GEVITY

Jaded. Bitter. But Hopeful.

Informatics for a healthier world

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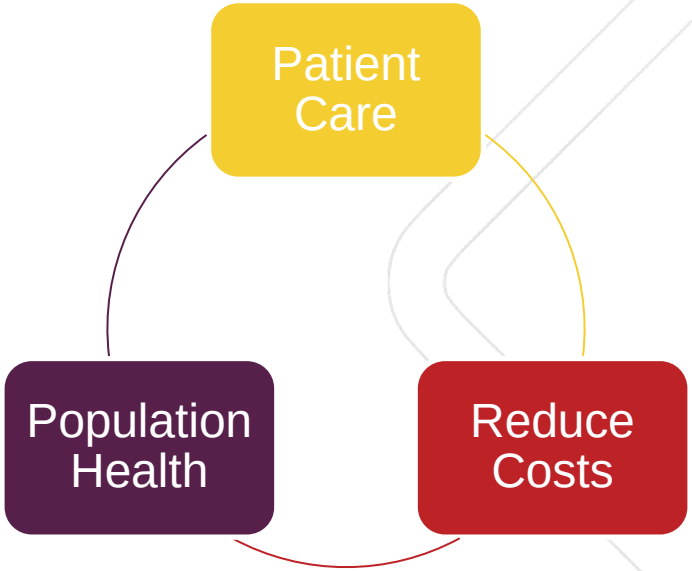
In the beginning…

- Entered the industry in 2001

Triple Aim of Healthcare

- Improving the patient experience of care (including quality and satisfaction);
- Improving the health of populations; and
- Reducing the per capita cost of health care.



http://www.ihi.org/engage/initiatives/tripleaim/Pages/default.aspx

In the beginning

- Pan-Canadian EHR by 2008
- ~~Pan-Canadian~~ Jurisdictional EHRs by 2012 ~~2008~~
- ???

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Jaded.

- Millions spent on system designs (architecture, standards, etc.) for systems that were never developed
- Millions spent on systems that were developed but never went live or fully adopted

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Bitter.

- Human vs Machine
- Too much choice
- Impact of complexity and time

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Hopeful

- Maturation of processes and common practices
- Evidence that we've learned some lessons…

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What is FHIR

FHIR is essentially four things:

- A robust **data model** for describing health and administrative data
- A **RESTful API** for interacting with that data using either JSON or XML
- A set of **open source tools** to implement and test FHIR applications
- A set of **FHIR Servers** that you can interact with (both public and private)

Accelerating Development

- Access to information

DSTU updates:

- Oct-24 2015: Corrections to invariants, generated conformance resources, extension cardinalities, examples
- May-15 2016: New security note about risks associated with XML Entities, and release an updated validator

Major Sections:

General Documentation | Implementation & Exchange | Clinical Resources | Administrative Resources | Infrastructural Resources

Quick links:

Documentation

- Resource List
- JSON, XML & RDF
- REST API & Search
- Data Types
- Using Terminologies
- Extensions
- Full table of contents

Implementation

- Downloads
- Adapting FHIR for local use
- Implementation Guides
- FHIR Schemas & Schematrons
- Examples: XML, JSON
- Code: Java, C#, Pascal, iOS, JS, XML
- Common Use Cases & Profiles
- Security

External Links

- Support Links (StackOverflow, Forum, etc.)
- Public Test Servers & Software
- How FHIR is developed
- FHIR Wiki
- Implementation guide registry
- Blogs that cover FHIR
- Translations: Russian, Japanese

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Accelerating Development

- Access to information
- Common understanding

3.0 Resource Index

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Categorized | Alphabetical

This page is provided to help find resources quickly. There is also a more detailed classification, ontology, and description.

