How Does FHIR® fit in?
A Picture from the Pieces

AMIA Fall Symposium 2019
Washington DC

Laura Heermann, PhD, RN
Intermountain Healthcare
Why do we care about all of this?

To help people live the healthiest lives possible
More reason’s why!

• Improve the quality of care
• Decrease the cost of care
• Enable a Learning Health System
• Make patients happier
• Make providers happier and decrease their burden
• (there are more reasons, but this is all I have room for!)
Sir Cyril Chantler

*Medicine used to be simple, ineffective, and relatively safe*

*Now it is complex, effective, and potentially dangerous.*

Why does it matter?
Deaths during inpatient admissions: ~251,454

### Table

<table>
<thead>
<tr>
<th>Study</th>
<th>Dates covered</th>
<th>Source of information</th>
<th>Patient admissions</th>
<th>Adverse event rate (%)</th>
<th>Lethal adverse event rate (%)</th>
<th>% of events deemed preventable</th>
<th>No of deaths due to preventable adverse event</th>
<th>% of admissions with a preventable lethal adverse event</th>
<th>Extrapolation to 2013 US admissions†</th>
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<tbody>
<tr>
<td>Health Grades¹¹</td>
<td>2000-02</td>
<td>Medicare patients</td>
<td>37,000,000</td>
<td>3.1</td>
<td>0.7*</td>
<td>NR</td>
<td>389,576</td>
<td>0.71</td>
<td>251,454</td>
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<td>Office of Inspector General¹²</td>
<td>2008</td>
<td>Medicare patients</td>
<td>838</td>
<td>13.5</td>
<td>1.4</td>
<td>44</td>
<td>12</td>
<td>0.62</td>
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<tr>
<td>Classen et al¹³</td>
<td>2004</td>
<td>3 tertiary care hospitals</td>
<td>795</td>
<td>33.2</td>
<td>1.1</td>
<td>100</td>
<td>9</td>
<td>1.13</td>
<td>400,201</td>
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<tr>
<td>Landrigan et al¹⁴</td>
<td>2002-07</td>
<td>10 hospitals in North Carolina</td>
<td>2341</td>
<td>18.1</td>
<td>0.6</td>
<td>63</td>
<td>14</td>
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<td>Point estimate from all data</td>
<td>2000-08</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>0.71</td>
<td>251,454†</td>
</tr>
</tbody>
</table>
Homer Warner and HELP

Intermountain can only provide the highest quality, lowest cost health care with the use of advanced clinical decision support systems integrated into frontline clinical workflow.

Dr. Homer Warner circa 1960
Core Assumptions

‘The complexity of modern medicine exceeds the inherent limitations of the unaided human mind.’

~ David M. Eddy, MD, Ph.D.

‘... man is not perfectible. There are limits to man’s capabilities as an information processor that assure the occurrence of random errors in his activities.’

~ Clement J. McDonald, MD
Decision Support Modules

• Antibiotic Assistant
• Ventilator weaning
• ARDS protocols
• Nosocomial infection monitoring
• MRSA monitoring and control
• Prevention of Deep Venous Thrombosis
• Infectious disease reporting to public health
• Patient worksheets
• Diabetic care

• Pre-op antibiotics
• ICU glucose protocols
• Ventilator disconnect
• Infusion pump errors
• Lab alerts
• Blood ordering
• Order sets
• Post MI discharge meds
• Occult sepsis in the ED
We can’t keep up!

• At Intermountain
  • We have ~150 decision support rules or modules
  • We have picked the low hanging fruit
  • There is a need to have 5,000+ decision support rules or modules
  • There is no path from 150 to get to 5,000+

• We have to fundamentally change the ecosystem
• The Future:
Plug and Play Interoperability

This is today....

Point to point interface required

Seamlessly exchange knowledge and workflow without extra effort
Imagine....

Seamlessly Interoperable Healthcare focused Apps

Allscripts

Healthcare App Store

Cerner

Epic

Your Personal Health Record
What needs to happen to achieve regional seamless interoperability?

