Everyone Hates Interoperability - Let's Fix That

Introductions

Panel Member	Perspective
Attila Farkas, Director, Interoperability Solutions, Canada Health Infoway	Pan-Canadian Standards Management Organization
Bob Robke, Vice President, Cerner Network and Interoperability	International Clinical Information System Vendor
James Agnew, Lead Architect, Centre for Global eHealth Innovation (UHN)	Large Academic Hospital
Gavin Tong, Associate Managing Partner, Gevity	Interoperability Standards Consultancy

Objectives

- Present multiple perspectives on the interoperability challenges associated with large health information exchanges involving multiple domains of care, points of service, organizations and vendors.

- Share trends observed over the last decade in the Canadian and US markets.

- Discuss how the SMART on FHIR initiative has overcome technical interoperability barriers.

1. Technical Challenges with Interoperability

Observations From The US And Canadian Markets Over The Last Decade

US Interoperability Challenges

- Complex and unproven legacy interoperability standards
- Lack of national infrastructure supporting trusted exchange
- Patient identity issues coupled with growing consumer concerns
- Lack of standard technical models drives up cost
- Inability of vendors to innovate on user workflow and benefits

Canadian Interoperability Challenges

- Canadian EHR Blueprint based on the HL7 v3 Standard - new and upcoming offered a lot of promise, cost - lack of expertise within the community
- Low international adoption of v3 combined with the comparatively small Canadian market - vendors were not migrating or developing v3 based solutions
- Early adopters lacked integration tooling resulting - high implementation costs
- Regional and jurisdictional localizations - just enough variability to make national solution portability a custom exercise
- Limited early, coordinated, central information sharing - entry and participation in the space significantly difficult

Hospital Interoperability Challenges

- Canada was an early adopter of HL7v3
- We invested heavily and learned a lot about how (and how not) to move health data around
- At ConnectingGTA we avoided this by deciding to use HL7 v2.5 (released 2003)
- Current attitude towards standards seems to be apathy

Oh no, Beta…

It's Time To Move On

- **FHIR shows promise:** At UHN we are using FHIR as a common data exchange standard across multiple data sources, multiple development teams, and multiple in-house applications
- **This has been very successful:** We're now trying to figure out how to make much more of our data available via FHIR
- **FHIR solves a different problem:** We are not replacing ADT/ORU/etc with FHIR (yet)

2. Industry Convergence

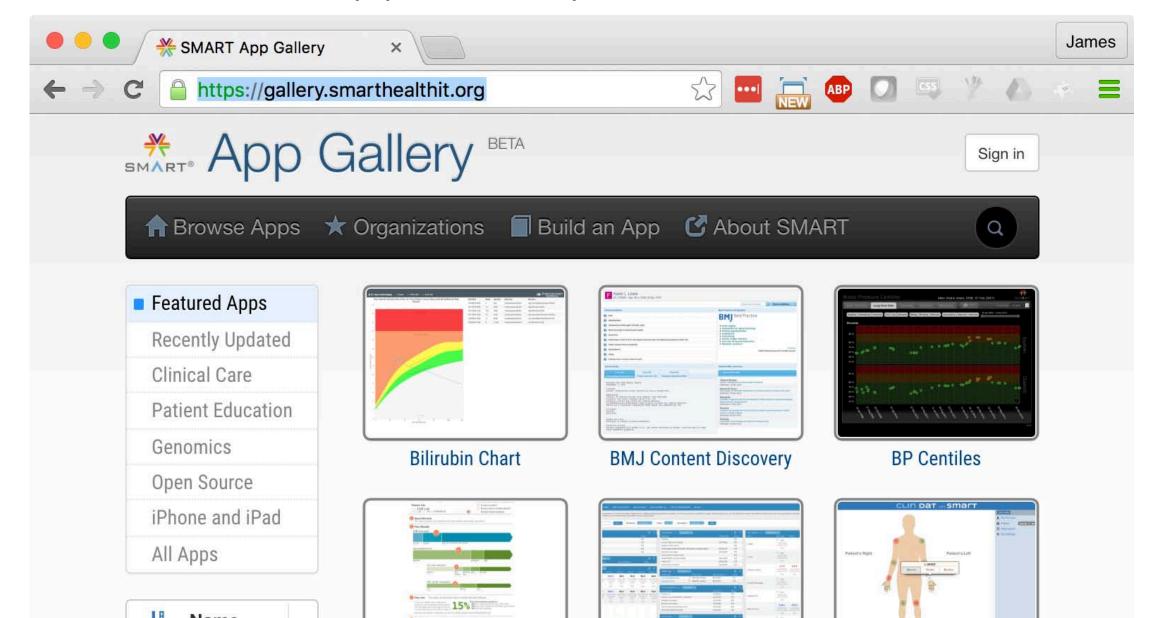Observations From The US And Canadian Markets Today