Clinical

General:

- AllergyIntolerance 1
- Condition (Problem) 2
- Procedure 1
- ClinicalImpression 0
- FamilyMemberHistory 1
- RiskAssessment 0
- DetectedIssue 1

Care Provision:

- CarePlan 1
- Goal 1
- ReferralRequest 1
- ProcedureRequest 1
- NutritionOrder 1
- VisionPrescription 0

Medication & Immunization:

- Medication 1
- MedicationOrder 1
- MedicationAdministration 1
- MedicationDispense 1
- MedicationStatement 1
- Immunization 1
- ImmunizationRecommendation 1

Diagnostics:

- Observation 3
- DiagnosticReport 3
- DiagnosticOrder 1
- Specimen 1
- BodySite 0
- ImagingStudy 2
- ImagingObjectSelection 1

Identification

Individuals:

- Patient 3
- Practitioner 1
- RelatedPerson 1

Groups:

- Organization 1
- HealthcareService 1
- Group 1

Entities:

- Location 1
- Substance 1
- Person 1
- Contract 0

Devices:

- Device 1
- DeviceComponent 1
- DeviceMetric 1

Workflow

Patient Management:

- Encounter 1
- EpisodeOfCare 1
- Communication 1

Scheduling:

- Appointment 1
- AppointmentResponse 1

Workflow #1:

- Order 0
- OrderResponse 0
- CommunicationRequest 1

Workflow #2:

- ProcessRequest 0
- ProcessResponse 0
- SupplyRequest 0

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Accelerating Development

- Access to information
- Common understanding
- Parallel development

- "FHIR Starter" App Launcher https://fhir.smartplatforms.org | Source
- http://worden.globalgold.co.uk:8080/FHIR_a/hosted_demo.html Robert Worden / Open Mapping Software
  - Patient resource, read-only
  - Illustrates building a FHIR server on any existing application, any resource, by mapping to the application database
  - Tools to do this now available free, evolving
- https://aidbox.io/ - Health Samurai's FHIR server as a service with free layer, register and create a new server in 1 click
  - Supports all resource types, all operations, json, DSTU2
  - Based on fhirbase (https://github.com/fhirbase/fhirbase-plv8)
  - Implementation: postgresql, clojure
- http://fhirtest.uhn.ca/ - HAPI / University Health Network test server
  - Supports all resource types and operations
  - Has query builder UI which can be used to facilitate testing
  - Endpoints:
    - DSTU1: http://fhirtest.uhn.ca/baseDstu1
    - DSTU2: http://fhirtest.uhn.ca/baseDstu2
    - DSTU3: http://fhirtest.uhn.ca/baseDstu3
- Cerner's Sandbox
  - See our developer / API documentation for the exact resource that this server support at http://fhir.cerner.com
  - Supports both open and OAuth 2 access
  - Contact us on our Google group for any issues or access to the OAuth 2 protected endpoints
  - Endpoints (open, does not require OAuth 2):
    - DSTU2
      - Open - https://fhir-open.sandboxcernerpowerchart.com/dstu2/d075cf8b-3261-481d-97e5-ba6c48d3b41f
      - With OAuth 2 - https://fhir.sandboxcernerpowerchart.com/dstu2/d075cf8b-3261-481d-97e5-ba6c48d3b41f
    - DSTU2 (May 2015 Ballot) - https://fhir-open.sandboxcernerpowerchart.com/may2015/d075cf8b-3261-481d-97e5-ba6c48d3b41f
- http://open.epic.com/Interface/FHIR - Epic's Sandbox
  - Supports a subset of resource types, read-only
  - Runs against a functional Epic database
  - Includes online test harness for quick syntax checking
  - Contact open@epic.com for more information
- http://wildfhir.aegis.net/fhir - AEGIS WildFHIR - STU 3 Candidate (v1.4.0-8139)
  - Supports the STU 3 Candidate (v1.4.0-8139) current version of FHIR for the May 2016 Connectathon 12 event in Montreal, QC, Canada

