Using HL7 FHIR to support interoperability: Lessons from a healthcare provider

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• Integrated Health Delivery Organization
  – HQ in Salt Lake City, UT
  – Spans all of Utah and Southern Idaho

• 22 Hospitals, 185+ clinics

• Strong Hx of Informatics Innovation (Homegrown solutions)
In the beginning (or about Nov. 2013)…
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- 5-year mission
- A Fistful of Dollars

- Create an open, standards-based API to iCentra
- Support standards efforts for interoperability
Coincidentally...

- DSTU 1 published by HL7 in Feb 2014
- Intermountain & Cerner agree on FHIR as API standard
- Intermountain & Cerner agree on SMART as app interop standard
- Joint support for SMART on FHIR
- Participation (w/ other vendors) at HIMSS 2014, demonstrating interoperable SMART on FHIR apps
Loosely Defined:
• Clinician, Patient, Researcher facing Apps
• Decision Support Logic
• Knowledge Assets
• Research Tools
• Dashboards
• Data extract services
• Etc.
FHIR

• Combine best features of HL7 V2, V3, CDA
• Leverage latest web standards (RESTful web services, XML, JSON)
• Focus tightly on implementation
• RESTful API provides consistent, granular data operations
  – Search, Read, Create, Update, & Delete at the data element (Resource) level
• Data Modeling
  – Data types, Resources, & Profiles for defining clinical and administrative data
Accomplishments

- FHIR DSTU 2 development & production server
- OAuth access support
- SMART app integration in iCentra
- Production release of 2 FHIR-based apps
- Use of FHIR resources for HIE support
- Implementation of Pub/Sub services*
Lessons Learned I

- EMR Vendor provides a fairly extensive set of FHIR resources...
- ...Vendors are cautious & conservative at this point
- ...Need support for additional use cases and Write capability
Lessons Learned II

- Still need some expertise on vendor data
- Data are not always where you think they are, and they don’t always come back as expected
Lessons Learned III

- Lack of specificity in FHIR Resources
  - *US Core FHIR Profiles not enough*
  - Need *true* semantic interoperability (FHIR Profiles)

- FHIR can support single patient/subject queries
  - Working on population-based queries and formats
  - Registries and Research-related efforts?
Lessons Learned IV

• Differences in Vendor implementations of FHIR
  – Data Models
  – Search parameters and approaches

• Differences in terminology support
  – Local term mapping probably needed
Lessons Learned V

- Interoperability of apps still in early stages
- Open source apps are NOT free
- Prioritization and Governance are key
A Couple of Final Knowledge Tidbits

• Clinical Information Interoperability Council (CIIC)
  https://healthservices.atlassian.net/wiki/spaces/CIIIC/overview
  – AAN, AAO, ACOG, ACS, ACC, ACP, APTA, ANA, FDA, CDC, NCI, AHRQ, NIAID, DoD, VA, PCPI, AMIA, SPM, HIMSS and many other organizations
  – Create ubiquitous sharing of standardized data across the breadth of medicine, anywhere we use health-related data and information
  – What data should be collected?
  – How do we model the data?
  – What is the meaning of the data?

• Health Services Platform Consortium (HSPC) https://www.hspconsortium.org/
  – Provider-led consortium
  – Mission: Improve health by creating a vibrant, open ecosystem of interoperable applications, knowledge, content, and services
  – FHIR & SMART development resources (https://www.developers.hspconsortium.org/)
Thank You!

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