Syntactic interoperability = Same Language
- Data elements consistently defined
- Standardized data exchange

Semantic interoperability = Same Meaning
- Standardized knowledge representation, (content) exchange and workflow

Clinician engagement and commitment is essential
What needs to happen to achieve national seamless interoperability?

• Data elements consistently defined
  – CIMI

• Standardized data exchange
  - Logica SOA Platform, FHIR, SMART on FHIR

• Standardized knowledge representation and (content) exchange
  - BPMN, etc.
Acronym Soup

**HL7**

HL7 = And International Standards development organization providing comprehensive framework and related standards for the exchange, integration, sharing and retrieval of electronic health information.

**FHIR**

FHIR is an interoperability standard created by HL7 to facilitate the exchange of healthcare information. There are 2 parts, the resources (content model) and the specification on how to exchange these resources.

**CIMI**

CIMI is an initiative at HL7 creating detailed clinical information models based on a common set of base data types and with formal bindings of the models to standard coded terminologies.

**SMART Health IT**

SMART Health IT is an open, standards based technology platform enabling the creation of apps that seamlessly and securely run across the healthcare system. It creates, maintains and supports a set of open source libraries that simplify and streamline the use of standards for app development.
SNOMED International is a non-profit organization that owns and maintains SNOMED CT. SNOMED CT is a common global language for health terms.

LOINC is the international standard for identifying health measurements, observations, and documents.
Healthcare Services Platform Consortium (soon to be known as Logica) is a non-profit organization working towards plug-and-play interoperability of applications with true semantic interoperability.

The Object Management Group develops enterprise integration standards for a wide range of technologies and even wider range of industries, one of which is healthcare.

Created and sponsored by OMG, BPMN (Business Process Modeling Notation) is a standard used by BPM+ Health, a community of practice within OMG to develop and promote best practices around modeling and sharing clinical pathways, clinical guidelines and other healthcare knowledge.
What needs to happen to achieve regional seamless interoperability?

- Data elements consistently defined
  - CIMI

- Standardized data exchange
  - Logica SOA Platform, FHIR, SMART on FHIR

- Standardized knowledge representation and (content) exchange
  - BPMN (Business Process Modeling Notation), BPM+ Health (launch meetings in September)
• Data elements consistently defined
  – CIMI
Data Comes in Different Shapes and Colors

- Finding – Suspected Lung Cancer
- Finding – Suspected Cancer
  Location – Lung
- Finding – Cancer
  Location – Lung
  Certainty – Suspected

*(Let’s say this is the preferred color and shape)*
IsoSemantic Models – Example of Problem

*(based on example from Dr. Linda Bird)*

e.g. “Suspected Lung Cancer”
Interoperability Today

Legend:
shape = structure
color = terminology
Interoperability in the Future

Real World

Digital World

Data Sharing and Re-use (no translation, just use it!)

Legend:
shape = structure
color = terminology
Data Standardized in the Service

Application

Application and User

Data in preferred shape and color

Shape and color translation

Shape and color of data in the local database
Partial Interoperability

Application

Standard Terms (Non-standard Structure)

Term Translators

Local databases, CDA, HL7 V.2, etc.
Preferred Strategy – Full Interoperability

**Application and User**

Standard Structure
**AND** Standard Terms
(As defined by CIMI Models)

Term and Structure Translators

Local databases, CDA, HL7 V.2, etc.
• Standardized data exchange
  - Logica SOA Platform, FHIR, SMART on FHIR
What does it mean to be SMART on FHIR

• Open, standards based platform

• Defines a some initial profiles of FHIR resources and other web technologies

• Specifically (well adopted in healthcare in the US. Recommended to implement FHIR - )
  • Open ID connect
  • OAuth2

• Manages identity concerns, security, authentication concerns – consistently.

