

# HIMSS<sup>®</sup>19

## CHAMPIONS OF HEALTH UNITE

Global Conference & Exhibition  
FEB 11-15, 2019 | ORLANDO

# Clinical Informatics in the Age of FHIR: How API-based Technologies are Transforming Healthcare

Session INT2, February 11, 2019

Dr. Mark Braunstein, Professor of the Practice in Health Informatics, Georgia Institute of Technology

Patrick Murta, Principal Solution Architect, Humana



# Conflict of Interest

Dr. Mark Braunstein

Patrick Murta

Have no real or apparent conflicts of interest to report.

# Agenda

- Introductions and organizations
- Perspective
- Baselineing
- Technology landscape
- Inflection and convergence point
- Benefits and challenges of drivers, including TEFCA
- Remaining gaps and challenges
- Value of provider and payer exchange
- Q/A



# Learning Objectives

- Assess the technology landscape and the options for integrating industry standards with API-driven initiatives
- Discuss how use case driven innovation supports the harmonization of standards, public policy and value-based care initiatives
- Evaluate the anticipated benefits and challenges of TEFCA implementation across stakeholder groups
- Analyze the remaining gaps as data exchange is expanded to broader stakeholder groups in support of innovation
- Describe the value of payer and provider data exchange within the healthcare ecosystem



# Humana

- Humana is one of the largest U.S. health insurance and well-being organizations with over 14 million members, over \$53B in revenue, and 57,000 employees
- Committed to helping our members achieve their best health through a spectrum of products and offerings including insurance products, case management, population health, predictive analytics, and well-being initiatives
- Sees integrated health delivery as the key in providing maximum benefit to our members and partner providers
- Believes that technology, including Big Data and associated analytics, is critical in achieving the goal of integrated care delivery
- Closely partners with provider groups to enable the value based care and integrated care delivery model



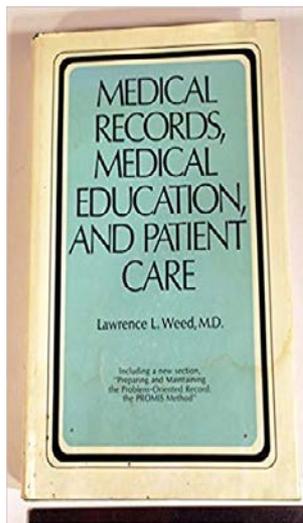
# Perspective

## Pliny the Elder, AD 23-79

“How many things, too, are looked upon as quite impossible, until they have been actually effected?”

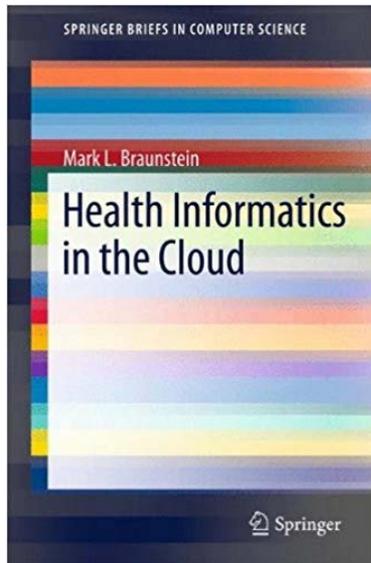


# Larry Weed, 1964



“Medical schools should hold their graduates responsible for their medical records no matter where they may be. Indeed if they were to survey the performance of their graduates through their records they would help community hospitals with their standards and begin to get some feed-back on all the medical education programmes underway. **In addition, records on a large scale would become available for computer analysis.**”

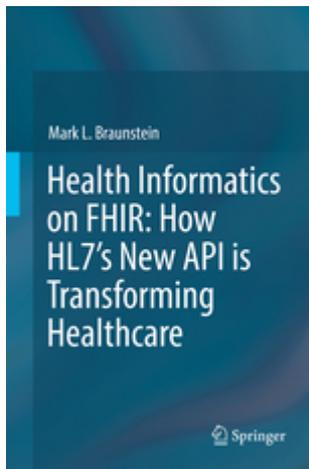
## Me, 2013



“Several PHR and even some HIE technology vendors have recognized the potential value that could be created if they make the data they store or have access to available through a standard set of conventions (usually called an API) to app developers. The Harvard SMART platform extends this idea to an EHR developed specifically for this purpose. I see no reason why this idea cannot be implemented by commercial EHR vendors. **It is also possible to envision that some standard set of APIs might be developed such that one app can work with most, if not all, compliant EHRs.** The pressure to do this would likely have to come from the healthcare industry or the government.”



