nehta

Referrals Environmental Scan

OVERVIEW

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Executive Summary

The NEHTA Board has determined that the organisation will focus on national e-health implementations in a number of the priority areas. These include referrals.

The primary purpose of this report is to inform NEHTA of the environment in Australia's health care system related to referrals. This knowledge will support the further development of its e-referrals program.

The Australian Standard AS 4700.6 (Int - 2007) states:

> *"... referral involves the transfer of care*
>
> - ***in part*** *(e.g. request for an opinion or a specialized service accompanied by relevant health event summary and record extracts)*
> - *or* ***in whole*** *(e.g. transfer from one GP practice to another with complete health record data and summary)."*

Referrals Drive Significant Activity and Expenditure

Referrals and subsequent reports are major transactions that touch nearly every part of the health care system. Referrals are a significant driver of health service activity and hence, expenditure. Data researched for this report suggests the following:

- Total referrals greater than 15M per annum[1]
- Total reports greater than 8M per annum

Most Activity is Between Community-Based Providers

General practice is the dominant creator of referrals (approx. 13M per annum), with the clear majority of these (approx. 12M) going to specialists and allied health providers. Referral activity involving hospitals is comparatively very small, but not unimportant.

Paper is Still Very Prominent as the Form of Referrals

The proportions of GP referrals that are:

- Computer generated paper from clinical systems is estimated to be up to 66%.
- Handwritten (or dictated and typed up by the practice's office staff) is estimated to be at least 33%.
- Electronically transmitted is estimated to be only 1-2%.

Similarly, the proportion of specialist referrals that are:

- Computer generated paper from clinical systems is estimated to be perhaps 10-20% based upon the low uptake of clinical systems.
- The remainder are typed (with some still hand-written), and estimated to the 80-90%.
- Electronically transmitted – estimated to be a small percentage of the computer generated referrals, although there are key exceptions in some geographic areas.

[1] This excludes pathology and radiology, as specified in the scope of the consultancy

The Referral Process has Significant Scope for E-Health

The following are the basic steps in the end-to-end referrals process. E-Health can help:

1. In the process of deciding whether a referral is required.
2. In the creation of a "quality" referral (These first two processes have considerable cost implications for the health care system).
3. In the assembly of the content for a referral, including supporting patient choice in the selection of the referred-to clinician or health care service.
4. In the transmission of the referral to the referred-to clinician.
5. In the receiving of a referral and in supporting the work-flow related to it by the referred-to clinician, e.g. rejection, acceptance, read, action, report, etc.
6. In the scheduling of an appointment for the patient with the referred-to clinician.
7. In the creation of notices and alerts to both the referrer and referred-to clinician on the status of the referral process.
8. In the creation of quality report(s) from the referred-to clinician to the referrer.
9. In keeping the patient advised of the status of their care as it relates to the changing roles of the referrer, and referred-to clinician, as their care progresses.

In addition, there is an opportunity to facilitate the design of specifications for standard templates for the structure of referrals and their content.

Opportunities for e-health to make positive impacts on the referral process exist in each of the steps above, and the infrastructure components being developed by NEHTA could be effectively utilised in each of the steps. It is acknowledged that implementing e-health infrastructure and/or solutions in all of the above steps is not solely NEHTA's responsibility. This report suggests a collaborative approach given there are many stakeholders and much complexity in achieving the desired outcomes from implementing e-health to improve referrals.

It is Critical to Create a Quality Referral

A referral is created as a result of a clinical decision made during the care of a patient. Referring clinicians typically do this based on their own judgement and sometimes after considering care pathways or guidelines relevant to the patient's condition(s). These resources can provide the clinician with useful scientific knowledge and evidence to support the decision-making process.

Once a decision to refer is made, the referring clinician has a responsibility to create a ***quality*** referral. This means that the referral should contain information that will enable the receiver of the referral to continue the patient's care as effectively and efficiently as possible. Hence, both **content** and **process** contribute to a quality referral.

Input from key clinical leaders stressed the importance of getting these front-end aspects of referrals right – as the highest priority.

There are Significant Risks Associated with Referrals

A referral is both a legal and business instrument. It helps to coordinate the continuity of quality care for patients by ensuring key information is shared appropriately.

When done effectively, referrals improve patient safety by reducing risk. Significant risks arise when there are issues with the referral content (e.g. inaccurate, missing or

irrelevant data) and the process (e.g. referral not received, patient appointment not made, or urgency not actioned). Serious legal cases, with large payouts, highlight the significant consequences where a referral or the referral process is suboptimal.

The poor quality of data in practice systems that would be used to generate content in e-referrals is highlighted as a major concern, and a likely source of significant risk.

These risks may be exacerbated with e-referrals solutions that auto-generate referrals from data held in practice systems and use templates that constrain the referrer expressing the narrative necessary for a quality referral. Inhibiting the thinking time and care required for referral quality could also contribute to increased risk. In addition, requiring clinicians to enter data into a computer, when they don't have the necessary skills heightens certain risks.

Challenges and Barriers for E-Referrals

In addition to risks, a range of challenges and barriers exist that would need to be addressed for e-referrals to be successfully implemented in Australia.

Chief amongst these is the low level of ICT maturity in specialist and allied health practices, given the significant volume of referrals involving these. A similar situation exists for aged and community care where ICT investment too has been relatively low.

The quality of data held in GP computer systems is raised as a risk to patient safety, but the "cleaning" of it is expected to be a significant challenge.

Privacy, whilst considered broadly to be a challenge for e-health is also an issue for e-referrals, as such solutions do include the sharing of sensitive patient information. Hence rules related to consent and disclosure also apply.

The challenge to invest sufficiently in change and adoption applies to e-referrals as much as any other ICT-enabled change. There is real concern about the lack of preparedness and ability to invest in this critical area. The risk of this is that NEHTA may do a great job in e-referrals (and other solutions) development, but the initiatives would eventually fail due to poor take-up, adoption and implementation of the changes needed to get the most from using the solutions.

Despite the risks, challenges and barriers, the potential benefits from applying e-health in the referrals process are believed to be significant.

Key Considerations for NEHTA in Referrals

In recognising that e-health is a journey, questions related to where to start are key. Two that provide initial focus to NEHTA's e-referrals program are:

- Where to apply e-health in the referrals process? I.e. in the steps above.
- Where in the health care system to apply e-referrals? I.e. which patterns of referrals "traffic" make sense to initially focus on.

A range of factors can inform the answers to these questions. These include where maximum benefits could be achieved, how and where risk might be best addressed, and what challenges and barriers exist and how might they be mitigated.

Investment is needed in Benefits, Change and Adoption, Not Only E-Health Solutions

Given the well-recorded history of failed projects that implement ICT solutions in health and other industries, it would be negligent to embark on a program like e-referrals without commitment to invest adequately in change and adoption.

