Introduction to HL7® FHIR®

HIMSS 2017
Grahame Grieve
FHIR Product Director
FHIR

- FHIR: Fast Healthcare Interoperability Resources (Pronounced “Fire”)

- The hottest thing interoperability this year
  - Insert other jokes here…

- Based on industry best practices, with a focus on simplicity and implementability
Healthcare Exchange Standards

- Complex.... Slow...
- Hard to use and understand
- Require specialist skills, tools
- Fit for an old architecture
- Costly
Healthcare Exchange Standards

- Complex.... Slow...
- Hard to use and understand
- Require specialist skills, tools
- Fit for an old architecture
- Costly

What if it didn’t have to be like that?
Introducing FHIR

• The web, for healthcare
• An open standard
  • Public Domain license
  • Published on the web
  • By the premiere healthcare standards organization
• An open Community
  • Social media, face to face meetings
  • 1000s of participants
  • Support, Advocacy, Development, Outreach
The Web for Healthcare

- REST: a pattern for using web technologies to manage information
- Resources: the building blocks that get exchanged
- Like web pages, but for computer usage
- Scalable – performance, and community
<Patient xmlns="http://hl7.org/fhir">
  <id value="glossy"/>
  <meta>
    <lastUpdated value="2014-11-13T11:41:00+11:00"/>
  </meta>
  <text>
    <status value="generated"/>
    <div xmlns="http://www.w3.org/1999/xhtml">
      <p>Henry Levin the 7th</p>
      <p>MRN: 123456. Male, 24-Sept 1932</p>
    </div>
  </text>
  <extension url="http://example.org/consent#trials">
    <valueCode value="renal"/>
  </extension>
  <identifier>
    <use value="usual"/>
    <type>
      <coding>
        <system value="http://hl7.org/fhir/v2/0203"/>
        <code value="MRN"/>
      </coding>
    </type>
    <system value="http://www.goodhealth.org/identifiers/mrn"/>
    <value value="123456"/>
  </identifier>
  <name>
    <family value="Levin"/>
    <given value="Henry"/>
    <suffix value="The 7th"/>
  </name>
  <gender value="male"/>
  <birthDate value="1932-09-24"/>
  <careProvider>
    <reference value="Organization/2"/>
    <display value="Good Health Clinic"/>
  </careProvider>
  <active value="true"/>
</Patient>
Kinds of Resources

• Clinical Concepts
  • Allergy, Problem, Family History, Care Plan
  • Medication Management
• Administrative Concepts
  • Person, Patient, Organization, Device, Facility
• Infrastructure Functionality
  • Document, Message, Conformance/Profiling
• Financial Management
  • Claims / Reimbursement, Contract
Using Resources

- Classic Web RESTful approach
  - Simple approach led by Facebook, Twitter, etc.
- Documents / Messages
  - Same deployment as HL7 v2 / CDA
  - But common technical base
- Services (SOA)
  - Fit into existing enterprise architectures
- Portability – common structures
 Extensions

• Managing extensibility is a central problem
• Everyone needs extensions, everyone hates them
• FHIR tames extensibility
  • Built in extensibility framework (engineering level)
  • Define, publish, find extensions
  • Use them
• This tames the overall specification
FHIR Ethos

• Simplicity / Web alignment
• Implementation focused
  • Reference Implementations (C#, Java, etc)
  • Publically available test servers (now)
  • Connectathons
• Freely available
  • http://hl7.org/fhir
  • Creative Commons Public Domain
Status

• 1\textsuperscript{st} DSTU published Feb 3\textsuperscript{rd} 2014
  • Widespread Community Growth and Adoption

• 2\textsuperscript{nd} DSTU published Sept 23\textsuperscript{rd} 2015
  • Extensive change based on implementer feedback
  • Introduction of Maturity Model

• 3\textsuperscript{rd} STU scheduled Mar 21\textsuperscript{st} 2017
  • Even more feedback, change
  • Ongoing evolution towards stable standard
3rd DSTU Key Changes

- API – extend API, align with web standards
- Infrastructure / Conformance
  - Round out capabilities & stabilise
- Functionality
  - Extended clinical coverage
  - Decision support & clinical measures
- Tooling
  - Build out full ecosystem to support implementers
FHIR & CCDA

- CCDA is mandated by Meaningful Use
- FHIR is a coming specification
- FHIR R3 is not being considered as a replacement for CCDA
- Project to migrate CCDA content to FHIR
- This year: CCDA ↔ FHIR interchange projects and infrastructure
- Document and data exchange will continue to co-exist
Key FHIR Projects

• SMART
  • Key integration framework for many uses of FHIR

• Argonaut
  • JASON Taskforce – API based access to data
  • Patient / Provider portals, data exchange

• HSPC
  • API based access to data
  • EHR plug-in framework
• HL7 is a Standards Organization
  • HL7 owns the stands process
  • Policy, procedures, membership support that goal

• FHIR Foundation
  • Created by HL7 to support the implementation community
  • Provides the web infrastructure (tools, social media)
  • Supports implementation projects (e.g. Argonaut)
  • Policy, procedures, membership for community
Follow Up

• FHIR: the web of healthcare
• FHIR specification: http://hl7.org/fhir
• HL7 FHIR Foundation: http://fhir.org
• Follow #FHIR on Twitter
• Become part of the community:
  • Come to a Connectathon!
  • Start a project using FHIR
  • Come to a meeting
    • Madrid in May, San Diego in September