3rd Annual NHMRC Symposium on Research Translation: Plenary 1
12 November 2014

The promise of technology…

Paddy A. Phillips
Chief Medical Officer
SA Health
Everyday technology…

- Mobile phones/PDAs
- Electronic banking
- Internet, VOIP and Skype
- Email
- Business and social networks
- Wearable monitoring
Some facts…

> 89% of Australians are on-line
> 65% of Australians use a smart phone
> Average of 27 apps per smartphone
> Australia is 6th in the world for smart phone use
> 49% of households have a tablet
> More than 50% of Australians shop online
> Australian online shoppers are spending more on average per order than anyone else in the world
> 51% of Australians have a Facebook account
How about health care?
Elsewhere…

> U.S. “Health Information Technology for Economic and Clinical Health (HITECH) Act” - meaningful use of EHR – 2009

> Financial incentives to use EHRs

> “Modernization of US health care”
Stage Two of the Meaningful Use program consists of 22 core and menu objectives. A subset of hospitals will be eligible to begin attesting to these Stage 2 objectives in 2014. In 2013, adoption rates for 20 of these objectives were over 60 percent.

<table>
<thead>
<tr>
<th>Objective</th>
<th>2012 Core Adoption</th>
<th>2013 Core Increase</th>
<th>2012 Menu Adoption</th>
<th>2013 Menu Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Record Vital Signs</td>
<td>92%</td>
<td>97%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Record Smoking Status</td>
<td>92%</td>
<td>97%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Imaging Results</td>
<td></td>
<td></td>
<td>94%</td>
<td>95%</td>
</tr>
<tr>
<td>Record Electronic Notes</td>
<td>88%</td>
<td>95%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Track Medications</td>
<td>85%</td>
<td>93%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical Lab Test Results</td>
<td>89%</td>
<td>93%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient Lists</td>
<td>89%</td>
<td>91%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Record Demographics</td>
<td>84%</td>
<td>90%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient Specific Education</td>
<td>83%</td>
<td>90%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protect Electronic Health Info</td>
<td>82%</td>
<td>90%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advanced Directives</td>
<td>80%</td>
<td>87%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Record Family Health History</td>
<td>76%</td>
<td>87%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medication Reconciliation</td>
<td>76%</td>
<td>85%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPOE</td>
<td>70%</td>
<td>84%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electronic Lab Results to Amb Providers</td>
<td></td>
<td></td>
<td>73%</td>
<td>77%</td>
</tr>
<tr>
<td>Immunization Registries</td>
<td></td>
<td></td>
<td>63%</td>
<td>77%</td>
</tr>
<tr>
<td>CDS</td>
<td></td>
<td></td>
<td>63%</td>
<td>74%</td>
</tr>
<tr>
<td>Lab Results to Public Health Agencies</td>
<td></td>
<td></td>
<td>57%</td>
<td>64%</td>
</tr>
<tr>
<td>Syndromic Surveillance</td>
<td></td>
<td></td>
<td>55%</td>
<td>64%</td>
</tr>
<tr>
<td>eRx Discharge Medication Orders</td>
<td></td>
<td></td>
<td>51%</td>
<td>64%</td>
</tr>
<tr>
<td>Summary of Care</td>
<td></td>
<td></td>
<td>44%</td>
<td>63%</td>
</tr>
<tr>
<td>View, Download, and Transmit</td>
<td>10%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In 2013, adoption rates for 20 of these objectives were over 60 percent.
So why use information technology in health care?
Why use technology in health?

Direct benefits from digitizing the healthcare sector can be measured – the challenge is realization.

**Australian Steady-State Annual Benefits by eHealth Application**

(AU$ M, Year 2020, assumes full eHealth scope and international benchmark adoption rates)

- **Summary Care Record**: AU$ 0.4
- **Decision Support**: AU$ 0.5
- **Patient Self-Management**: AU$ 0.9
- **EMR**: AU$ 1.5
- **Quality and Performance Mgmt**: AU$ 1.6
- **Medication Management**: AU$ 2.7

**Total**: AU$ 7.6 billion

Source: Booz & Company National eHealth Benefits Model.
Why use technology in health?