There is a dependent relationship between these topics:

- Benefits cannot be achieved without change, and
- Change cannot be sustained without benefits.

The National E-Health Strategy states that change and adoption must be undertaken with the other key streams of the program in a tightly coordinated and concurrent manner.

Priority Opportunity Areas

There is undoubtedly potential for e-referrals to make a significant difference in Australia's health care system over the long-term and in all care settings that create and receive referrals. This report has identified four key areas that are considered high priorities for immediate focus. These are:

- Creating quality referrals.
- Reducing the risks related to referral work-flows.
- Defining standards and specifications for e-referrals content.
- Improving process efficiency for referrals.

1 The Referrals Environment

1.1 Introduction

The NEHTA Board has determined that the organisation will focus on national e-health implementations in the priority areas of:

- Discharge summaries.
- Pathology.
- Referrals (including specialist letters and notifications).
- Medication management.

Scope of this Report

This report is an overview of a more detailed report that was prepared for NEHTA. The primary purpose of these reports is to inform NEHTA of the environment in Australia's healthcare system related to referrals so that it can identify potential opportunities for its e-referrals program. Hence the reports will be used as input to the development of the program and in providing indications of broad areas in which NEHTA may focus the development of its e-health capability.

The scope, relating to health care providers and settings, of the Environmental Scan[2] is:

- Referrals from GP to Dr (specialist or GP).
- Referrals from Dr (GP or specialist) to hospital (in-patient care, specialist clinic or Emergency Department).
- Referrals from Dr (GP or specialist) to allied health professionals, and referrals from allied health professionals to other health care providers.
- Referrals from Dr (GP or specialist) to aged care facilities, and referrals from aged care facilities to other health care providers.
- Referrals from Dr (GP or specialist) to community care service, and referrals from community care services to other health care providers.
- Referrals from specialist to specialist.
- Referrals from advanced nurse practitioners to other health care providers, where their scope of practice includes referrals.
- Reports from referred-to clinician to referrer (inc. specialist to GP/Specialist and from allied health professionals).

Within scope are the messages, information flows, systems and business processes associated with referrals and their management.

Scope Exclusions

While discharge summaries can be considered to be part of the end-to-end referral process, detailed consideration of discharge summaries is not within scope of this environmental scan project. NEHTA has previously conducted an environmental scan focusing on discharge summaries. How the discharge summaries are linked to referrals

[2] NEHTA's Continuity of Care Reference Group (CCRG) authorised the scope for this project

is within scope. This linkage refers to the linkage in the hospital environment, to 'closing the loop' for the originating referrer, and to inform other health care professionals of the clinical status of a patient from discharge from hospital.

Pathology, radiology, and pharmacies are all excluded, as these areas are subject to other reviews and programs within NEHTA.

1.2 Definitions of "Referral"

In order to highlight the different purposes that referrals can have within the Australian health care system, several different definitions of referral are presented. Points of difference amongst these are discussed to clarify different meanings in different contexts.

Generic Referral – USA's NLM

The most generic definition of referral is from the Medline's Medical Subjects Heading (MeSH) database owned by the United States' National Library of Medicine (NLM):

> *"The practice of sending a patient to another program or practitioner for services or advice which the referring source is not prepared to provide."*[3]

This could provide a suitable definition for any referral, whether informal or formal, from any health care provider or service to any other health care provider or service.

Standards Australia

An important aspect of a referral not considered in the above definition is transfer of care. The Australian Standard AS 4700.6 (Int - 2007)[4] states:

> *"... referral involves the transfer of care*
>
> - ***in part*** *(e.g. request for an opinion or a specialized service accompanied by relevant health event summary and record extracts)*
> - *or* ***in whole*** *(e.g. transfer from one GP practice to another with complete health record data and summary)."*

It is important to note that most referrals usually only relate to an aspect of a patient's care, e.g. referral to an ophthalmologist for review of a diabetic patient's retinas, and that the latter example above is an exception.

Medicare Australia: Referrals within the Profession

Medicare Australia considers:[5]

> *"... a referral is a request to a specialist or a consultant physician for investigation, opinion, treatment and/or management of a condition or problem of a patient or for the performance of a specific examination(s) or test(s)."*

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[3] http://www.ncbi.nlm.nih.gov/sites/entrez?Db=mesh&Cmd=ShowDetailView&TermToSearch=68012017&ordinalpos=1&itool=EntrezSystem2.PEntrez.Mesh.Mesh_ResultsPanel.Mesh_RVDocSum

[4] Standards Australia 2004 Implementation of Health Level Seven (HL7) Version 2.3.1. Part 6: Referral and discharge summary. Page 7

[5] See G.6.1. REFERRAL OF PATIENTS TO SPECIALISTS OR CONSULTANT PHYSICIANS of the Medicare Benefits Schedule Book from http://www.mbsonline.gov.au/

This requirement can be satisfied in the current system in several ways. For example in an emergency a verbal or telephoned referral is sufficient for the initial consultation, but any subsequent consultation requires that a written referral be provided. For an inpatient referral a note made in the patient's medical record (chart) suffices. The unifying theme is to allow the service to be claimed and billed under Medicare Australia.

Delegation, Referral and Handover

The following has been drawn from the Final Consultation Draft of *Good Medical Practice: A Code of Conduct for Doctors in Australia*[6], which is being developed by the Australian Medical Council[7] on behalf of all state and territory medical boards in preparation for the introduction of national medical registration from July 2010.

> *"**Delegation** involves you asking another health professional to provide care on your behalf while you retain overall responsibility for the patient's care. **Referral** involves you sending a patient to obtain opinion or treatment from another doctor or health care professional. Referral usually involves the transfer (in part) of responsibility for the patient's care, usually for a defined time and for a particular purpose, such as care that is outside your area of expertise. **Handover** is the process of transferring responsibility to another health care professional. Good medical practice involves:*
>
> > *"4.3.1 Being satisfied that the person to whom you delegate, refer or handover has the qualifications, experience, knowledge and skills to provide the care required.*[8]
> >
> > *"4.3.2 Understanding that when you delegate, although you will not be accountable for the decisions and actions of those to whom you delegate, you remain responsible for the overall management of the patient, and for your decision to delegate.*
> >
> > *"4.3.3 Always communicating sufficient information about the patient and the treatment they need to enable the continuing care of the patient."*

To provide examples of these actions, **delegation** might occur from a treating specialist to appropriately skilled nursing staff to administer cytotoxic drugs as part of cancer treatment, or a practice nurse providing immunisations in a general practice setting. **Referral** would be as described previously, for example a surgeon may seek the assistance of a general physician to manage an elderly patient's medical problems during the pre- and post-operative periods. **Handover** may occur between two shifts of nursing staff in a hospital.

