The Future with Health Reform and E-Health

“How will the practise of medicine change in a world of electronic data”

Medical Indemnity Forum

Canberra, 17/9/2010
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• De-Commissioned Commissioner, National Health & Hospitals Reform Commission
• Chair, Finance and Planning, World Medical Association
• Past President, Australian Medical Association
• Chris Hale, Head of Unit & CFO
• Ms Melanie Goldwater, Privacy Manager
• Bob Milstein, Consulting Legal Counsel
A Healthier Future for all Australians

**Vision**
A sustainable, high quality, responsive health system for all Australians, now and into the future

**Reform Goals**
- Tackle the major access and equity issues that affect people now
- Redesign our health system to meet emerging challenges
- Create an agile and self-improving health system for future generations

**Themes**
- Taking responsibility
- Connecting care
- Facing inequities
- Driving quality performance

**Transformative actions**
- Healthy Australia 2020 Goals
- National Health Promotion and Prevention Agency – education, evidence and research to make prevention a high priority
- Greater personal responsibility supported to make healthy choices and decisions easier
- Health literacy - in National Curriculum for all schools; accessible high quality health information throughout life
- Person-controlled electronic health record
- Recognition and support for carers
- Better information about creating healthy local communities – ‘wellness footprints’
- Health promotion and wellness programs through the workplace and health insurers
- National action on broader determinants of health

**Healthy Australia 2020 Goals**
- Strengthen and integrate primary health care:
  - Commonwealth responsible for all public funding and policy for primary health care
  - Comprehensive Primary Health Care Centres and Services
  - Voluntary enrolment for young families, Aboriginal and Torres Strait Islander people and complex and chronic patients with a primary health care service as their ‘health care home’
  - Create regional Primary Health Care Organisations by transforming Divisions of General Practice
- Invest in a healthy start to life from before conception through the early years - universal and targeted services
- Reshape hospital roles for emergency and planned care and fund accordingly; strengthen outpatient and ambulatory specialist services in community settings
- Complete the ‘missing link’ of sub-acute services and facilities
- Expand choices for care and accommodation in aged care
- Improved palliative care and advanced care planning
- National Access Targets across all public health and hospital services
- System connections - e-health and communications

**People and family centred | Equity | Shared responsibility | Promoting wellness and strengthening prevention | Comprehensiveness | Value for money**
**Providing for future generations | Recognise broader social and environmental influences shape our health | Taking the long term view | Quality and safety**
**Transparency and accountability | Public voice and community engagement | A respectful, ethical system | Responsible spending**
**A culture of reflective improvement and innovation**
Communications between care centres within the Hospital or Community sector and the GP or other Primary Carer
MODERNISING MEDICARE BY PROVIDING REBATES FOR ONLINE CONSULTATIONS

Medicare rebates for online consultations across a range of specialties

Save time and expense of travelling distances to see medical specialists, sooner.

Labor’s **$392.3 million** investment will provide:

1. **$250.5 million** to make Medicare rebates available for online consultations across a range of specialties
   495,000 services over four years
   Rural, remote and outer metropolitan areas.

2. **$56.8 million** to provide GPs and specialists with financial incentives to participate in delivering online services.

3. **$50 million**: expand GP after hours helpline. Provide online & advice via VC.

4. A **$35 million** fund for training and supervision for health professionals using online technologies.
Modernising Medicare by providing rebates for online consultations
• From 1 July 2011, $250.5 million in Medicare rebates for online consultations.
  beyond psychiatry and radiology
• Medicare rebate: GP or practice nurse to host a specialist tele-health consultation
• Rebate set in consultation with the medical profession;
  provided for each consultation, both for the GP / practice nurse and specialist.
• $56.8 million: financial incentives to providers to participate in online services
• Support the purchase of infrastructure: hardware / software / support, to enable tele-health consultations.