Industry Convergence

- FHIR is a new way of integrating things (think APIs, not messages)
- FHIR is primarily two things:
  - A developer-friendly data model
  - An API for exchanging this data
- FHIR is different:
  - Everything is free and open source (Creative Commons)
  - Focus is on implementers and developers

SMART on FHIR

- At UHN we have long recognized that our vendors can't solve every single problem – we need to fill in the gaps!
- We have had a dream for many years of creating an app ecosystem with our peer hospitals
- Building such an ecosystem takes two ingredients:
  - Data APIs (think FHIR)
  - Security APIs
- We rolled our own solution, but Boston Childrens Hospital used standards to develop SMART on FHIR

The SMART App Gallery

US Organizations Placing Large Bets on FHIR

CommonWell

Interoperability for the Common Good

72%+
of acute EHR

34%+
of ambulatory EHR

Market leaders in lab, long-term care, retail pharmacy and more

Founding
- Allscripts
- athenahealth
- Cerner
- Evident
- Greenway Health
- McKESSON
- sunquest

Contributor
- aprima EHR • PM • RCM
- brightree
- CareCloud
- CVS CAREMARK
- eClinicalWorks
- eso Healthcare Connected
- kareo Go Practice
- lifeIMAGE
- MacPractice
- MEDHOST
- MediPortal your gateway to better health BETA
- MEDITECH Medical Information Technology, Inc.
- MERGE An IBM Company
- MODERNIZING MEDICINE

General
- beyond lucid Technologies & Consulting
- caremerge
- eHealth TECHNOLOGIES
- HIMSS
- INFLUENCE HEALTH
- IMAGETREND
- MiHIN Shared Services
- mana HEALTH
- OBIX perinatal data system BY CLINICAL COMPUTER SYSTEMS INC.
- MYidealDOCTOR Your direct link to a physician 24/7
- PointClickCare
- OmniSYS
- SOCIAL SECURITY ADMINISTRATION USA
- SURGICAL INFORMATION SYSTEMS
- THSA Texas Health Services Authority
- THE T SYSTEM
- VARIAN medical systems
- wellcentive Population Health Management