A referral has potentially three aspects

1. Conveying sufficient clinical information to the next health care professional(s) to allow "optimal patient care" to occur. The referral document may be reused by a number of health care professionals in an organisational setting. Provision of the necessary information ensures that (important) referrals are acted upon within an appropriate time frame. Complete information about a patient's condition will

[6] See http://goodmedicalpractice.org.au/draft-code/ (Accessed 13 May 2009)

[7] See http://www.amc.org.au/ (Accessed 22 May 2009)

[8] Note that this requirement, which is a common feature of referrals in general, lends itself to considering a Provider Directory "Yellow Pages" or similar of type directory as part of any e-referrals solution.

ensure that the receiving health professional or health care organisation can correctly prioritise resources such as appointment times, imaging equipment, operating theatre slots, or hospital beds.

Ensuing processes such as those just mentioned may need more than just atomic data. A narrative (the sequence of events, or the patient's story) is often the best form to convey information in which temporal aspects are vital to another practitioner's understanding of a patient's needs. In short this may provide the clearest explanation of the 'reason for referral', but is difficult, if not impossible, to atomise and preserve meaning.

2. Complying with relevant financial, managerial, and administrative requirements (e.g. Medicare Australia, Department of Veterans Affairs (DVA), and Workers Compensation). An example from private insurance might be the requirement that for people who have recently taken up health insurance that the condition they are seeking care for is not deemed to be pre-existing. While this information is usually provided to the insurance company on a separate form to the referral (with the consent of the patient), it is a consideration that the referrer may need to think about in choosing who to refer a patient to, e.g. the private or public system.
3. Meeting any medico-legal aspects of good record keeping and protocols, and if necessary to ensure that the referral is entered into a system (either paper or electronic or hybrid) that tracks important referrals to make certain they are appropriately acted upon.

Referrals are an essential element of clinical care in the Australian health care system. They allow the sharing of scarce resources such as clinical expertise, technical skills and interpretation of diagnostic testing.

Experience from many countries proves that an effective primary care system acting as "gate-keepers" can assist the overall health care system in reducing costs[9]. Generalists (e.g. GPs, physiotherapists, optometrists) managing as much of the care as possible that is within their expertise supports this aim.

Recommended Definition

Whilst it is not in the scope of this report to make a definitive recommendation, it is the authors' view that the Standards Australia definition should be seriously considered.

1.3 The Referral Process and Scope for E-Health

A referral is created as a result of a decision made during the care of a patient. Referring clinicians typically do this based on their own judgement and sometimes after considering care pathways or guidelines relevant to the patient's condition(s). These resources can provide the clinician with useful scientific knowledge and evidence to support the decision-making process. However the majority of current referrals are made without reference to a pathway or guideline. This is a known issue in health policy and

[9] Starfield B (2008) The future of primary care: refocusing the system. New England Journal of Medicine **359**(20):2087, 2091

leadership circles that is believed to be the major contributor to poor levels of consistency in the provision of recommended care.[10]

Once a decision to refer is made, the referring clinician has a responsibility to create a "quality" referral. This means that the referral should contain information that will enable the receiver of the referral to be as effective as possible in continuing the care of the patient. Ensuring the referral contains the right sort of information, the right quantity and that it is accurate and relevant are critical requirements. Accurate and current information related to providers and services *local* to the patient, who they may be referred to, is also essential.

After a quality referral is created it is then provided to the referred-to clinician (often via the patient), who continues the care of the patient. An appointment will be scheduled and other services, e.g. pathology, radiology, etc. may be required. The care may also require hospitalisation or treatment by additional service providers and the prescribing of drugs and/or other therapies. The treating clinician(s) again could consider care pathways, guidelines and relevant scientific knowledge in these processes.

Depending on the nature of the referral and the care required for the patient, the referred-to clinician would report back to the referrer on the patient's progress either during their care (e.g. with advice that a surgical procedure might be recommended) or when the episode-of-care is completed, in which case care of the patient is effectively returned to the referrer (e.g. on delivery of a baby). It is not uncommon, e.g. for patients with chronic conditions, that care continues on a shared basis, such that the referrer and referred-to clinician are in regular communication and with many reports sent to the referrer on a planned basis. Similar to the need to create quality referrals, the referred-to clinician, where it is necessary, is required to create a *quality* report for the referrer. There are clear similarities here too with discharge summaries.

In considering this complete end-to-end process flow, there emerge many areas where the application of e-health capability via NEHTA's e-referrals program could be beneficial. These include:

1. In the process of deciding whether a referral is required.
2. In the creation of a "quality" referral (These first two processes have considerable cost implications for the health care system, and one where knowledge and decision support has a clear role).
3. In the assembly of the content for a referral, including supporting patient choice in the selection of the referred-to clinician or health care service.
4. In the transmission of the referral to the referred-to clinician.
5. In the receiving of a referral and in supporting the work-flow related to it by the referred-to clinician, e.g. rejection, acceptance, read, action, report, etc.
6. In the scheduling of an appointment for the patient with the referred-to clinician.
7. In the creation of notices and alerts to both the referrer and referred-to clinician on the status of the referral process.
8. In the creation of quality report(s) from the referred-to clinician to the referrer.

[10] Runciman B, Merry A, Walton M, 'Safety and Ethics in Healthcare: a Guide to Getting It Right', Ashgate, Aldershot, 2007

9. In keeping the patient advised of the status of their care as it relates to the changing roles of the referrer, and referred-to clinician, as their care progresses.

In addition, for NEHTA's e-referrals program, there is an opportunity to facilitate the design of specifications for standard templates for the structure of referrals and their content.

Opportunities for e-health to make positive impacts on the referral process exist in each of the steps above, and the infrastructure components being developed by NEHTA could be effectively utilised in each of the steps.

1.4 Business Context for Referrals

There are significant business related aspects for referrals that are discussed below.

1.4.1 Requirements of the Funding Source

As a general rule of thumb, the business context for referrals is determined by the requirements of the source of funding for the resultant health care service. Such funding sources include:

- Medicare Australia.
- Department of Veterans Affairs.
- Private Health Insurers.
- State and Territory Health Departments.
- Workers' Compensation, Traffic Accident and similar third-party compensable services.
- Corporate Health Plans.
- The patient or relatives themselves – often as co-payments.

In addition to establishing the criteria upon which they would accept responsibility for paying for the service, the requirements specified by the funding organisations for referred-to services typically include:

- Whether a referral document is required or not, e.g. a referral is essential for payment of a Medicare Benefit for Consultant Physicians or Specialist services[11].
- If a referral is required, then typically the funding organisation provides:
    - The referrer with a template for them to use, or the specification of the minimum contents.
    - Rules about the service regime, e.g. number of sessions (e.g. for Medicare Australia's Better Access to Mental Health Care Initiative), the period for which a referral is valid (e.g. 12 months for GP to specialist referrals, and 3 months for specialist to specialist referrals), or related aspects.
    - Advice on the likely cost of the service for the referrer to pass onto the patient to assist with consideration of options and patient choice.