• SMART apps can be launched from the EHR they are not all mobile apps

• SMART is just an entry point – it is what is available today
Progress

• FHIR is (relatively) easy to implement
• FHIR has unprecedented support from EHR vendors
• SMART on FHIR enables quick development
The Danger

- No true interoperability because
  - Vendors use different models/profiles
  - Government agencies use different models/profiles
  - Provider organizations use different models/profiles
  - Professional organizations use different models/profiles
Development Strategy

Rather than have FHIR implementers start with a base FHIR resource and “fill in the blanks”, have them select a FHIR profile from a library of approved profiles
MISSION

*Improve health by creating a vibrant, open ecosystem of interoperable applications, content, and services*

VISION

*We can share executable clinical knowledge as interoperable decision support applications*
MISSION

Improve health by creating a vibrant, open ecosystem of *semantically* interoperable applications...

- **Consistent** implementation and libraries for:
  - Terminology and Modeling
  - SMART on FHIR Profiling
  - SOA Platform Services
  - Knowledge Representation and Content Sharing

Provider Led Non-Profit Organization
How we’re doing this:

• **PHASE 1:**
  - Pilots with select societies & systems

• **PHASE 2:**
  - Pilots with more societies, systems & apps

• **PHASE 3:**
  - Pilots with major federal agency & foundations
The Compliance Pyramid

- **HL7 Version 2 Compliance**
  - Structure, No terminology Constraints

- **HL7 FHIR Compliance**
  - Structure(s), Generic LOINC
    - Common resources, extensions and some specific LOINC and SNOMED

- **Argonaut Compliance**
  - Structure(s), Generic LOINC
    - Preferred structure, standard extensions, explicit LOINC and SNOMED, units, magnitude, ...

- **Logica Compliance**
  - Preferred structure, standard extensions, explicit LOINC and SNOMED, units, magnitude, ...
Today

Specialists across the country
Diabetes Care App
Patient Fitness Data
Hospital
My Doctors office
My personal health record

Point to point interface required

The Future

My Specialist
My Care App
My Data
Any Hospital
Any doctors office
Anywhere

Seamlessly exchange knowledge and workflow without extra effort
Data is shared through standard services rather than through messages and data duplication.
Interoperability: What it will take

1. CLINICAL ENGAGEMENT AND OWNERSHIP
   • Expert clinicians must guide the content
   • Governance and agreement on the consistent clinical models, profiles and services

2. TECHNICAL ADVANCES
   • Data – common structure and language
   • Services – SOA, FHIR, behavior/functionality
   • Knowledge representation (Workflow, Decision support logic)
   • API adoption
   • Implementation

3. POLICY & LEGAL FRAMEWORK TO ENABLE INFORMATION AND KNOWLEDGE SHARING
   • TEFCA

4. FINANCIAL INCENTIVES ALIGNMENT
   • Value based payments, bundled payments, etc.
   • Implementation of the agreed upon truly semantically interoperable data models, profiles, and services.
Examples of SMART on FHIR Apps.

• Bilirubin chart

• Growth Chart
https://apps.smarthealthit.org/apps/

Skip the screen prints...
Bilirubin Management

• Created at Intermountain Healthcare on legacy HELP2 enterprise system
• Monitors bilirubin [Mass/volume] results over a time-based risk chart
• Clinicians are presented with a visual representation of the results and associated criticality zones.
• Suggests recommended intervention for the criticality of the result.
• Focus is to reduce the incidence of severe hyperbilirubinemia and bilirubin encephalopathy while minimizing the risks of unintended harm such as maternal anxiety, decreased breastfeeding, and unnecessary costs or treatment.
• Current state: Application is being service enabled at the University of Utah for use in their Epic system
## Patient Chooser

Search for patients by name

<table>
<thead>
<tr>
<th>Name</th>
<th>Gender</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bili, Baby</td>
<td>Male</td>
<td>1 year</td>
</tr>
<tr>
<td>Himston, Billie H.</td>
<td>Male</td>
<td>6 years</td>
</tr>
<tr>
<td>Langenheim, Ruby</td>
<td>Female</td>
<td>1 year</td>
</tr>
<tr>
<td>Reid, Ryan</td>
<td>Male</td>
<td>1 year</td>
</tr>
</tbody>
</table>
Growth Chart