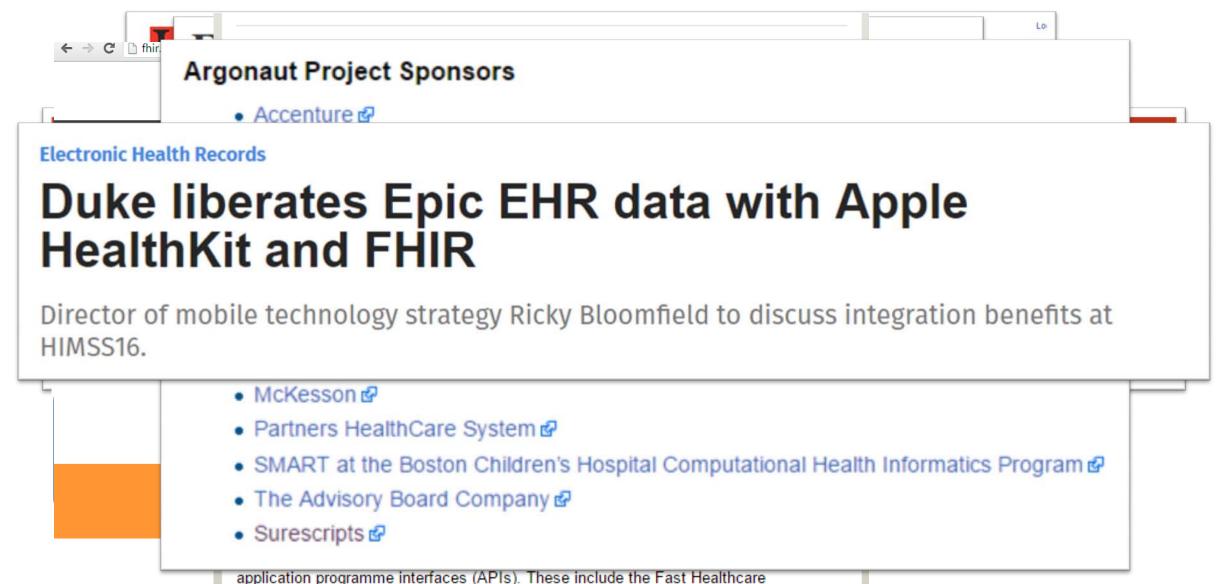Initial Service Provider

RelayHealth CONNECTED

Canadian Considerations

- Infoway is investigating the profiles listed as part of the SMART program. The platform is attractive, however, profiles are derived to support the US - Meaningful Use program. Canadian solutions will likely require support for profiles and extensions accepted in Canada.

- Integration with the now sizable EHR infrastructure already in place. There is a need and an opportunity to provide "mapping" functions that allow FHIR access to implemented v3 assets (e.g. Registries populated using HL7 v3 data models). Infoway can help with APIs that drive these EHR assets.

FHIR's Popularity

Argonaut Project Sponsors

- Accenture

Electronic Health Records

Duke liberates Epic EHR data with Apple HealthKit and FHIR

Director of mobile technology strategy Ricky Bloomfield to discuss integration benefits at HIMSS16.

- McKesson
- Partners HealthCare System
- SMART at the Boston Children's Hospital Computational Health Informatics Program
- The Advisory Board Company
- Surescripts

application programme interfaces (APIs). These include the Fast Healthcare

FHIR's Popularity

The Big Picture

- We are agressively promoting and moving toward HL7-FHIR with our Partners CHI, eHealth Ontario, cGTA, UHN, cSWO, HHSC, SunnyBrook, ImmunizeCA, BORN, HQIC, Wise Elephant….

- Common Message to Vendors – FHIR is Coming!
- Common Authentication Model

- Ontario Connected Backbone (HIAL) is adding FHIR

- Modern Technology, API Management

- FHIR 1.4

- **DHIR and DHDR Interfaces available for Developers to Explore (See the Team)**