[11] Health Insurance Act 1973 - Sect 19
http://www.austlii.edu.au/au/legis/cth/consol_act/hia1973164/s19.html (Accessed 4th May 2009)

- Sometimes lists of preferred health care service providers for the referrer to choose from, in consultation with the patient (e.g. this is particularly the case for DVA funded services).

- Whether a report back to the referrer is required; and if so a template or the report's content requirements.

Of note too is that Medicare Australia requires that all electronic referrals to Consultant Physicians or Specialists comply with Information Technology Standards under the Electronic Transactions Act 1999[12] [13].

These standards outline a range of requirements including items related to security and encryption. Due to the dominance of payments by Medicare Australia for services resulting from referrals, these have been adopted almost as de facto electronic messaging standards throughout the health system in Australia.

1.4.2 Risks Related to Referral Process and Content

In addition to the clinical-related risks resulting directly from the care provided to a patient who has been referred, there are also risks involved in the work-flow and content of a referral. These are relevant for both the referrer and the referred-to clinicians.

Apart from some circumstances related to emergencies, a referred-to clinician is not obligated to accept a referral. There is a range of risks associated with the declining of a referral. For example, even being "too busy" to accept another patient may be about avoiding the risks inherent from being over-worked; or also if the case is considered too complex, then it may be about avoiding the risk of errors from possible incompetent or negligent acts.

The content of a referral can result in risks. If too much information is included then the key important facts may be overlooked by the treating clinician and errors and/or harm may result. Similarly errors and/or harm can result if key information is absent or has mistakes. There is case law to show that such situations give rise to significant legal claims and payouts, and hence also upwards pressure on indemnity insurance premiums – not to mention the unfortunate experiences of the involved patients and their families and carers.

With the advent of e-referrals, the risks outlined in the above paragraph are heightened as clinicians become more routinely dependent upon computers to auto-generate the content of documents such as referrals. The thinking time and care required for clinicians in creating a "quality" referral is increasingly being challenged. In addition, computer systems may impose constraints on the form and content of the referral that don't suit the needs of the situation. These factors combine to increase risk in referrals and in particular e-referrals.

In addition to content, there are significant risks too related to work-flow around referrals. Section 1.3 above outlines the key process steps in referrals in the context of identifying potential opportunities for the application of e-health capability, and hence

[12] Notice of Information Technology (IT) Standards under the Electronic Transactions Act 1999 for Electronic and Paper. http://www.medicare.gov.au/provider/pubs/medicare-forms/files/ma_notice_of_it_standards_electronic_and_paper_011005.pdf (Accessed 4th May 2009).

[13] Notice of the Information Technology (IT) Requirements under the Electronic Transactions Act 1999 (the Act) http://medicareaustralia.gov.au/provider/vendors/pki/files/ma_notice_of_it_requirements.pdf (Accessed 4th May 2009)

potential focus for NEHTA's e-referrals program. This also serves as a useful framework to consider risks in the referrals work-flow.

Major risks exist for clinicians if referrals are not dealt with in a timely and effective manner. Indeed, case law highlights that a referring clinician may, in certain situations, have exposure if they do not follow-up to check that their patient has seen the referred-to clinician. Similarly if a clinician is sent a referral and they do not review it in a timely manner (including contacting the patient to schedule an appointment) then they too, in certain circumstances, can have significant exposure if the patient suffers because of the ensuing delay.

To a certain extent these types of issues are independent of e-health and are systemic issues in health care in general. However, the inclusion of intelligent work-flow solutions as part of an e-referrals program would go a long way towards reducing these types of systemic risks. If all referrals were electronic then it would be possible to know exactly at any point in time what the status of a referral was, e.g. has it been sent, has it been received, has it been read, has it been reviewed, has it been accepted, has it been rejected, has an appointment been scheduled for the patient, has the patient seen the referred-to clinician, has treatment occurred, has a report been created and sent back to the referrer, and so on.

This sort of e-health capability, and solutions that support decision-making and the creation of quality referrals, could have a significant positive affect on risk in the health system, and hence improve overall quality and safety.

1.5 Key Estimates Related to Referrals

This section presents the high level volumes for referrals. In part this is provided to help NEHTA in the next stage of "opportunity assessment".

Table 1: Overall Estimates of Referrals-related Communications (per annum)

Radiology and Pathology (included for comparison)	
Pathology Reports to GPs and Specialists	60 Million
Pathology Requests from GPs and Specialists	30 Million
Radiology Reports	16.5 Million
Radiology Requests	16.5 Million
Non-Hospital Referrals	
Referrals from GPs to Specialists[14]	8.72 Million
Reports from Specialists back to GPs	6 Million
Referrals from GPs to Allied Health Professionals	3.71 Million
Reports from AHPs back to GPs	1 Million
Referrals from Specialists to Specialists	1.5 Million
Reports from Specialists to Specialist	1 Million
Referrals from GPs to ACAT teams	0.025 to 0.1 Million
Referrals from GPs to HACC teams	0.03 Million
Hospital Related (both Private & Public)	
GP referrals to hospital	0.4 Million
GP referrals to hospitals' A&E	0.2 Million
Specialist referrals to hospital	Not established but estimated to be many times the number from GPs
Discharge Summaries resulting from 7.3 million admissions, with est. 1/3 private and 2/3 public	Not established but estimated to be perhaps half of the 7.3 million

A key observation from the above table is that referrals to hospitals from patients who see GPs are generally via the specialist that the GP referred the patient to. The specialists may be in private practice or in hospital outpatients. However, nearly all jurisdictions have adopted a private / Medicare Australia billing approach for much of their specialist clinic work.

In summary, the data researched for this report suggests the following:

- Total referrals greater than 15M per annum
- Total reports greater than 8M per annum

[14] Note: This includes referrals to both private practicing and hospital outpatients-based specialists

1.5.1 Levels of Computerisation

The level of clinical systems computerisation for GPs is about 90%. This estimate is based upon BEACH data collected in 2003 to 2005 that showed nearly 89% of GPs have access to a computer in their major practice address[15]. Also in August 2008, 86% of PIP (Practice Incentive Program) practices were participating in Tier 2 of the IM/IT incentive[16]. As this represents a slightly more sophisticated level of computer use, again it would be reasonable to infer levels of 90% as a working basis for analysis.