• Concise, interactive view of a child’s growth over time
• Interactive Graphs, Data Table, Parent View
• Percentile/bone-age/mid-parental height estimates
• CDC/WHO/Fenton charts (expandable)
• Support for Ambulatory and NICU uses with:
  • Gestation corrections
  • Bone Age presentation
  • Growth point comparison with velocity
  • Print-out formats for Graphs, Data Table, and Parent View
Allen Vitalis has a healthy weight of 23kg (50lb 11oz). The healthy weight for his age and height is 17.3kg — 24.9kg (38lb 1oz — 54lb 13oz).
More Reasons for this level of Interoperability

• Efficient software development
  • Widely distributed
  • Directed daily by front line clinicians
  • Increased usability of software, creativity, innovation

• Increased choice in software
  • Thousands of independent developers
  • Centrally planned economy vs free market
  • Think “app store for healthcare” or of innovations like Uber

• The start of a Learning Healthcare System is accurate, computable, data.
Why is this important for clinicians

- Communicate care across the care continuum
- Share knowledge
- Capture and share data and knowledge to have the visibility needed
- Interoperability at the application level in addition to interoperability at the data level
To help people live the healthiest lives possible
May 2019 FHIR Update Overview

Russ Leftwich

• May 21, 2019
Where Is FHIR Going
FHIR roadmap activity

- FHIR Release 5 anticipated Fall 2020
  - 20 additional resources might go Normative
  - Substantial changes to those resources over 12 months
  - Other referenced Resources will be affected
- Modeling in FHIR
  - Clinical Information Modeling Initiative Workgroup approach - formalism and tooling => code
  - Alternative approach developed by MITRE over past year - Standard Health Record
  - Discussions at WGM = agreed to disagree
- FHIR alignment
  - Different FHIR Resources curated by different workgroups
  - Divergent Resources with analogous patterns
- FHIR and CDA alignment
  - Discussion of CDA published as a web format
US FHIR Influencers
USCDI v1


Proposed as a new standard to replace the reference to “Common Clinical Data Set” from ONC 2015 Edition

New Data Classes and Elements

• Provenance
• Clinical Notes
• Address and Phone number
• Pediatric Vital Signs

USCDI Standard Annual Update Schedule

• ONC intends to establish a predictable, transparent and collaborative process to expand USCDI, including providing stakeholders with the opportunity to comment on the USCDI’s expansion
US Core Data For Interoperability (USCDI v1)

**Assessment and Plan of Treatment**
- Care Team Members
  - Clinical Notes: Consultation Note, Discharge Summary Note, History & Physical, Imaging Narrative, Laboratory Report Narrative, Pathology Report Narrative, Procedure Note, Progress Note
  - Patient Demographics: First Name, Last Name, Previous Name, Middle Name (incl. middle initial), Suffix, Birth Sex, Date of Birth, Race, Ethnicity, Preferred Language, Address, Phone Number
  - Problems
  - Medications: Medications, Medication Allergies
  - Procedures
  - Provenance: Author, Author Time Stamp, Author Organization
  - Smoking Status
  - Vital Signs: Diastolic BP, Systolic BP, Body height, Body weight, Heart Rate, Body temperature, Pulse oximetry, Inhaled oxygen concentration, BMI percentile per age and sex for youth 2-20, Weights for age per length and sex, Occipital-frontal circumference for children >3 years old
- Health Concerns: Immunizations
- Goals: Patient Goals
New API Certification Criteria 170.315(g)(10) to replace (g)(8)
Standards-based API for patient and population services