Utilisation of tele-health outside of hospitals has been held back by lack of infrastructure, poor bandwidth and lack of Medicare rebates for online consultations delivered.
MODERNISING MEDICARE BY PROVIDING REBATES FOR ONLINE CONSULTATIONS

**Building on our investments in improving access to after hours services**
- From 1 July 2012, GP after hours helpline will be equipped for VC
- Access to nurse triage and basic medical advice from a GP
- From 1 July 2011 $50 million to ‘add on’ this service to the GP after hours

**Harnessing technology to support high quality training for health professionals**
- January 2011 : $35 million - support innovative clinical teaching and training
- Use of new technologies in training the health professionals of the future
- Health professionals having experience in providing services using new technologies.
- Peak organisations and consumer organisations to assist in the coordination and rollout of these services across rural and regional Australia.

**Consult closely with** the medical profession and other stakeholders on the detailed design.
Connecting health services with the future

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What is E-Health?

E-Health is the use, in the health sector, of digital data - transmitted, stored and retrieved electronically - in support of health care, both at the local site and at a distance.

World Health Organisation’s definition of E-Health: [www.who.int](http://www.who.int)
To secure, searchable robust IT stacks....!

From Stacks of paper.....
Danish Situation in 1992

Each GP needed hundreds of different paper based forms
### National Health and Hospitals Network - eHealth - personally controlled electronic health records

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<th>Departmental expenses</th>
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Total Budget Table 2010

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National E-Health Transition Authority
www.nehta.gov.au
NHHRC Recommendations:

13. To support people’s decision making and management of their own health we recommend that, by 2012, every Australian should be able to have a personal electronic health record that will at all times be owned and controlled by that person.
For best health care and outcomes available records on PEHR, should be:

- Comprehensive
- accurate and the concept of accurately recording
- up to date (requires data cleaning)
- **PROVENANCE** of entries is crucial
The **veracity** of the record as a **trusted source** must be assured to allow it to be a source of data when making clinical decisions.

The **patient area** for documentation by the individual, their carer or other authorised representative / advocate is a **respected source** and clearly annotated as such. It is a vital part of the record providing information to guide care.
Individual Electronic Health Record

- Entire health profile in one view
- Supports self-managed and preventative health
- Shared access for (authorised) providers
- Clinical and workflow benefits
- Information source (de-identified) for national health analysis and evaluation
What E-Health Can Deliver (1)

Improved management of healthcare information through e-health offers significant safety and quality benefits for all Australians.

SAFER HEALTHCARE

- Improving direct patient care as a consequence of timely access to the transfer of better and more accurate clinical information
- Improvements to safety & quality from the capacity to share clinical information and use of clinical decision support systems
- Continuity of Care

ACCESSIBLE HEALTHCARE

- Continuing to support choice in our health system
- Improving responsiveness in our health system to local needs and demands
EFFICIENT AND SUSTAINABLE HEALTHCARE

- Improved effectiveness in allocating health resources
- Improve management/planning of services (accurate/timely info)
- Contributing to increased accountability
- Monitoring health reform and performance of the health sector
- Cost savings: reduce duplication of treatment, tests and admissions
- Capacity for disease surveillance and disease management especially with emerging diseases (HIV, Swine ‘flu’, Bird 'flu’, SARS)
- Improved outcomes in public health as more accurate health data
- Improving health research: access accurate and timely data
What E-Health Can Deliver (3)

HIGHER QUALITY HEALTHCARE

- Supporting team-based care: capacity to engage all health professionals in an individual’s healthcare delivery through improved access to shared clinical information
- Supporting improvements in chronic disease management
- Increasing the capacity for knowledge sharing nationally and internationally

EQUITABLE HEALTHCARE

- Promoting innovation and responsiveness to local needs and demands arising from improved population health data, health monitoring and surveillance
- Consumer empowerment by increasing consumer access to tools that support self health caring/health management, health awareness and literacy
- Ensuring transparency
Key Requirements

The Absolute must haves….aka show stoppers..