The estimates for the specialists are more complicated as key ICT solutions providers indicate that the take up of clinical systems varies markedly by speciality. The base line number of computerised specialist practices is not readily available although the number of practitioners is shown in brackets below:

- Dermatologists (about 350) – high uptake and probably the highest proportion of any specialty type although the absolute number is small.
- Obstetricians and Gynaecologists (about 1,400) – moderate uptake.
- Ophthalmologists (about 800) – moderate uptake.
- Physicians (about 7,300) – moderate uptake.
- Psychiatrists (about 2,700) – moderate uptake.
- Surgeons (4,000) – moderate take up but more prevalent amongst orthopaedic surgeons.

And for completeness the other specialist groups are as follows: anaesthetists (about 3,000), emergency medicine (about 1,300), medical administrators (about 400); pathologists (about 1,200) and radiologists (about 1,700). It would be reasonable to assume near 100% uptake amongst pathologists and radiologists.

The initial set of specialist groups total approximately 16,500 specialist practitioners. This may represent in the vicinity of 8,000 practices. This is predicated on most of the physicians and psychiatrists being solo practitioners and there being a proportion of these practitioners that are not in private practice.

The presence of clinical systems in specialist practices is modest with an estimate being in the range of 20% to 30% of *practices* based upon the following:

- The MSIA (Medical Software Industry Association) and other industry sources suggest the largest provider of specialist clinical systems is Genie. This may represent about 10-15% of practices. (Based upon their web-site and a stated position regarding the proportion of GP and specialist practices). Furthermore HCN is viewed as the other major high volume provider with perhaps a bit over 10% of practices (based upon their web site). After these two providers there appears to be a gap to the next group of about five providers Medtech, Zedmed, Shexie, JAM, Medilink, etc. There is a perception that collectively all of these providers will have less than either HCN or Genie. Further information is difficult to obtain due to commercial sensitivities about such information.

[15] Henderson J, Britt H & Miller G (2006) Extent and utilisation of computerisation in Australian general practice**.** *Medical Journal of Australia* **185** (2): 84-87

[16] http://www2.chi.unsw.edu.au/pubs/GP_IM_Literature_Review.pdf page 20 (Accessed 19th May 2009)

- Almost 100% of computerised specialists download electronic pathology and radiology results.
- Not all specialists within a practice will use their systems for recording the consultation process. Most will use computerisation for scheduling and billing purposes – leaving referrals and reports as essentially a manual process.
- For many specialists, the letter back to the referring doctor constitutes their consultation notes, i.e. they typically don't keep separate consultation notes and dictate their letter which includes all their findings, conclusions and treatment. So they probably think there is no need to keep a separate consultation record as all the necessary information is in letter(s).

1.5.2 Methods of Referral Generation

Based upon the feedback from the consultation interviews, the proportions of GP referrals that are:

- Computer generated paper from clinical systems is estimated to be up to 66%.
- Handwritten (or dictated and typed up by the practice's office staff) is estimated to be at least 33%.
- Electronically transmitted is estimated to be only 1-2%.

Similarly, based upon consultation feedback, the proportion of specialist referrals that are:

- Computer generated paper from clinical systems is estimated to be perhaps 10-20% based upon the low uptake of clinical systems.
- The remainder are typed (with some still hand-written), and estimated to the 80-90%.
- Electronically transmitted – estimated to be a small percentage of the computer generated referrals, although there are key exceptions in some geographic areas.

1.5.3 Referrals and Discharge Summaries

One of the key findings identified during the assignment is the variation between the low number of GP referrals to hospitals (less than 0.5 Million) for admission and the high numbers of discharge summaries to GPs resulting from a proportion of the 7.3 million[17] hospital admissions (4.6 million to public hospitals and 2.8 million to private hospitals).

This variation is in part attributed to the fact that many hospital referrals are initiated by specialists rather than GPs. Furthermore many other referrals for hospital admission occur through Accident and Emergency Departments, when patients self refer or present via an ambulance.

Another contributor is that for a substantial proportion of admissions no discharge summary is generated. The main areas for this are likely to include renal dialysis (for which patients may typically have 150 separations per year) and chemotherapy where the repetitive nature makes a discharge summary unnecessary.

[17] AIHW 2008 page 350

1.5.4 Pharmacist Referrals

Whilst outside of the scope of the project, as part of our review it was identified that there are situations in which GPs would refer to pharmacists and pharmacists produce a report back to the GP about a patient's medications. Two Medicare services are provided as examples below. Pharmacists Referrals will be addressed by the NEHTA Continuity of Care Program.

Home Medicines Review (HMR)[18]

This program's objectives are to:

- Achieve safe, effective, and appropriate use of medications by detecting and addressing medication-related problems that interfere with desired patient outcomes.
- Improve the patient's quality of life and health outcomes using a best practice approach that involves cooperation between the GP, pharmacist, other relevant health professionals and the patient (and where appropriate, their carer).
- Improve the patient's, and health professional's knowledge and understanding about medications.
- Facilitate cooperative working relationships between members of the health care team in the interests of patient health and well being.

The review involves the patient's GP and community pharmacy, and as needed other members of the health care team (e.g. community nurses or carers). The consumer and the GP agree on a medication plan based upon the pharmacists report. For the financial year 2007/2008 there were 36,020 Medicare items processed for this program[19]. If on average this involves a referral, a report back to the GP and another health team member, then that approaches 100,000 referral-related messages per year.

Residential Medication Management Review (RMMR)[20]

This program is to provide greater continuity of care for eligible aged care residents, and is associated with the Quality Use of Medicines (QUM) program. It can be conducted by a pharmacist (pharmacist RMMR) or collaboratively with the resident's GP (collaborative RMMR). A GP must refer the resident for the latter service and collaborate in the review.

[18] See http://www.medicareaustralia.gov.au/provider/pbs/fourth-agreement/hmr.jsp (Accessed 23 May 2009)

[19] See http://www.health.gov.au/internet/main/publishing.nsf/Content/B2992EBF12BE7E1ECA2573D8007F91F3/$File/Project%20conclusions%20and%20refs.pdf (Accessed 1 Oct 2009)

[20] See http://www.medicareaustralia.gov.au/provider/pbs/fourth-agreement/rmmr.jsp (Accessed 23 May 2009)

2 Key Considerations and Influential Factors

The research and consultation undertaken for this project has produced a detailed view of the health care environment that relates to referrals. The detailed version of this report will be a useful reference for NEHTA as its e-referrals program further develops, and is implemented by the health care system.

This chapter distils the detailed results of the environmental scan into key areas and poses some essential questions for consideration by NEHTA. In addition it identifies a small number of areas of opportunity that emerged in the course of undertaking the project. In framing and developing its e-referrals program, NEHTA may consider the following factors.

2.1 Where to Apply E-Health in the Referrals Process

Section 1.3 of this report outlines the key steps in the referral process and hence broad opportunity areas for e-health. A key question for NEHTA to consider is where in the process does it make sense to apply e-health initially, and how might further applications be sequenced in the other steps.