<table>
<thead>
<tr>
<th>Required Capability(ies)</th>
<th>Applicable Standard(s)</th>
<th>Additional Context</th>
</tr>
</thead>
<tbody>
<tr>
<td>App Registration</td>
<td>None; Dynamic Registration permitted</td>
<td>Associated API CoC</td>
</tr>
<tr>
<td>Secure Connection</td>
<td>SMART Application Launch Framework IG</td>
<td>• Must support patient- and clinical- access</td>
</tr>
<tr>
<td>1st time Authentication &amp; App Authorization + (get refresh token)</td>
<td>OpenID Connect + SMART Application Launch Framework IG</td>
<td>• Must support access to a single patient’s data &amp; multiple patients data</td>
</tr>
<tr>
<td>Data Response (query)</td>
<td>FHIR (Release 2) + ARCH + Argonaut Data Query IG Profiles</td>
<td>• Must support “Standalone Launch” and “EHR Launch”</td>
</tr>
<tr>
<td>Search</td>
<td>Argonaut Data Query IG Server</td>
<td>• Refresh tokens with a lifetime of at least 3 months</td>
</tr>
<tr>
<td>Subsequent Authentication &amp; App Authorization + (refresh token)</td>
<td>SMART Application Launch Framework IG</td>
<td>Associated API CoC</td>
</tr>
<tr>
<td>Documentation</td>
<td>None; Must be made publicly accessible</td>
<td></td>
</tr>
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</table>
What is the API Resource Collection in Health (ARCH)?

The ARCH 15 Specific FHIR Resources Aligned to support the USCDI Referenced in new 170.315(g)(10) certification criterion

15 Specific FHIR Resources
Aligned to support the USCDI
Referenced in new 170.315(g)(10) certification criterion
FHIR Connectathon #21
FHInR Connectathon #21

3 a year -- #21 marks 7 years

• 25 tracks
• 210 participants

• FHInR connectathon has evolved
  — Early Connectathons were about simply exchanging conformant resources; one track, one resource
  — Now most tracks are use case centered, multiple resources for many
  — Many are driven by outside interest in use cases, like Da Vinci, ONC and CMS regulation

• Planning and summaries of tracks on Confluence.HL7.org
• No outcomes are published about interoperability of specific vendors
Evolved from Care Planning Track over past 2 ½ years

• Led by VA Contractor building VA use cases for community care
  – Allscripts
  – Persecta
  – Elsevier

• Adopted Chronic Kidney Disease use case
  – High value use case to build chronic care management workflows
  – Now a Logica project with collaborative involving VA Renal Disease, NIH, Regenstrief, Harvard
  – Administrator can see what users are loading patients and clear these patients

• Started with referral workflows

• Now expanded to use FHIR PlanDefinition and ActivityDefinition

• FHIR definitions are templates that are instantiated as individual care plans
Terminology track

For past 4 years

Always 10-20 participants

- Terminology vendors
- Federal agencies
- VA contractors
- NIH, SNOMED

Increasing interaction with other tracks

Testing around FHIR Terminology Services module

- 5 FHIR Resources
- 8 FHIR operations
- [http://hl7.org/fhir/terminology-module.html](http://hl7.org/fhir/terminology-module.html)
Knowledge management

• CDS Hooks
  – Originally started outside HL7
  – Now a balloted HL7 Implementation Guide
  – Leveraged by Da Vinci for Coverage Requirements Discovery and Prior Authorization

• Evidence Based Medicine on FHIR
  – FHIR Library Resource
  – FHIR Evidence Resource
  – PlanDefinition Resource

• Clinical Reasoning Track
  – FHIRPath
  – Clinical Quality Language (CQL)
HL7 Accelerator Projects
HL7 FHIR Accelerator Projects

• Assisting communities and implementers with an interest in using FHIR to address common use cases.
  • **The Argonaut Project**
    *Purpose of the Argonaut Project is to rapidly develop a first-generation FHIR-based API and Core Data Services*
  • **The CARIN Alliance**
    *Purpose to rapidly advance the ability for consumers and their authorized caregivers to easily get, use, and share their digital health information when, where, and how they want to achieve their goals.*
  • **CodeX**
    *Address the need to obtain high-quality, computable data for cancer care and research*
  • **Da Vinci Project**
    • Help payers and providers to positively impact clinical, quality, cost and care management outcomes.
  • **Gravity Project**
    *To convene broad stakeholder groups in identifying and harmonizing social risk factor data for interoperable electronic health information exchange.*
HL7® The Da Vinci Project
VBC Programs Drive Focus to Patient Outcomes