1. A robust Privacy regime with powers and infrastructure to police and prosecute breaches.
2. Secure and inter-operable systems
3. Nationally consistent standards
4. Compliance with Standards
5. Medico-legal requirements in-built from the ground up
6. A clinical safety and quality framework
7. On-going evaluation and constant review of systems
Soothe the anxieties...(1)

Increasing connections & comfort

- Power cuts
- The blue screen of death
- Costs
- Security of data
- Blame game!
- Swimming alone: provide the life guard
- Provide robust /practical defensible Standards
- Use the good offices which are respected to increase confidence; by addressing their concerns
Soothe the anxieties...(2)

Reality check

- Hole in the wall
- E-mail / Internet information
- E-Commerce
- E-Banking

Losing the baggage

- Legacy of Windows
- Upgrading and heartburn
- Information loss
- Data conversion
Building blocks to e-health

<table>
<thead>
<tr>
<th>Individual Electronic Health Record</th>
<th>Clinical Information</th>
<th>Individual Information</th>
<th>Shared Information</th>
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<tr>
<td>E-Health Services</td>
<td>Shared Health Profile</td>
<td>Event Summaries</td>
<td>Self Managed Care</td>
<td>Complex Care Management</td>
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<td>ePathology</td>
<td>eDischarge</td>
<td>eReferral</td>
<td>eMedications</td>
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<tr>
<td>National Infrastructure Components</td>
<td>Terminology</td>
<td>Secure Messaging</td>
<td>Identifiers</td>
<td>Authentication</td>
</tr>
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</table>
The Foundations: Health Identifiers

- Ensures that the right information is associated with the right person
- Operational July 2010
- Leverages Medicare
- The Healthcare Identifiers (HI) Service has three primary core service components:

1. IHI : Individual Healthcare Identifier
2. HPI-I: Healthcare Provider Identifier - Individual
3. HPI-O: Healthcare Provider Identifier – Organisation

National Registration: 10 Professions from 1/7/2010

- Chiropractors
- Dental care practitioners
- Medical practitioners
- Nurses and midwives
- Optometrists
- Osteopaths
- Pharmacists
- Physiotherapists
- Podiatrists
- Psychologists
NHHRC Recommendations: (1)

111. The Australian Commission for Safety and Quality in Health Care should be established as a permanent, independent national body.

With a mission to measurably improve the safety and quality of health care the ACS&QHC would be an authoritative knowledge-based organisation responsible for:

**Promoting a culture of safety and quality:**
- disseminating and promoting innovation, evidence and quality improvement tools;
- recommending national data sets with a focus on the measurement of safety and quality;
NHHRC Recommendations: (2)

111. **Promoting a culture of safety and quality**
- identifying and recommending priorities for research and action;
- advocating for safety and quality
- providing advice to governments, bodies (e.g. NHMRC, TGA), clinicians managers on ‘best practice ’

....... to drive quality improvement.

**Analyse and report on safety and quality:**
- reporting and public commentary on policies, progress and trends in relation safety and quality;
- developing and conducting national patient experience surveys
- reporting on patient reported outcome measures
NHHRC Recommendations: (3)

111. **Monitor and assist in regulation for safety and quality:**

- recommending nationally agreed standards for safety and quality, including collection and analysis of data on compliance against these standards. The extent of such regulatory responsibilities requires further consideration of other compliance activities such as accreditation and registration processes.
HI Service data quality challenges

1. Existing Mental Models on Data Quality
2. Interoperability within Federated Community
3. Quantification and DQ Measurement
4. Leveraged Solution-Legacy data and systems
5. Privacy/Legal
1. Data quality means clinical safety in healthcare systems.
2. Write clear and detailed DQ requirements, measurements and KPIs.
3. Make sure they are included in the design and operational contract.
4. Define a clear DQ Strategy and Blueprint.
5. Focus on the quality of attributes, which are strategic for your business.
6. Define a capability maturity model and a roadmap on how to achieve maturity.
7. Participate in all specification reviews to ensure that strategic quality components, e.g. information validation, are addressed in design and operational policies.
8. Know the systems design well. Precise knowledge will help you to develop DQ architecture.
9. Do not compromise on data standards – it will save you money on the system integration.
10. Be brave and persistent.
What is the Role of Clinical Safety Management in eHealth?