A natural inclination exists in the e-health arena to look for messaging and related opportunities as these are readily identifiable within the e-health infrastructure focus of NEHTA's work program. There are certainly benefits that can be realised by making the assembly and transmission of referrals and subsequent reports more efficient, and it is important that solutions in these areas be progressed. These types of e-health capabilities importantly also facilitate the overall strategy towards shared electronic health records.

However the overwhelming advice from key clinical leaders is that priority should be given to improving the front-end of the referrals process, i.e. in assisting the decision-making related to whether a referral is necessary and then, if so, to ensure a quality referral is created. This includes providing knowledge support that can promote the "thinking time" necessary in areas such as differential diagnosis, opportunities for management, appropriate investigations, and in considering referral options. There is a strong belief that using e-health to improve these steps will have a dramatic effect on quality, with flow-on improvements to quality-of-care, health system efficiency and importantly expenditure.

E-Health alone will not provide the necessary improvements. It is necessary but not sufficient. For example, GP education too can have significant impact.

In addition a strong sense came through in the consultation process that the application of e-health in assisting with the work-flows associated with referrals would have a dramatically positive effect on risk and patient safety. Benefits related to this would occur more comprehensively when referrals and reports are transacted electronically, as the status of each could readily be ascertained in an integrated e-health environment as compared to paper-based siloed systems. Notifications, acknowledgements and alerts could be created in such an environment that would also decrease risk and improve overall efficiency.

So, it would be prudent for NEHTA to consider a multi-pronged approach to its e-referrals program such that project opportunities are selected that can a) leverage the e-health infrastructure it is developing, and b) address key health system priorities, e.g. relating to quality and safety. These need to be progressed in unison, within an overall strategic program framework.

2.2 Where in the Health System to Apply E-Referrals

In addition to the key question discussed above, selecting initial and then sequencing further e-referrals applications in various care settings will be crucial to the ordered achievement of benefits.

As the data and analysis presented in section 1.5 of this report illustrates, the dominant generator of referrals is general practice (approximately 13M per annum[21]), with specialists and AHPs being the dominant receivers of GP referrals (approximately 12.4M per annum). GPs too are the dominant receivers of reports from referred-to clinicians, with approximately 7M per annum received. These referrals drive a huge amount of health system activity and hence significant expenditure, so even small changes in volume could achieve significant benefits.

Importantly, this pattern of referrals-related "traffic" is between community-based care settings and does not directly involve hospitals. The majority of GP referrals to specialists do result in the specialist referring the patient to a hospital for admission. Rates for this were not available or reliable; however they are believed to be a reasonable proportion of the approx. 8.7M per annum of referrals from GPs to specialists.

Referrals by GPs directly to hospitals and other care settings are not insignificant or unimportant, but the difference in activity levels is stark.

This question of where to prioritise the application of e-referrals capability is important if the intent is to create the greatest possible positive impact on the health system. If this is the goal, then logic would suggest a priority would be to target those parts of the health system with the greatest end-to-end referral activity. The rationale being that improvements to the referrals process from e-health will scale up to create more significant benefits for the overall health system in the areas where most referrals occur as compared to other areas where less activity occurs. This will need to be balanced against such factors as the ease with which such changes are likely to bring about the desired income, and the capacity and readiness of that sector to change its processes.

Focusing on referrals into the public health system is important, but is unlikely to yield the greatest outcome. By the time a patient enters a public hospital it may be too late and the cost of the episode of care is likely to be higher than it would be if the patient's care was managed in the community. The opportunity then is to look further upstream and to consider improving referrals between GPs and specialists initially, but also allied health.

Again a multi-pronged approach to this key question may also be worthy of NEHTA's consideration. It is reasonable, given its jurisdictional ownership, that NEHTA look to opportunities for e-referrals involving publically funded health services – in particular hospitals. However the high levels of referral activity occurring between community-based care providers is a reality and it would be prudent for NEHTA to also consider opportunities for this important constituency. This is increasingly important now with State and Territory Health Departments encouraging named referrals to specialists for the provision of outpatient services.

[21] Excludes pathology and radiology – per the defined scope of the project.

2.3 Dependencies to Consider

The benefits possible from e-referrals are dependent upon an effective approach to change management, and importantly the achievement of other aspects of NEHTA's work program. These include health identifiers across the whole health system, authentication services, messaging services, terminologies such as SNOMED CT and AMT, and an appropriate privacy and security framework. This is not to say that work on e-referrals should be delayed until these facilities are operational. Indeed the opposite is the case.

Crucially it needs to be stressed that these e-health capabilities, including the establishment of e-referrals, will fundamentally only create a platform that on its own will not deliver benefits. As highlighted and stressed in the National E-Health Strategy all four of its strategic streams need to be undertaken in a tightly coordinated and concurrent manner – with Change and Adoption being the key stream related to the achievement of benefits. There is a dependent relationship between these topics, as below:

- Benefits cannot be achieved without change, and
- Change cannot be sustained without benefits.

2.4 Benefits of E-Referrals

A number of key potential benefits related to e-referrals that were highlighted during the consultancy project are discussed below.

Improved Accuracy of Demographic Information

E-referrals when supported with Unique Healthcare Identifiers will allow more accurate and rapid identification of patients, providers and service locations, and hence minimise errors such as those associated with duplication of records (e.g. a record of missing important information about a drug allergy). There will also be savings in both clinical and administrative staff time across the health system as a whole.

Improved Accuracy of Clinical Information

Once both the referrer's and referred-to clinician's systems have the capacity to integrate atomic level (codified) information such as medication information (including allergies and adverse events), current and past medical history, family history, and investigations (completed and pending), this information will be available at the point in a patient's care when and where it is most needed. This will make the referral process safer for patients and produce better health outcomes.

Decision and Knowledge Support for Quality Referrals

Tools are needed that can provide information to clinicians at the time of making a decision about whether a referral is required, and also during the referral writing process to assist the referrer in creating a better quality referral. If a referrer is prompted to provide the information required by the referrer (individual clinician or organisation) there will be a greater chance that the information provided will allow a more accurate and timely allocation of an appointment to that patient. Depending upon the protocol of the receiving organisation it would also limit the number of phone calls or returned referrals to the original referrer in order to capture any missing or imprecise information.

An example of a knowledge support system that is designed to improve the quality of referrals is the Map of Medicine[22].

As well as delivering information to the health care professional who is initiating the referral there is an opportunity for the decision support system to provide the patient with information about the purpose, importance, benefits and risks associated with a referral. For example, if a patient was referred to an open access endoscopy clinic for a colonoscopy because of rectal bleeding, the information sheet should contain information about the possibility of colon cancer, and the importance of attending for the colonoscopy. On the harm side, information about the need for bowel preparation, fasting, how to deal with medications, and the risk of bowel perforation would give the patient a basis of knowledge to discuss this further with the colonoscopist if they desired. A record that this information was given to the patient could provide important medico-legal proof that a patient was adequately informed prior to the procedure, as well as improving the patient's experience by being better informed.

