reform and some impressive results are being obtained.

Examples of ICT being used to transform health services include:

In Canada there are many eHealth initiatives that are showing promising results.

netCare.Capital.Health

Capital Health has become a leader in healthcare with the deployment of its integrated EHR system across all acute care facilities. This EHR system, with more than 6,000 users, provides physicians with the ability to track their patients' test results and medication histories within the health region, regardless of the location/facility whereas given treatment has taken place (i.e., physicians can view patient test results and medication history). In addition, the EHR tracks case information to help improve chronic disease treatment, as well as provide decision support (both synchronous and asynchronous), such as drug-drug interactions and dosage alerts. The EHR system has led to significant benefits including a 50 percent reduction in lab requests within 18 months of implementation. In the words of one physician:

"There's no doubt in my mind, none whatsoever, that today, the medicine I do, the care that I deliver to my patients, is far superior than five years ago..."

The netCare system was first initiated five years ago as a stand-alone project and eventually developed into a full-fledged EHR system. Looking forward, Capital Health hopes to implement an enterprise-wide EMR.

A primary goal of the Canadian e-Health initiative is to unlock additional quality and safety benefits by enabling decision support and communication across the care continuum. Clinicians in Canada saw putting a baseline electronic health record in place as one of the most important steps in managing the system to drive improvements in patient safety, quality care and access.

Critical factors leading to a successful implementation of e-Health in Canada are:

- use of a Standards based approach to the development of infrastructure specifications
- application of a mixed local / national funding model to have progress made as each province was ready to move forward.
- the early development of a comprehensive Enterprise Architecture (EA) for the planned system implementations and projects.
- the preparedness of the Federal Canadian Government to invest with the provinces in a shared and structured way has managed to overcome to issues of funding resistance from service based organisations

The combination of the Standards Collaborative, EA and the reasonably sized and interoperable projects conducted over time has enabled steady progress at a pace that suited each province and region.

There are instances in the USA of comprehensive care supported by an EHR.

US DVA electronic patient record

The Department of Veterans Affairs (VA) initiated a system-wide re-engineering, during which it developed its Veterans Affairs and Technology Architecture (VistA), with an EHR at its core. The EHR operates across all inpatient and outpatient locations. Laboratory, radiology, medication information, as well as physicians' notes are simultaneously available. VA's EHR is also the mechanism for optimizing and standardizing clinical practice, providing real-time error checking and clinical decision support, and supporting their preventive medicine programs for chronic disease patients. VistA has led to significant benefits, notably patient compliance to pre-screening and treatment protocols, which is among the best in the United States. For instance, cholesterol screening following a heart attack is now at 94 per cent, a 10 per cent improvement and the leading rate in the US. These benefits, combined with fewer medical errors, have led to little increase in treatment cost per patient between 1995 and 2004, while the average cost of health care in the rest of the U.S. has risen by 40 per cent.

The EPR was implemented in DVA to give a comprehensive view of a patient's medical condition so that medical intervention could be coordinated. The major lesson that is able to be derived from the experience of US-DVA and similar US based organisations is that when there is an appropriate alignment of incentives (as there is with an integrated health service delivery system) that allows the benefits of Health IT deployment to be kept in house there can be major transformation achieved. Implementation of the EPR has enabled DVA to contain costs while improving quality of care.

Some developments in the UK centre around the innovative use of wireless and portable devices to support people suffering from chronic diseases to live more independently and also reduce costly hospital admissions.

Vital Signs Monitoring in Kent, UK

The Kent TeleHealth Evaluative Development Pilot which is a scheme to promote the self-management of long term conditions in older people. The Kent pilot involves patients using technology which allows them to monitor their vital signs at home rather than attending their GP practice or having a nurse visit them. The information gathered by clients is then accessible to GPs who can take action if required. Typical portable communication tools are laptops used in hospital to access patient records and PACS and smartcards which can be used to access the NHS Care Records Service which includes a Personal Demographics Service (national electronic database of patient demographic details such as name, address, date of birth and NHS Number).

One key aim of this service is to localize care as much as possible while minimizing the need for more intensive interventions. It also enables the NHS to make more productive use of the time of doctors and nurses.

ICT is also being used to more effectively use the health workforce and overcome the shortage of skilled doctors through greater use of local clinics run by nurses.

Locally Nurse Run Clinics supported by Telemedicine in UK

In some parts of the UK traditional hospital based outpatient clinics are being replaced with nurse-run clinics in GP practices. The nurses talk to the patient, collect all the information required on a computer and send this "electronic patient record" over the phone lines to a specialist. The specialist views the record (which could include photographs, X-rays, ECGs or other details as well as text) and uses his computer to send a report back to the patient's GP. Minor injury units are now being linked to trauma centres. If you attend such a unit, the nurse can send X-rays over the phone line, for a radiologist to view and report back. She can also videoconference with a consultant in the trauma centre in order to discuss how to manage an injury.

