The Argonaut Project: Accelerating FHIR

February 2019
What is the Argonaut Project?

*The Argonaut Project is an implementation community comprising leading technology vendors and provider organizations to accelerate the use of FHIR and OAuth in health care information exchange.*

We are:

- Private sector initiated and funded
- Working collaboratively with other FHIR initiatives such as SMART-on-FHIR, the Health Systems Platform Consortium, and the FHIR Foundation
- Creating open industry Implementation Guides in high priority use cases of importance to patients, providers and the industry as a whole

We are NOT:

- A standards development activity
- A separate legal entity
- A proprietary activity
Technology Vendors
• Accenture
• Apple
• athenahealth
• Cerner
• Epic
• Change Healthcare
• MEDITECH
• Surescripts
• The Advisory Board Company/Optum

Provider Organizations
• Beth Israel Deaconess Medical Center
• Intermountain Health
• Mayo Clinic
• Partners Healthcare
• SMART at Boston Children’s Hospital

Staff (current and past)
• Prime contractor: HL7
• FHIR initiatives: Grahame Grieve, Josh Mandel, Brett Marquard, Eric Haas
• OAuth initiatives: Dixie Baker, Josh Mandel
• Project Management: Micky Tripathi, Jennifer Monahan
It all started with JASON Report

- Highly critical of the status and trajectory of US healthcare interoperability
  - Blamed EHR vendor technology and business practices and lack of an architecture supporting standardized APIs

- Recommended a “unifying software architecture” to migrate data from legacy systems to a new centrally orchestrated architecture
  - ONC should define “an overarching software architecture for the health data infrastructure” within 12 months
JASON Task Force Recommendations (2014)

1. Foundation of interoperability should be an orchestrated architecture employing Public APIs based on FHIR

2. Current interoperability approaches need to be gradually replaced with more comprehensive API-based models

3. FHIR is the best candidate for such API-based models

4. Meaningful Use Stage 3 & 2015 Edition EHR certification should be used as a pivot point to initiate this transition
What’s so great about FHIR?

Flexible to document-level and data-level exchange

• Sometimes individual data elements are important, sometimes entire documents are appropriate

Based on modern internet conventions

• RESTful API – same browser-based approach as used by Facebook, google, twitter, etc
• Infinitely extensible to detailed resources/profiles to meet any use case
• Supports push and pull use cases

Attractive to developers from outside of healthcare

• Brings new voices into health care and pushes the industry to innovate at internet speed
Why do we need the Argonaut Project to accelerate FHIR?

Comprehensiveness ↔ Speed-to-market

Relevance and Usability requires market input

Early collaboration to head off balkanization
A Signature Event: Argonaut Data Query Implementation Guide

- Access to individual data elements of *Common Clinical Data Set*
- Access to structured document (CCD) containing all *Common Clinical Data Set* elements
- Leverage OAuth2-based security and authorization

http://www.fhir.org/guides/argonaut/r2/
What does the Argonaut process do? Set priorities

93 FHIR DSTU2 Resources (17 Argonaut CCDS Resources in red)
What does the Argonaut process do? Resolve practical problems

<table>
<thead>
<tr>
<th>What search criteria can you use?</th>
<th>What type of data will you get in response?</th>
<th>How will that data be represented?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Search operations</td>
<td>Scope of response</td>
<td>Content of response</td>
</tr>
<tr>
<td>Examples:</td>
<td>Examples:</td>
<td>Examples:</td>
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</tbody>
</table>
| • Can search for individual patient by identifier (e.g., MRN) OR full name & gender OR full name & birthdate | • Search for patient will get all FHIR patient resources  
  • Search for Procedures will get all current and historical procedures or within specified date range | • Patient search will get name, identifier, gender, birthdate, birth sex, REL  
  • Procedures search will get type of procedure, date performed, and procedure status  
  • In some cases created Argonaut extensions and value sets |
Argonaut Project 2017 Projects

1. Scheduling Implementation Guide (Published March 2018)
   - Appointments request – request for appointment
   - Appointment response – reply to an appointment request
   - Slots – blocks of time available for booking appointments

2. CDS Hooks: Enhancing integration of EHRs and Apps (HL7 Ballot in May 2018)
   - Integration of an external app or service into an EHR workflow
   - Validation of security model for integration of external apps/services with EHRs
   - [http://cds-hooks.org/specification/1.0/](http://cds-hooks.org/specification/1.0/)
Argonaut Project 2018 Projects

1. **Clinical Notes**
   - Shouldn’t there be a Common Clinical Note Set to accompany the Common Clinical Data Set?
   - Plan to publish IG in February 2019
   - [https://argonautproject.github.io/clinicalnotes/](https://argonautproject.github.io/clinicalnotes/)

2. **Bulk Data Access to Clinical Data**
   - A roster of patients rather than one patient at a time
   - External security review completed and changes incorporated, plan to complete and publish IG February 2019
   - [https://github.com/smart-on-fhir/fhir-bulk-data-docs/pulls?q=is%3Apr+is%3Aclosed](https://github.com/smart-on-fhir/fhir-bulk-data-docs/pulls?q=is%3Apr+is%3Aclosed)

3. **Simple Assessment Questionnaires**
   - Import from external experts and capture/export data consistently
   - Implement custom assessments across disparate systems and aggregate responses
   - Plan to publish IG in February 2019
   - CI Build IG: [https://argonautproject.github.io/questionnaire/adaptive.html](https://argonautproject.github.io/questionnaire/adaptive.html)
Argonaut Project 2019 Projects

1. Update Argonaut Data Query IG
   - Update STU2 to US Core R4 resources
   - Test R4 resources
   - Add Encounters and Clinical Notes
   - Consider adding write capability for subset of resources

2. Clinical Data Subscriptions
   - Enables push use cases

3. Provenance
   - Anticipated to be part of USCDI

4. SMART web messaging + CDS Hooks (radiology ordering)
   - Supports 2020 PAMA requirement
Argonaut Project Timeline

Oct 2014

JASON Task Force Recommendations

Call to action for APIs and FHIR

Dec 2014

Launch of Argonaut Project

Oct 2015

EHR certification includes API requirement

Dec 2016

S&I Initiative

Data Access Framework

Data Query Implementation Guide published

Jun 2017

Providing Directory Implementation Guide published

Mar-May 2018

Scheduling Implementation Guide

CDS Hooks Implementation Guide
Four Short Years from Inception to Market Adoption

Jan 2018

Carequality implements Argonaut Provider Directory specifications

CommonWell includes Argonaut FHIR specifications in core services – MEDITECH goes live on FHIR

50% of 100+ certified vendors use FHIR APIs

Feb 2018

Apple includes Argonaut FHIR specifications in iPhone
FHIR Technical Experts:  Brett Marquard (brett@riverrockassociates.com), Eric Haas (ehaas@healthedatainc.com), Graham Grieve (grahame@healthintersections.com.au), Josh Mandel (Josh.Mandel@microsoft.com)

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