- Patient Safety and clinical risks are becoming better understood in healthcare
- Technology is perceived to be a solution in reducing incidents and mitigating clinical risks
- However it has also been found that technology introduces new risks
- Risks in health IT can be proactively identified and controls put in place to prevent or manage them before they lead to potential incidents
237 reports of "adverse events" associated with health IT reported to the FDA over two years.

Most involved:
- computerized medical ordering software
- systems that supply the software with vital information (e.g. recommended doses of medicine or test results.

Most were blamed on:
- software malfunctions
- user error
- system's lack of user friendliness
Examples

#1: Doctor operated on the **wrong side** of a patient
   * images sent from one electronic system to another
   * reversed in transit

#2: Man in an emergency room with an **open head** injury
   ‡40-minute delay in
   ‡ doctors were unable to read the results of a medical exam through the computer’s viewing system.
Whole system approach and reliable repeatable processes

Clinical Safety Management System improves the safety and quality of healthcare delivery by:

- Special emphasis identifying circumstances that put patients at risk of harm
- Acting to prevent /control those risks to As Low As Reasonably Practicable
- Presenting evidence to the customer that those controls within the supplier’s boundary have been managed
- Communicating additional controls that need to be implemented by the customer

Based on principles in other mature industries in which managing risk is very important, for example, aviation and engineering
NeHTA’s role

NeHTA producing clinical safety assessments of products

Products will be used in healthcare delivery organisations

Need to employ explicit clinical safety management approaches to:

• Health IT procurement
• Design
• Development
• implementation
Emphasis has move

From: Simple overlay of a risk management process on IT-network
TO: More complex *change-release management process* (includes *risk management as its core patient-safety mechanism*)

• Aligned with ISO 20000 – a standard for IT service management.

• NEHTA is actively involved in international standards development to support safer health IT use in healthcare delivery
Registered consumers – it means important health information needed for care follows patients as they move between different healthcare providers and is available 24/7 at any participating clinic, GP or public hospital.

Providers – it means a trusted source of information, improved quality of care in emergency presentations for the chronically ill and children, reduced duplication of diagnostic tests and improved medication management.
SEHR Service Coverage

37,000 Indigenous Consumers Registered
Or
67% of Indigenous Territorians living in rural and remote communities
The messaging process will be carried out automatically by the computer systems used by each party. From the viewpoint of clinical users of these systems, the messaging process will be:

- Secure.
- Reliable.
- Invisible.
Secure Messaging is easy and quick!

Problem:

- Patient attends
- Doctor assesses patient
- Doctor refers to consultant

Consultant:

- Consultant recommends surgery & refers patient to hospital
- Doctor assesses patient
- Patient attends

Hospital:

- Transaction received at hospital
- Referral assessed and passed to appropriate departmental system

Departmental System: e.g. ePAS, MasterCare EMR, iPM, Cerner

- Discharge summary is created and sent back to eRMS for routing, back to specialist and originating GP
- Patient admitted & has surgery

ReferralNet SMD Agent:

- Secure referral message including HL7 IHI number added to transaction
- Can be used by receiving PCS Software.

ReferralNet eRMS:

- Ack

Secure referral message including HL7 IHI number added to transaction Can be used by receiving ReferralNet eRMS Software.

ReferralNet eRMS:

- Ack

Secure referral message including HL7 IHI number added to transaction Can be used by receiving ReferralNet eRMS Software.
What is Secure Messaging?

