Orchestrating a National e-health Movement – with a little help from our friends at HL7
Don Berwick on health IT as culture change

“It’s better for everyone when health care IT is used meaningfully. ... The question is, if it’s so good, why aren’t we there yet? For everybody? For all the patients, not just the lucky ones in modernized systems? ....”

“The reason is because it’s hard. Moving from paper legacy systems to modern IT is a big change. New hardware, new skills, new attitudes, new assumptions. It’s really a new culture and you don’t get there in one step.”

Source: Don Berwick speaking at meaningful use press conference, July 13, 2010
National e-health initiatives
All about managing change

1. Define the business problem
2. Establish a sense of urgency
3. Form a powerful guiding coalition
4. Create a vision and communicate it broadly
5. Empower others to act on the vision
6. Plan for and create short term wins
7. Reflecting on enablers
8. Dealing with challenges
Define the business problem

- Governance
- Health care in Canada
- Health care pressures
- Strengthening health care
Establish a sense of urgency
The benefits and value of electronic health information technologies

- Reduced wait-times for diagnostic imaging services
- Improved availability of community based health services
- Reduced patient travel time and cost to access services
- Increased patient participation in home care

- Improved interpretation of diagnostic and laboratory results
- Decreased adverse drug events
- Decreased prescription errors
- Increased speed and accuracy in detecting infectious disease outbreaks

- Increased access to integrated patient information
- Reduced duplicate tests and prescriptions
- Reduced physician prescription call-back
- Reduced patient and provider travel costs

Capital cost: $10 billion to $12 billion
Benefits: $6 billion to $7 billion annually
Form a powerful guiding coalition

- First Ministers
- Federal Health Minister
- Federal Finance Ministers
- Deputy Ministers of Health
- Independent Board of Directors
- Key stakeholders
- Enablers (HL7)
Create a vision and communicate it broadly

- Vision
- Goal
Infoway’s vision

A high quality, sustainable and effective Canadian health care system supported by an infostructure that provides residents of Canada and their health care providers timely, appropriate and secure access to the right information when and where they enter into the health care system. Respect for privacy is fundamental to this vision.
In 2004 we estimated Canada could have as many as 40,000 systems to integrate.
With the emergence of tele-home care and Apps on smart devices, the number of systems to integrate will be in the MILLIONS!
Common architecture

- Common business and technical architecture accepted by jurisdictions and vendors
- Links local clinical systems with jurisdiction and regional registries and repositories using a data sharing approach
- Most cost effective approach, limiting the number of integration points
- Extensible to support new functions, scalable
- Serves as a reference model for Infoway investments
- Available on the Infoway website
Empower others to act on the vision
Plan for and create short term wins
Program activity summary
(March 31, 2011)

315 active and completed projects with an estimated value of $2.006 billion as at March 31, 2011
Signposts of success: Examples of benefits seen in 2010

**Imaging:** Benefits > $600M, radiologist and technologist productivity ↑ by 25-30%

**Drug IS:** Benefits > $400M, Pharmacists report ↓ in potential drug-related problems (e.g. drug interactions)

**Telehealth:** Touches 1175 communities. 47M fewer km of travel for care.
Help from our friends at HL7
How did HL7 help us?

- Internationally recognized
  - Most of our vendors are multi-national
  - Vendors in Canada want to invest in enhancements that are based in international standards
  - Vendors want access to an international market for their products, including their interoperability capabilities
How did HL7 help us?

- Best fit for our business requirements and architecture
  - Greenfield environment
  - New functional requirements
  - Strong need for semantic interoperability given the domain repository model and extensive sharing of clinical data across the continuum of care
  - Large scale and loosely coupled systems interoperability
How did HL7 help us?

- **Adopt and Adapt**
  - HL7 had a very solid base of intellectual capital as a starting point
  - Standards that we could adopt or adapt to the Canadian healthcare IT requirements

- **HL7 v3 messages and V3 CDA, along with CMVs like SNOMED CT, were the best choices for us to achieve our objectives**
Interoperability standards

Portfolio of pan-Canadian standards which enable interoperability between point-of-service systems and EHR infrastructure

- Demographic Information
  - Client, Provider, Service Delivery Location
- Clinical Information
  - Drugs, Laboratory, Diagnostic Images and Reports, Encounters, Clinical Documents, Conditions, Immunizations
- Clinical Orders
  - Drugs, Laboratory
- Nomenclatures
  - LOINC, SNOMED CT, ICD-10
- Privacy and Confidentiality
  - Consent, Authentication, Authorization, Audit Log

New mandate will require adopting and adapting more standards, such as CDA, and broader use of some like SNOMED CT
8. Dealing with challenges

Interoperability challenge
The interoperability challenge
The interoperability challenge

Enabling interoperability means major change:

- Clinician requirements and workflow – much of which is new
- Standards that are truly standard
- Harmonized implementation guides across the country
- Costs
- Learning curve
- Standards that are used
- Implementation enablers

More focus by SDOs on Implementation
The *Infoway* process

<table>
<thead>
<tr>
<th>International Standards</th>
<th>• Developed by groups such as HL7, ISO, IHTSDO, etc.</th>
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<tbody>
<tr>
<td>Standards Collaborative</td>
<td>• The Standards Collaborative adapts the international standards for Canadian specific use</td>
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</table>
| Pan-Canadian Standards   | • Implementation Guidance  
|                         | • Messaging Standards  
|                         | • Terminology Standards  |
| Jurisdictional Standards | • Message Remixer is used to constrain the pan-Canadian Standards  
|                         | • Message Builder Generator is used to generate code  
|                         | • Apelon DTS is used to maintain jurisdictional terminologies  
|                         | • Apelon TermWorks is used to map jurisdictional terminologies  
|                         | • All artifacts are distributed through Wiki  |
| Implementations         | • Message Builder Runtime is embedded in systems to perform messaging transactions and terminology validations and lookups and transport messages |
The next frontier for SDOs
Our recommendations for continued value

- Provide more support for *Implementation*
  - This is where we are putting the majority of our efforts and investment
- Raise the game towards *enterprise interoperability*
- Strive towards international standards that *anticipate market* needs
- *Design for the interoperability explosion* – the millions of devices that will need to interoperate (smart phones, tablets, personal care devices)
Congratulations to HL7!!

We have turned HL7 standards into a success story in Canada for the pan-Canadian EHR

Our EHRs are platforms for innovation in health care
• Interoperability using international standards are key enablers and success factors
HL7 International Council

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Turkey
United Kingdom
United States
Uruguay
Thank you