The UK approach is centrally managed and funded, with strong control of procurement and standards – with considerable exploitation of the experience gained in the years prior that has moved England to its present position.

However the UK has since 2003 has taken a range of steps to improve local responsiveness of the program and to work considerably harder in the areas of clinician engagement and system implementation flexibility. The balance between common systems and economy versus client autonomy is a major strategic choice in any Health ICT Strategy. Initiatives like the locally run clinics supported by Telemedicine were successful because they involved clinicians in the planning and allowed local autonomy.

The UK NHS has a strong focus on improving quality and safety and is using web portals to support continuous improvement processes.

Quality and Safety Monitoring

To help make quality information available, the UK Government will require, in legislation, healthcare providers working for or on behalf of the NHS to publish their 'Quality Accounts' from April 2010 – just as they publish financial accounts. These will be reports to the public on the quality of services they provide in every service line – looking at safety, experience and outcomes. Easy-to-understand, comparative information will be available on the NHS Choices website at the same time. The Care Quality Commission will provide independent validation of provider and commissioner performance, using indicators of quality agreed nationally with DH, and publish an assessment of comparative performance.

Web based portals are also being used to support greater self management of a patient's own health, in partnership with clinicians.

My.CaRE.Source in USA

Grand River Hospital is at the forefront of patient self-care and empowerment with the creation of a patient portal for cancer patients. The portal, with more than 500 users, allows patients to schedule their appointments, view test results, follow up on treatments and potential side effects, and participate in discussion groups and maintain a personal journal. The portal itself is centred on the patient, i.e., it is the patient who grants access to external viewers, ensuring patient privacy and confidentiality. The portal is generating significant benefits, including enhanced patient confidence through self-monitoring of treatment/side effects, greater patient compliance with treatments through increased transparency, and increased operational efficiency from online scheduling. Aside from these benefits, the patient portal also allows clinicians who join an existing care team to quickly get up to speed on local practices and patients.

"All patients say: 'This is easy to use and navigate. I would use it again. I would recommend it to somebody else...'"

Director of My CARE Source Project

Web portal initiatives have proven to be successful because they can leverage existing systems at relatively little marginal cost and bring together separate silos of information creating a productive interaction between clinicians and consumers. They can often be implemented in a relatively short timeframe and can be extremely useful in areas like clinic scheduling, providing basic information and giving patients tools to monitor their own conditions.

6.2 Technical Developments

Smooth transitions from hospital settings to self-care settings are just as important to patient-centered care as transitions from one hospital setting to another. As home internet connections become ubiquitous and as more patients feel comfortable communicating electronically, patient portals are becoming the most efficient and effective way to foster ongoing communication, education, and patient self-involvement.

Clinical messaging: - email between patients and providers are a major patient satisfier almost without exception and in an increasingly competitive environment, it can also be a key determinant of patient loyalty. Other capabilities help patients become more active participants in their care by allowing patients to view their test results, access health and wellness information, and review current lists of medications for errors. Online portals encourage patients to become more involved in their care by making self-management convenient.

Patient flow solutions: With kiosk check-in, hospitals can track patient wait times and analyse the patient flow metrics associated with the registration process. Full-featured patient flow solutions also make detailed messaging and analysis possible. For example, some systems allow admitting and ED staff, nurses, and housekeeping staff to send and receive notifications about changes in the status of rooms, beds, and other hospital resources to improve bed turnaround time. By showing which rooms are available, how long each patient has been waiting, and which patients have outstanding orders, patient flow solutions provide the data to help hospital staff reduce delays in care and make for a much more comfortable patient environment. Patients may not interact with

this technology directly, but they will experience the benefit of greater efficiency and shorter wait times.

Electronic Care Records: The electronic care record contains structured data, text and images generated from a variety of sources and accessible wherever and whenever there is a legitimate need to access it. Access is managed under a strict “need-to-know” regime that complies with agreed rules and procedures for confidentiality and consent. To create an electronic care record, it is necessary for the data to be read in an electronic format, typically through the use of ICT at an operational level. There are elements of electronic care records held in ICT systems in various different locations: general practice systems; community and hospital systems, with more extensive coverage anticipated through introduction of new person-centred community information services.