Secure Messaging software: Referral-net
• Takes a document from a software package
• Scrambles and sends over the internet
• Receiver unscrambles and reads / files in the clinical record
• Can get PKI from MedicareAustralia Free! TODAY!!
Billions of Dollars are being invested worldwide - Examples

- Canada Health Infoway
  - AUS$ $11,7bn/10yrs
- Germany Gesundheitskarte
  - AUS$ 11,8bn/10yrs
- USA - Barack Obama Plan
  - AUS$ 28bn/5 yrs
- UK Connecting for Health
  - AUS$ 26bn/10yrs
- Hong Kong
  - AUS$ 220M/10yrs
- Lombardy
  - AUS$ 2bn/10yrs
- Singapore
  - AUS$ 190M/2yrs
- May 2010:
  - $466.7M / 2 years

Source: Various publicly available sources available on the Internet
Pharmacy: Hong Kong Hospital Authority

Hong Kong Hospital Authority
Prince of Wales Hospital: Pharmacy

Large numbers through….

Changed work processes…
Pharmacy: Hong Kong Hospital Authority

Innovation, technology, mechanisation…
Product ID at point of dispensing…Check and check again.
Double tagging....
confirm
Patient ID
matches
that on
Med order
or
pathology request...
Double tagging... confirm Patient ID matches that on Med order or pathology request... THEN SCAN!!
Once IDs match, label prints out to place onto specimen jar…
Thank You

Questions
Lombardy Region

- Is one of the twenty Italian Regions
- About 16% of Italy’s citizens
- Is one of the most populated Regions of Europe (more populated than 14 EU member States)
- The number of inhabitants per Km² is 6 times Bulgaria’s
- Its GNP is about 20% of Italy’s GNP
Lombardy, like every Italian Region, is directly responsible for HC service provision.

- 9,500,000 Citizens
- 150,000 Health & Social Care Operators
- 7,700 General Practitioners and Pediatricians
- 2,500 Pharmacies
- 15 Healthcare Local Units
- 34 Public Healthcare Services Suppliers (29 Public Hospital and 5 Public Medical Research Institutes)
- Over 2,500 Private Healthcare Services Suppliers
CRS-SISS - Project principles

- Web technologies
- **Evolution** and **integration**, not replacement, of existing applications
- Strict enforcement of personal data protection (**privacy**): **high security technologies**
- **Process reengineering** to improve efficiency
- Extensive deployment of digital signature and electronic documents (**dematerialization**)
- **Smart cards**
- Make available to existing applications a **common infrastructure for integration**
- **Integrate, not substitute**, existing functionalities
- Leave the current **user interface** as is
- Hide from the operator the **project complexity**
- **Minimize changes** to operator’s behaviour
CRS-SISS - Main Results

About 9,5 millions CRS delivered

About 96.5% General Practitioners and Pediatricians in the Network.

100% Pharmacies in the Network

All Healthcare Local Units and Public Hospitals of the Region have been integrated

Public Hospitals are generating events, reports and clinical documents, digitally signed, into EHR to share data with other operators

Oncology Lombardia Network and Rare Diseases Networks available

Choice and revocation of GP and pediatricians available on line
65.500.000 prescriptions

Over 137.000.000 operations on the network

7.000.000 examination reports

8.500.000 bookings
One transaction may be made of more operations (e.g., one signature transaction may sign up to 100 documents (100 operations).
A benefit analysis has been performed by independent subjects from University

The analysis areas were:

- Direct Cash and Monetizable Benefits
- Non-monetizable Benefits
- Benefits identified but not quantified

For a total saving in excess of 1,5 Billion €
Phase 2: the second step of the project was to extend in the whole Region – 9 mln people

N. of Cards Distributed at the End of the Year

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<tr>
<td>2009</td>
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Secure Massaging in a nutshell

- **Connectivity:**
  - secure, reliable end-to-end communication between identified parties of a specified message (e.g., a pathology report)