Health technology also contributes to significantly to a better customer experience

Source: Booz & Company National eHealth Benefits Model.

© Healthcare Information and Management Systems Society
The past...
More recent

> 1998 - PIP incentives for GP computerisation

> By 2006, ~90% of GPs used a computer

> NEHTA founded 2005

> PCEHR – 1.2M enrolled by Dec 2013
The present...

Patchy use of:

- Telehealth e.g.
  - Tele-mental health growing (MBS) e.g. New England, SA
  - Tele-exercise testing – rural, SA
  - Tele-rehab – rural hospital & in the home, SA
  - Tele-oncology – rural, Qld

- Health apps – limited
- Remote monitoring – limited
- Email consultations - negligible
- Electronic Medical Records – variable investment and not linked
Some successes…

Research

Occupational impact of internet-delivered cognitive behaviour therapy for depression and anxiety: reanalysis of data from five Australian randomised controlled trials

Anna Mackenzie, Samuel Harvey, Louise Mewton and Gavin Andrews


> Reduced absenteeism
The future…

> Linked Electronic Medical Records
> Big data, real time information
> Learning Health Systems
Big data, real time information…

Retail big data offers a means to understand shoppers via myriad digital touch points – from their online purchases to their presence on social networks.

Macy’s CEO Terry Lundgren:
“Information is going to be our generation’s next natural resource like steam was to the 19th century… Mobile is everywhere – more people have a cell phone than running water and 25% of the world will be on a social network – that’s what created all of this big data: 2.5 billion gigabytes [of data] is created per day…”.

Example:
Shoppers … can opt in for offers via their smartphones. So if a shopper lingers in the shoe department, for example, they’ll receive a coupon [on their phone] based on “the shoes they looked at online but never bought…”.

Imagine the implications for health promotion and health care…
What is a learning health system?

- Linked datasets - coordinate clinical, patient-reported, administrative, financial, clinical research, and basic science information into a pooled resource.

- Iterative analyses and reinvestment of lessons learned defined by what clinicians, patients, and researchers define as important questions to answer and hypotheses to test.

- Tools needed by the frontline provider and patients:
  - linked data networks
  - clinical decision support
  - data capture solutions
  - data visualization
  - real-time analytics
  - streamlined care models
  - patient education
  - and improved communication.
ASCO Launches Formal Development of CancerLinQ™, a Learning Health System to Transform Cancer Care and Improve Outcomes for Patients (Nov 12, 2013)

Washington, D.C.

“ASCO’s prototype left no doubt that a learning health system in cancer care is possible,” said ASCO President, Clifford A. Hudis, MD, FACP. “...By the time CancerLinQ™ is complete, we expect it will revolutionize cancer care and serve as a model for other areas of medicine.”

The CancerLinQ™ prototype

> completed in just eight months
> included more than 170,000 de-identified medical records of breast cancer patients provided by oncology practices around the United States.
Why is it patchy?

Key issues in the implementation of Health Technology

- Lack of strategic direction and clear policies
  - Insufficient mandate, funding or ability to offer the required incentives
  - Lack of nationally coordinated E-Health strategic implementation plan

- Poor understanding of potential benefits from E-Health
  - Lack of confidence in the ability to safeguard patient data online
  - Lack of real financial incentives for providers and consumers to adopt
  - Benefits flow to payers of health services rather than technology users (negative incentive)

- Stakeholders not engaged and/or unwilling to change
  - Lack of a consistent vision of E-Health goals and how they should be implemented among stakeholders and jurisdictions
  - Choosing the right strategy to align with unique structures and funding flows of healthcare system

- Poor execution of E-Health initiatives
  - Insufficient or impractical national standards for E-Health systems
  - Overly complex, costly and possibly unsafe systems

Lack of a significant and appropriately funded E-Health R&D program

- Weak business cases prepared (if at all) for E-Health initiatives

Failure to consult adequately with software providers, clinical and end users

- The private sector is largely ignored by public sector technology / programs and funding

Discontinuity in pilots, programs and field test funding

- Jurisdiction activities not all aligned with National activities

Source: Booz and Company analysis
Government of South Australia

SA Health