Shared Care Records: The scale of shared health and community care service records and the use of common systems offer opportunities for an innovative approach to electronic care records. In effect, the combination of developing care records within all organisations, increasing use of HACC and other community care services specialist systems, consolidation of ICT, a single identifier, and the use of common systems, creates a virtual electronic care record. Health and community care processes are familiar to all healthcare professionals who are service users. Almost every contact with the Health and Community Care services involves communication between healthcare professionals, between functions, between service providers, or with other public and private sector bodies. Examples of such contact include: appointments; referrals between care professionals; requests for services and communication of the service outcome; discharge letters and other follow-up communications; and prescribing.

Current ICT systems manage some aspects of these processes, but in most cases only within individual organisations. As a result, communication of care information today still tends to rely on paper and fax transmission. For there to be a shift from paper to electronic communication, more widespread access to ICT is required, and capabilities - that in some cases exist already - need to be made simpler to use and seamless for the user. Much of this capability will require common components e.g. unique health identifiers that are accessed through shared directories, standardised terminology and clinical codes that are used in the same way across settings.

6.3 Critical Success Factors from successful eHealth Initiatives

While each initiative is different and sited within its own local context it is possible to draw some widely shared critical success factors across them. These are:

- *It is important to actually have a plan!* The plan must be clear, simply understood by all stakeholders and offer an attractive vision of the proposed future. The plan also needs to be actively managed and reviewed every three to four years to make sure planned objectives are being met and to ensure there is a clear and current way forward.
- *It is absolutely vital to have high level political / managerial commitment* to the key aspects of the plan. It seems this is best achieved by creating a ‘burning platform’ based on the impact Health IT has on patient (i.e. voter) safety and the quality of care that is received or on the argument of the current sustainability of the health system as a whole (or both).

- *An appropriate level of funding is essential.* This means that not only is it important to have a clear plan but also to have a compelling business and operational justification for the investment.
- *It is important to set reasonable time frames* to achieve the various milestones that are found in the implementation plan. Implementation of a National or state wide eHealth Strategy is necessarily a complex and quite difficult task and setting up over ambitious milestones can lead to loss of confidence on the part of those on the ground if too many milestones are missed. Equally, of course, it is important to have sensible milestones in place to ensure progress is being made at an acceptable pace.
- *Recognise there are real constraints on the scale of change that can be applied uniformly across a state* before implementation becomes unwieldy. The apparent ease with which smaller countries (with comparable levels of development) seem to make progress compared with larger ones is hard to ignore. It is important to structure any state wide initiative to recognise the degree of inertia and lack of strategic and implementation flexibility that can be found in larger countries and to work to mitigate this issue.
- *The use of incentives can assist in reducing the 'friction of change'.* As an example, in virtually all countries where there has been widespread adoption of EHRs in ambulatory care those who pay for the health system have provided some form of (usually financial) incentive to obtain widespread adoption – for example Practice Incentive Payments.
- *It is vital that the plan be tailored to existing Health IT capability* and that gaps in the capability (be it lack of an adequate number of Health Informatics staff, inadequate internet connectivity, lack of appropriate Standards or whatever) be identified and addressed.
- *There needs to be a balance struck between technical risk and complexity and the possibility of the implementation of obsolete or out of date systems.* While most suggest that in ordinary times IT systems should be refreshed very five to seven years many core systems in hospitals seem to have lives measured in decades. The importance of getting system and technology selection as close to the mark as possible is obvious in these circumstances.
- *If very advanced technology is utilised there is an increased risk of project delays as technological obstacles are overcome.* The key in all this is a balance between 'bleeding edge' and 'early possible obsolescence'.
- *Make sure the technology is the servant of the Health System* and that the technology is responsive to the needs of those who have to use the system. Experience suggests that initiatives which are driven by responding to the needs of the particular Health System are the most likely to succeed.
- *Deliberate adoption of an planned incremental approach that builds on earlier successes* has a better likelihood of success than a 'big bang' approach.

7. Questions for discussion in Focus Groups

How do information systems affect the way you currently deliver health services?

What systems would make the most difference to the quality, safety and efficiency of the services you provide compared with where you are presently positioned?

Given resources are likely to continue to be constrained, what do you consider to be the most critical priorities in applying information and communication technology to the Victorian health sector?

What are the key barriers and enablers that need to be addressed to develop an ICT capability that supports the priorities of the Victorian health system?

7.1 How can you contribute?

- Consider the issues raised in the paper.
- Come prepared to contribute with innovative ideas
- Think about the challenges from a systems perspective, not just from your part of the health system.
- Think about opportunities for collaboration that can support innovative approaches.
- Identify what else can be done to address the challenges beyond current thinking.

Written contributions are welcome and should be sent to the address below.

7.2 Contact

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