- It entails all the processes required to ensure that communication between healthcare organisations is:
  - **Identified** – the sender and receiver are known
  - **Authenticated** – their identities are confirmed
  - **Authorised** – the communication is from a permitted party
  - **Secured** – it is encrypted & signed to prevent unauthorised reading/tampering
  - **Located** – it is directed to the address of the intended recipient’s service
  - **Specific** – the payload type and the action required is known
  - **Reliable** – the delivery is reliable, confirmed and unique
PEHR Explanation: 1

Smart use of data is at the core of a self-improving system

Key: nationally consistent standards

Data:
- Should drive Clinical decision-making
- Measure and improve health outcomes
- Measure and improve performance
- Transparent reporting
- Inform Planning
PEHR Explanation: 2

- All ‘users’ - consumers, health professionals, managers, funders and governments have a part and will benefit
- **Access** record: generate an audit trail to inform us when and by who record viewed
- Patient does not hold the infra-structure
- They will not be using a USB key
- They do control the access to the data
- This does not change GP/local/hospital records, use or ownership
E-Health: Shaping the future of healthcare

PEHR Explanation: 3

CORE COMPONENT: HEALTH SUMMARY RECORD: like RACGP’s

Maintained at the Patient’s choice of ‘Health Care Home’: Generally by the GP in the Practice setting (or other authorised source).

All Providers are part of the System which will provide data that is:
- Technologically current
- secure
- standards driven
- quality assured

**Being able to link data:**
Consistently
Confidence of users (Providers & Consumers)
Consent and Confidentiality

www.nehta.gov.au
PEHR Explanation:4

System FOR the patient / citizen at the centre of the information tree

The PEHR is a driver of the change: bold and clear expectations
(from the health eco-system)

Our PEHR: We citizens drive:

What is on it

Who we permit to access it and write to it.

Control access to our own health information
(what information shared and with whom including which health practitioners – trusted source);
(add information: self carer alternative self-management (e.g. monitoring BP DM) (respected source)

Where and how health record stored, backed-up retrieved

Integrity of the data and provenance (who wrote the entry) is core

Can base decisions on this with PROVENANCE.

An entry can be added to or removed “in toto” from share not altered
PEHR Explanation:5

Understand and inform that our care is better co-ordinated
• within practices
• between providers

Outcomes and satisfaction enhanced if information about care:
• available at the point of care
• up to date historical information
• timely new interaction information
• accurate

Enabled greater e-Health environment:
added functionality
indexed
allowing exchange of information from various data repositories.
Patients controlling access to their own health information may be confronting: can be liberating!

Patients chose to access different practitioners at points in their life may choose not to reveal all the details of their health and health care.

This is regrettable and hampers their care and hinders the efforts of those treating them.
PEHR Explanation:7

A person-controlled electronic health record part of the broader e-health environment

Health performance metrics measurement and data enhance:

Health research and planning
Recognise, plan for and combat disease

Need ongoing development of e-Health records by health services

Must join up and integrate information across the care continuum.

General Practice consults: encounter remains on the practice/primary care organisation’s system.
PEHR Explanation:8

Add to the PEHR summary record (from the GPs, hospitals or other trusted sources) at the push of a button (with patient request)

**Patient requests** information to be stored on their PEHR

Copy resides on PEHR and in the Practice.

**Accessed with** patient **permission** by authenticated users

Enhance care co-ordination which is more complex
PEHR Explanation:9

PEHR full and comprehensive summary of patient history e.g.
✓ Medications
✓ Allergies
✓ encounters with medical and other specialists
✓ pathology and radiology results and
✓ possible access to images can be through it being used as a portal

but it may not be complete if patients so desire.

Health professionals are aware that even today all records may not be complete.
PEHR Explanation: 10

For best health care and outcomes available records on PEHR, should be:

✓ Comprehensive
✓ accurate and the concept of accurately recording
✓ up to date (requires data cleaning)
✓ PROVENANCE of entries is crucial

The veracity of the record as a trusted source must be assured to allow it to be a source of data when making clinical decisions.

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