Cost Reductions

Full electronic referrals, in a health care system with a high level of interoperability like Denmark, could reduce costs associated with referrals by up to twenty-five percent[23].

Legibility

The risk of miscommunication through illegible handwriting is removed.

Component of a Shared Electronic Health Record

As identified in NEHTA's Benefits Realisation Study[24] referrals and the resulting reports (e.g. letters and discharge summaries) would form an important component of the shared record; and also the health profile information (e.g. medications, investigations) would improve the safety and quality of the health care system that patients traverse.

2.5 Barriers to e-Referrals

Input from DoHA for this report showed that a preliminary review of Commonwealth legislation surrounding current referral and request processes indicates no legislative barriers to creating, transmitting, receiving or storing referrals or reports electronically.

However a range of barriers were identified in the project and are summarised below.

ICT Maturity, including Connectivity, Practice Systems, Organisational and Skills

There are sectors in health care in Australia that are comparatively well advanced in their use of ICT. Most notable is general practice where significant uptake has occurred –importantly, largely due to government programs such as the PIP scheme and Broadband for Health. In addition programs delivered by, amongst others, the RACGP

[22] See http://www.mapofmedicine.com. Queensland Health is implementing this across the whole State, including for use by GPs (Accessed 19 May 2009)

[23] Cannaby S, Westcott D, Pedersen CD, Voss H, Wanscher CE. The cost benefit of electronic patient referrals in Denmark. ACCA, MedCom and European Commission Information Society Directorate.

[24] Sprivulis P, 2007 Benefits Realisation Study: Detailed Methods, NEHTA

and Divisions of General Practice have been progressively improving the organisational information management maturity of general practices both directly and indirectly[25].

In addition, a rigorous accreditation scheme for general practice encourages advanced ICT use by practices. Accredited practices are shown to offer their patients an expanded range of health care services, e.g. arrangements for after-hours cover, and systems for the follow up and review of tests and results. Importantly too, general practice has been incentivised to transact electronically with their major funder, viz. Medicare Australia, for claims, payments and other business-related transactions.

This level of financial support has not been provided to other community-based care providers, who typically have comparatively low levels of ICT maturity, e.g. private practicing specialists, allied health professionals and aged and community care providers. Given the significant level of referral activity between GPs and specialists and allied health providers, the low level of computerisation for specialists and allied health is considered a major barrier to the uptake of e-referrals solutions.

In terms of public hospitals, State and Territory Health Departments, due to being much larger organisations, invest in ICT at a higher level and generally have systems, connectivity and organisational capabilities that permit a more sophisticated approach. A similar situation too exists for private hospitals.

This inconsistency in levels of ICT maturity across the health system presents a barrier to effective participation in e-health services, such as e-referrals, that require advanced ICT capabilities at the end points, e.g. for a GP and an allied health provider, for effective interoperability.

Like many of the barriers, this is not unique to referrals and is a systemic issue that needs to be dealt with more broadly and considered in health policy circles.

There is a natural motivation for health care service providers more generally to invest in ICT as part of their own business improvement strategies, for example as they strive for efficiencies, competitive advantage, etc. Organisations in other industries do this without government support. However in a highly socialised health care system, as in Australia, the perversity in the relationship between who invests and who benefits makes the application of simple market models problematic.

Data Quality in Practice Systems

Many sources point out the poor quality of patient data (both demographic and clinical) that is present in GP desktop computer systems. In addition to the many concerns raised by the respondents identified in this report our research identified two systematic reviews focusing on different aspects of data quality in GP practice management systems.

The first review[26], though based largely on UK studies (26 out of 37), showed that there are deficiencies in reliability and validity (the two important measures of data quality). It would be reasonable to assume, that given the maturity of use of GP systems in the UK

[25] The Information Management Maturity Framework (IMMF), developed and implemented in partnership between DoHA and AGPN is such an example. See http://www.agpn.com.au/site/index.cfm?display=26317 (Accessed 23 May 2009)

[26] Thiru K, Hassey A, Sullivan F (2003) Systematic review of scope and quality of electronic patient record data in primary care *British Medical Journal* **326** 7398 page 1070.

and the linkage of data quality to payments, that the quality of data on Australian systems would probably be inferior.

The second review[27] completed in 2006 studied methods used to improve data quality in GP systems. While many studies brought about modest improvements in data quality (mainly through feedback), the quality of the research prevented definite conclusions from being drawn. These factors pose a significant challenge for any health care system wanting to reuse existing data from GP systems.

Without addressing this significant issue, there is a risk that "dirty" data may enter the shared e-health environment and hence cause issues in other settings besides the originator's. Once inaccurate data enters a shared electronic environment it is very difficult to trace and hence fix the problem when it is discovered. It is best to find ways to ensure that only quality data enters this shared environment.

Ways to address this barrier include education and training, but also incentives linked to a practice accreditation scheme supported by professional practice standards across all professional bodies that interface with the health care system.

Privacy Issues

The generation of an e-referral from a complete medical history stored in a GP computer or as part of an individual electronic health record and then transferred into an electronic message may not be viewed in its entirety by either the referring doctor or patient. This could give rise to a scenario where certain sensitive information (e.g. testing for, or past history of, sexually transmissible infections, or psychiatric illnesses), that the patient may not want to share with a particular provider, is released.

The current state of hand writing or modifying a template derived referral allows either or both the referrer and patient to consider the appropriateness of sharing this information.

Level of Investment Required for Change and Adoption

Given the well-recorded history of failed projects that implement IT solutions in health and other industries, it would be negligent in these current days to embark on a program like e-referrals without commitment to invest adequately in change and adoption.

This is one element that England's Connecting for Health (CfH) program admits it had initially "underdone".

If the education of a sufficiently large proportion of health practitioners in the use of e-health systems is to a high enough standard, the task takes on very large proportions. Add to this other change and adoption requirements, such as incentives and knowledge and support tools and services, then the oft referenced multiple of 3-4 times of the IT investment being required for change management[28] becomes readily believable.

Lack of preparedness to invest in change management at the necessary level would be a major barrier to success for e-referrals.

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[27] Brouwer HJ, Bindels PJE and Van Weert HC. (2006) Data quality improvement in general practice. *Family Practice*; **23**: 529–536.

[28] See http://www.hsj.co.uk/nhs60-all-roads-lead-to-it/1118469.article for an example (Accessed 23 May 2009)

Other Drivers of Change

It needs to be recognised that some healthcare providers, such as AHPs and specialists, will not achieve tangible benefits early in the adoption process but will have overheads to implement e-referrals. This will relate especially to business process re-engineering to integrate e-referrals into both their clinical business processes and practice management systems. To achieve successful change in these types of practices, consideration ought to be paid to other levers available. These drivers may include accreditation requirements as discussed, changes to government policy and funding drivers such as via Medicare Australia and/or private health fund reimbursements for e-referral capability and utilisation.