- **Demonstrations available for PINC and M-IMMS (Curl for you developers)**

Canadian Initiatives

FHIR North

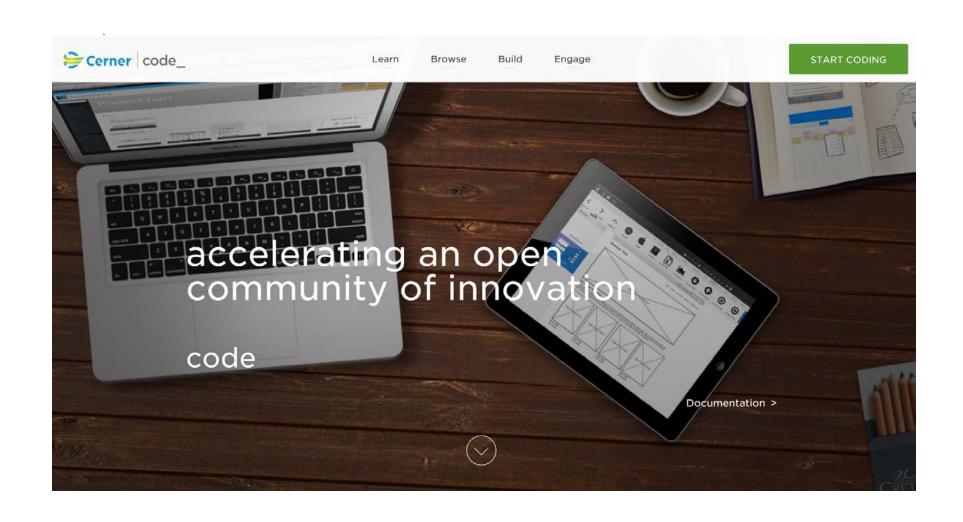- Education - Connectathon - Networking

3. Early Evidence of Success

University Health Network Experience

- FHIR has helped us get projects off the ground quickly
- App development now starts in parallel with one team working on the app (testing against public servers) and one team building the server
- The data model does not require any healthcare expertise to work with – Computer science grads with no health experience pick it up in no time!
- Even if working on an internal app, using FHIR leads to having a common understanding and terms.

What is Cerner Investing In?

4. SMART on FHIR – Problems Solved and New Challenges

Hospital Perspective

- SMART on FHIR has the potential to finally let us share innovations with others
- It leaves lots of problems unsolved though:
  - Workflow
  - Data sharing agreements
  - Authenticating users between systems
  - Authenticating patients and consumers

Canadian Perspective

Several avenues to facilitate adoption and integration of this new technology into existing structures and Infoway is offering support with:
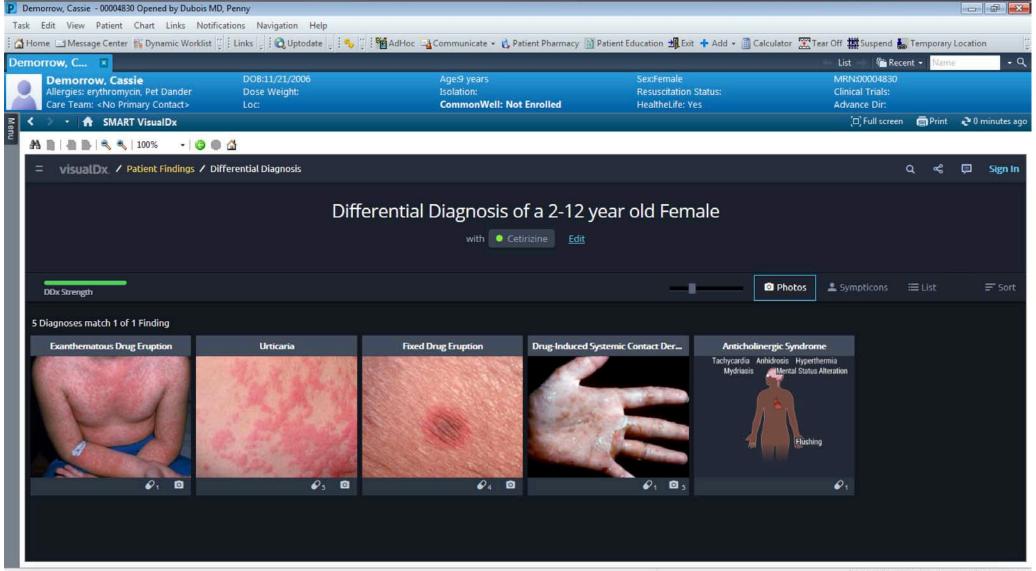
- National standards resources, including interoperability specifications, standards selection guides - InfoScribe

- Collaboration – modern platform where the HIT community can participate, develop and find answers to common problems - InfoCentral

- Standards Support - Definition and maintenance of data structures, vocabularies and translations that are required by EHR systems – Digital Heath Alliance

- Implementation Solutions with dedicated online tooling (APIs, Terminology Service, Registries, Publishing, etc.) - InfoCentral

- Dialog with the industry to spur innovation and involvement - Digital Health Alliance

Vendor Perspective

Observations of the Early FHIR Market

- FHIR is at the top of the Gartner Hype Cycle

- Standard is still very new and limited buildout of FHIR resources

- Developers need more write capabilities

- "In the EMR" largest benefit today

- Clinical Decision Support is were many companies are lining up

- Vendor Support and Risk

Visual DX "App" in Production

Discussion

Questions

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