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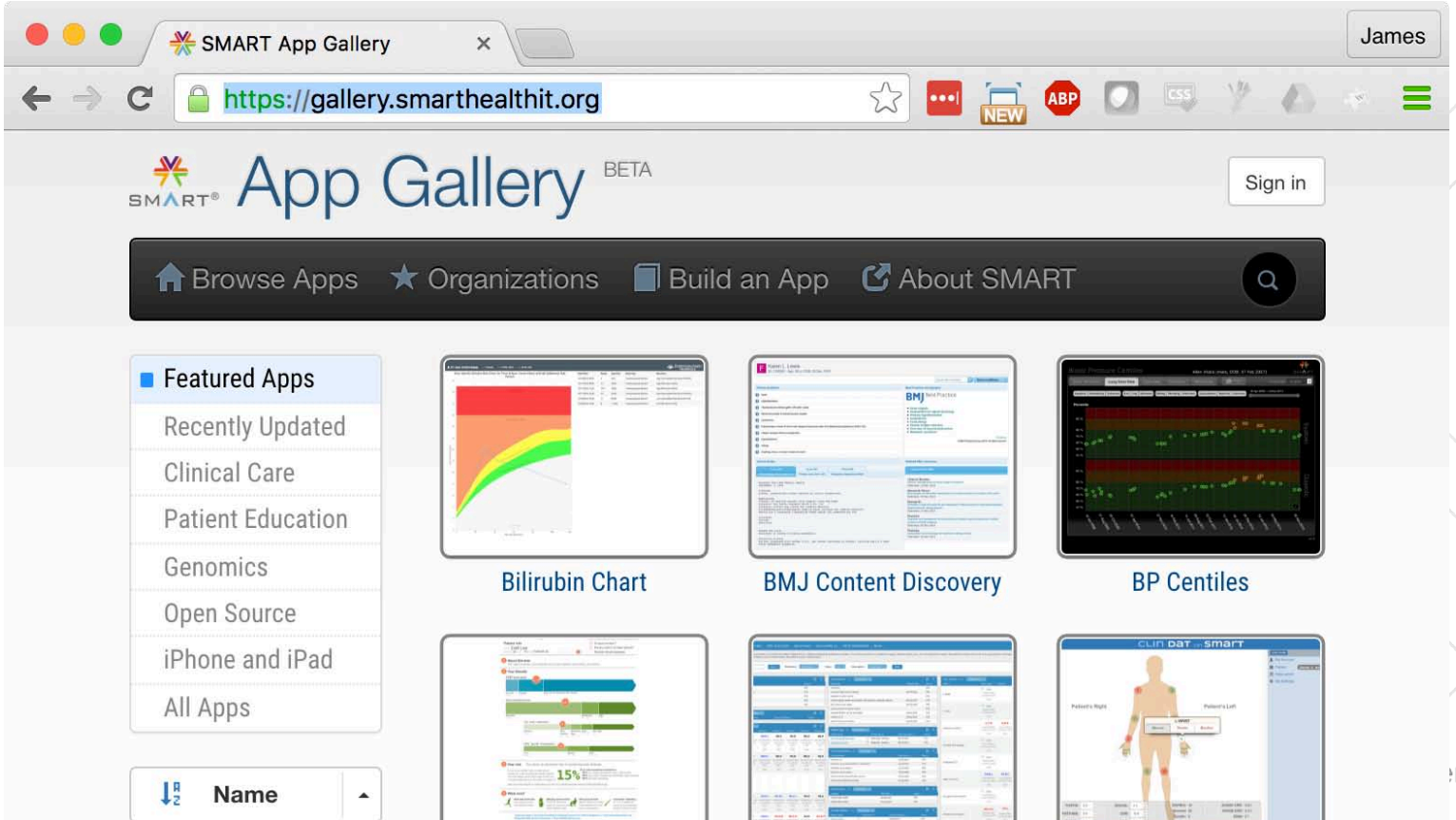
What Make FHIR Different?

- Everyone Gets It…and Everyone Can Get It
- Tools, tools, tools…and more tools
- Showing results faster

SMART on FHIR



FHIR's Popularity

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Canadian Struggles

- More choices, more complexity
- Terminology, terminology, terminology
- Profile proliferation

Canadian Initiatives

FHIR North

- Education - Connectathon - Networking

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Conclusion

- FHIR provides the standard, the tools, & the implementation support to accelerate development of interoperable applications
- It addresses many of the human aspects of interoperability
- Gives us hope for achieving the triple aim of care