Enable provider to see right data at right time for specific patient coverage, benefits and care coordination

Historically, payment and coverage data completely separate from care
Project Challenge

To ensure the success of the industry’s shift to Value Based Care

Pre-Collaboration / Controlled Chaos:
Develop rapid multi-stakeholder process to identify, exercise and implement initial use cases.

Collaboration:
Minimize the development and deployment of unique solutions. Promote industry-wide standards and adoption.

Success Measures:
Use of FHIR®, implementation guides and pilot projects.
• VBC fundamentally changing relationships between payers, providers across care settings
• Goal is to shift focus on outcomes
• Contracts include exchange of clinical data
• Payers and strategic partners or wholly owned practices becoming “Payviders”
• Mega-acquisitions are bringing Payers and PBMs under single organization
• HL7 acting as a convener of stakeholders to identify ways FHIR can help
Governance Structure

**STEERING COMMITTEE**

- **Payers - 3**
  - Sagran Moodley
  - United
  - Kirk Anderson
  - Cambia Health
  - Mike Funk
  - Humana

- **Providers - 2**
  - Dr. Shafiq Rab
  - Rush Medical
  - Dr. Steven Lane
  - Sutter Health

- **IT Vendors - 2**
  - Hans Buitendijk
  - Cerner
  - Peter DeVault
  - Epic

- **CMS - 1**
  - Melanie Combs
  - Dyer
  - CMS Fee for Service

- **HL7 - 1**
  - Dr. Ed Hammond
  - Dr. Chuck Jaffe

**OPERATING COMMITTEE**

- **Use Case 1 Project Lead**
  - Jocelyn Keegan
  - Program Manager & Technical Director

- **Use Case 2 Project Lead**
  - Dr. Viet Nguyen
  - Chair

- **Use Case n+ Project Lead**
  - Co-Chair

**DEPLOYMENT COMMITTEE**

- *Chair
- **Co-Chair
**Ballots and Connectathons**

**MAY BALLOT** (Mar 29 – Apr 29)
- STU Data Exchange for Quality Measures (DEQM)
- STU Coverage Requirements Discovery (CRD)
- Comment Documentation Templates & Rules (DTR)

**EARLY SEPTEMBER BALLOT** (June 21 – July 21)
- STU Health Record Exchange (HRex)
- STU Payer Data Exchange (PDex)
- STU PDex Formulary
- STU Clinical Data Exchange (CDex)

**SEPTEMBER BALLOT** (Aug 9 - Sept 9)
- STU Documentation Templates and Rules (DTR)
- STU Prior Authorization Support (Prior Auth)

**JANUARY BALLOT** (Dec 27 – Jan 26)
- STU Alerts / Notifications
- STU Gaps in Care
- STU STU Patient Cost Transparency
- STU RBC Member ID and Bulk Data

<table>
<thead>
<tr>
<th>2019</th>
<th></th>
<th></th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAR</td>
<td>APR</td>
<td>MAY</td>
<td>JUN</td>
</tr>
</tbody>
</table>

Early January ballot (Oct 15 – Nov 15)
- STU PDex Payer Directory

ONC Annual Meeting
Da Vinci Meeting & Connectathon

Deliverable - HL7 Ballots are for STU with the exception of DTR in May
Event – See confluence.hl7.org

HIMSS20
Sample Project Timeline

IG Development
- Assemble Team
- Requirements
- RI Tech Approach
- Specify profiles, ...
- IG Framework
- Create Draft IG
- Revise and Finalize IG
- FHIR Gap Analysis

RI Development
- Build Initial RI
- Test RI
- Update Final RI
- Build Data Set
- Build Test Set