2.6 Risks

Section 1.4.2 above discusses the significant risks related to content and work-flow in referrals. The RACGP and the AMA in their professional practice standards include requirements for referrals that aim to reduce risk for doctors and their patients. These combine to highlight that there is much risk associated with referrals.

A referral is both a legal and business instrument. It helps to coordinate the continuity-of-care for patients by ensuring key information is shared that supports the provision of quality care. When done effectively, referrals can improve patient safety by reducing risk.

A significant opinion is present from those consulted for this report that an e-referrals solution that incorporates intelligent work-flow functionality would make a considerable difference to quality and safety. Indeed notably, the Australian Commission on Safety and Quality in Health Care holds this view. Amongst other providers, private hospital operators believe the presence of at least a basic audit trail for referrals, and the inclusion of referrals-related notifications and alerts, would also go some way towards addressing these types of risk.

As reported above, poor data quality is a barrier to the production of e-referrals. But it critically also presents a significant risk to quality and safety, as decisions and actions may well be undertaken based on erroneous data sent in e-referrals, resulting potentially in harm.

If the change and adoption related barriers discussed above are not addressed (especially for training and education), the aging medical workforce (both GPs and specialists) will be slower than desired to adopt practice based computerised systems that are essential to the overall success of any and all e-health initiatives, including e-referrals.

In addition to the clinical and business risks that exist in the use of e-referrals in the delivery of health services, key risks exist also at a program level. For example, the significant benefits that e-referrals could bring would not be achievable without the completion of dependent facets of NEHTA’s infrastructure-related work plan.

3 Identified Opportunity Areas

There is undoubtedly potential for e-referrals to make a significant difference in Australia's health system over the long-term and in all care settings that create and receive referrals. This report has identified four key areas that are considered high priorities for immediate focus. These are:

- Creating quality referrals.
- Reducing the risks related to referral work-flows.
- Defining standards and specifications for e-referrals content.
- Improving process efficiency for referrals.

It was not within the scope of this report to conduct a detailed assessment of possible opportunities for NEHTA's e-referrals program, but instead to highlight any that emerged through the course of the project. Each of the above is discussed below.

3.1 Creating Quality Referrals

As reported earlier in this report, the application of e-health in the early steps of the referrals process is viewed as the highest priority by key clinical leaders and, if done effectively, would create significant system-wide benefits.

Making tools available that can assist with improving diagnosis and then, if necessary, creating appropriate referrals, in a way that targets key health system priorities, would result in changed referral patterns, probable avoidance of some health system expenditure and a better experience for patients. Doctors too would have access to knowledge and resources that may increase their abilities to care for patients within their practice settings, equating with cost savings (e.g. avoidance of specialist referrals).

An existing initiative in this space that NEHTA may consider a relationship with is the Map of Medicine project in Queensland Health[29]. This project is making this web-based tool available to GPs mainly to improve referral quality to QH clinics and services. The project is integrating the Map of Medicine with GP desktop systems and with a health service directory so that referrers are aware of locally available services, including details of opening times, scope of services, etc.

It is important to note that implementing e-health solutions to address this critical area of requirement can be done independently of solutions that involve the electronic assembly and transmission of referrals and reports.

3.2 Reducing the Risks related to Referral Work-flows

This report highlights the significant risks associated with referrals and how an e-referrals solution that includes intelligent work-flow functions could potentially address many of the issues that give rise to harm, legal claims and pay-outs. Examples of such functions include the creation of acknowledgements, notices and alerts at key stages in the referrals process based on pre-defined thresholds and parameters.

It is acknowledged that this becomes more feasible when referrals and reports are transacted electronically between care providers. But at the minimum, for instances

[29] Note that this is what QH calls the project.

where paper forms continue, some form of audit trail (perhaps with bar-codes) would be beneficial.

No existing initiatives that specifically address this key area of requirement were identified in the preparation of this report. Hence NEHTA may consider seeking or creating this sort of capability in a new or other initial project. An opportunity to collaborate with the ACSQHC on a joint initiative to explore this area may be appropriate.

3.3 Defining Standards and Specifications for E-Referrals Content

This report highlights the vast number of different referral forms that are being used in the Australian health care system. An initial analysis indicates there to be many common items of data in these and that variations tend to relate to the specific information needs of the receiver and/or requirements of the funder. A number of projects have been successful in rationalising these in some areas, e.g. Victoria's VSRF and SCTT.

The limitations inherent in having written-on paper as the form of the referral and the complexity in the range of requirements means that coming to agreement on a single standard referral form layout for use across all of health care would be very challenging, and probably unlikely. It is possible however that initially working towards this is a sensible way to bring together stakeholders to create a coordinated approach and to gain agreement on key aspects.

Computer-based forms systems, with their information hierarchies, decision-trees and ability to include data from practice systems, could, in time, provide the necessary flexibility. Such systems could still generate the referral, complete with content, on paper for use by those health care providers who require paper. With this approach, a common referrals information model with specifications of core data and guidelines for additional data requirements (driven by the referral context) could be developed with further stakeholder consultation. This will not be easy and resistance should be expected.

This report also highlights the key issue of data quality and the risks of erroneous data being automatically populated into an e-referral. It also highlights the major concern of constraining the thinking and care required of the referrer in creating a *quality* referral.

The authors are aware that NEHTA is progressing an initiative to define the core data elements for referrals, and suggests, if not already being done, that the above issues and ideas also be considered as part of that project.

3.4 Improving Process Efficiency for Referrals

There is little doubt that e-referrals will eventuate and be beneficial, in time. And that many of the benefits will be maximally realised when referrals and reports are transacted electronically throughout the health system.

Hence in addition to the above priority areas, it would be appropriate for NEHTA to support initiatives that also aim to improve the efficiency of the assembly and transmission of referrals and reports via e-health infrastructure and related solutions. This would leverage NEHTA's other work in areas such as identifiers, authentication, secure messaging, service directories, terminologies and the shared EHR, for example.

Many initiatives, both jurisdictional and commercial, were identified in the development of this report that target, either separately or together, this specific area of requirement.

A key omission identified however in nearly all cases is the type of intelligent work-flow functions, discussed elsewhere in this report, that are intended to address key risks in the referrals process. NEHTA may consider the importance of including this in any initiative it supports in this area.

Of the jurisdictional initiatives, the Victorian E-Referrals project appears to be well architected, supported and advanced, and would be worthy of consideration by NEHTA as the basis of a joint project, with the potential to broaden its focus to include other care settings and for possible national application.