Week 0 2 4 6 8 10 12 14 16

Represents 4 weeks
2 - 4 sprints

Work with appropriate HL7 workgroup for IG sponsorship and input
Da Vinci Interaction with FHIR Standards Process

Note: Not all Da Vinci projects will result in artifacts for HL7 ballot and publication.
What We Deliver
Follow Progress, Test, Implement

RESOURCES

- HL7 Da Vinci Wiki & Listserv signup - http://www.hl7.org/about/davinci/index.cfm
- HL7 Confluence Site - https://confluence.hl7.org/display/DVP/
- Where to find Da Vinci in Industry - https://confluence.hl7.org/display/DVP/DaVinci+2019+Calendar
- Use Case Summary and Links to Call In & Artifacts - https://confluence.hl7.org/display/DVP/DaVinci+Use+Cases
- Reference Implementation Code Repository - https://github.com/HL7-DaVinci
Reference/Pilot Implementation
REST Architecture Model

Provider EHR Implementation Scope

- EHR Database
- EHR Backend Services
- Translation Services
- Implementations conforming to the DaVinci FHIR Profiles following the Implementation Guides

Da Vinci’s Deliverable Scope

- EHR
- FHIR Translation Services
- Endpoint & APIs
- Request Resource
- Industry standard DaVinci Use Case FHIR Profiles with respective Implementation Guides

Payer Implementation Scope

- Payer
- FHIR Translation Services
- Endpoint & APIs
- Response Resource
- Implementations conforming to the DaVinci FHIR Profiles following the Implementation Guides

Payer Database
- Payer Backend Services
ONC FAST - Standards Efforts Towards FHIR Adoption

FUNCTIONAL USE CASES

SHARED
Technical Challenges to FHIR Scalability
- Patient & Provider Identity Management
- Directory Services
- Version Identification
  - Scale
  - Exchange
  - Process/Metadata
- Testing, Conformance & Certification
- Security

RAPID INDUSTRY ADOPTION

Common Scalability Approaches

INFRASTRUCTURE USE CASES

Other Collaborative Efforts to Develop & Implement FHIR Solutions

FHIR Solutions for VBC

Core Data Services

FHIR Consumer Solutions

Payers/Providers

Provider/Provider

Consumers
Active Use Case Details
Use Case Focus Areas

- **Data Exchange for Quality Measures**
  - Clinical Data Exchange
  - Payer Data Exchange
- **Gaps in Care & Information**
  - Payer Data Exchange: Formulary
  - Payer Data Exchange: Directory
- **Coverage / Burden Reduction**
  - Payer Coverage Decision Exchange
  - Patient Cost Transparency
- **Documentation Templates and Rules**
  - Risk Based Contract Member Identification
  - Chronic Illness Documentation for Risk Adjustment
- **Prior-Authorization Support**
  - Use cases in discovery (some may be balloted in January 2020)

**Process Improvement**

- **Quality Improvement**
  - Performing Laboratory Reporting
- **Coverage Requirements Discovery**
  - Alerts / Notifications
- **Member Access**
  - Patient Data Exchange
  - Payer Data Exchange

**Use Case Status**

- **May ballot STU and for comment**
- **In early September ballot (July) as STU**
- **September ballot as STU**
- **Currently targeted for early or regular January 2020 ballot**
- **Use cases in discovery (some may be balloted in January 2020)**
How to Get Involved

• HL7
  • www.HL7.org
  • CIMI
  • Clinicians on FHIR
  • FHIR Accelerator Projects

• Logica
  • www.Logicahealth.org
How to Get Involved

• Visit the web/wiki sites
• Call into calls of interest
• Introduce yourself
• Participate on the calls!
• Attend F2F meetings
• Participate in public comment opportunities
Questions?
What have we missed?
Where is more detail needed?
.....
Thank you!
So - How did it go?

• What did you like today?

• What did you find confusing, or not worth your time?

• Suggestions for next time?

• Don’t forget the AMIA Evaluation – Take time to complete it now!