# CMS, 2018



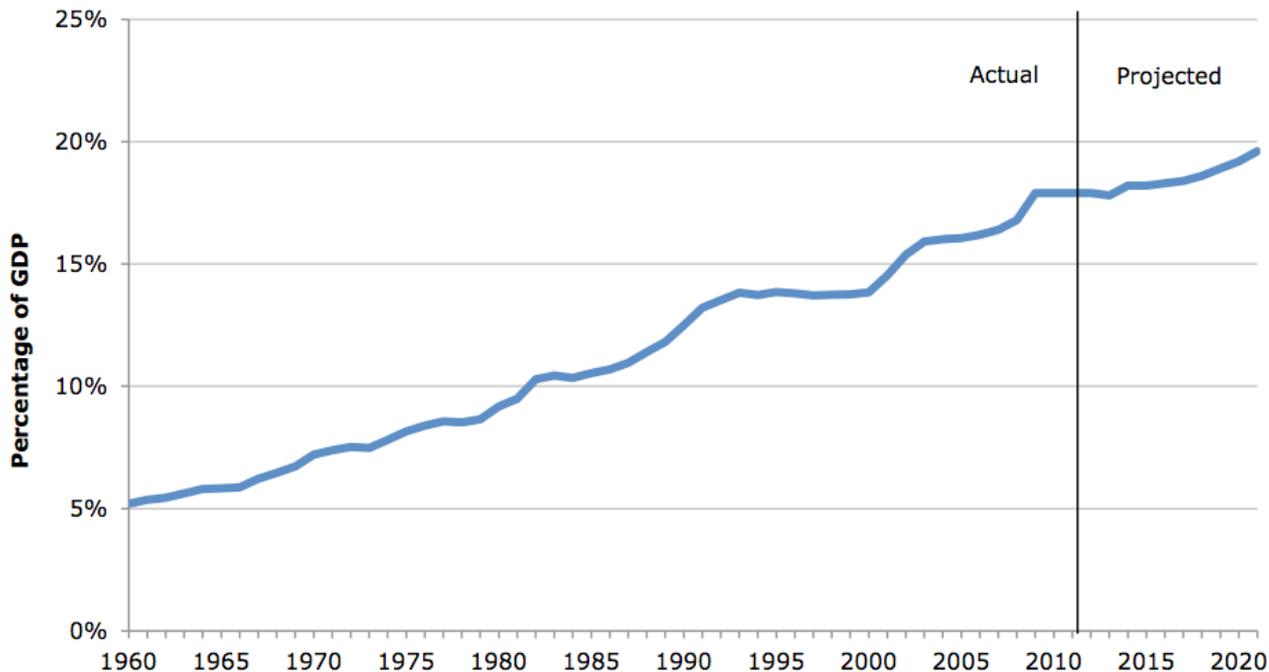
“We will be laser-focused on increasing interoperability and giving patients access to their data. Last year, CMS finalized requirements around EHR certification. **This ensures that patients will be able to share data via APIs.**”

-- CMS Administrator, Seema Verma, HIMSS 2018



#HIMSS19

# How Did We Get Here?



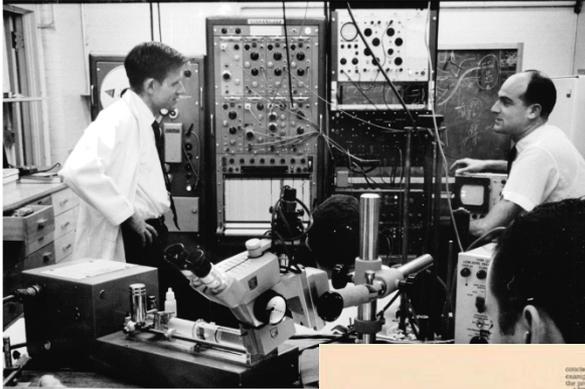
# HIS Circa 1960



Copyright © 1960 Akron Children's Hospital



## EMRs 1965-75



### MUMPS

#### Questions & Answers

include secretary of Standard MUMPS, with short abstracts and explanatory notes on all aspects of the program and equipment. A full English translation of the manual and approved applications for the MUMPS computer language.

Transactions of the MDC subscription service (previous reviews of the MDCS Development Committee meetings, held approximately three times per year).

Please write for a complete list and prices.

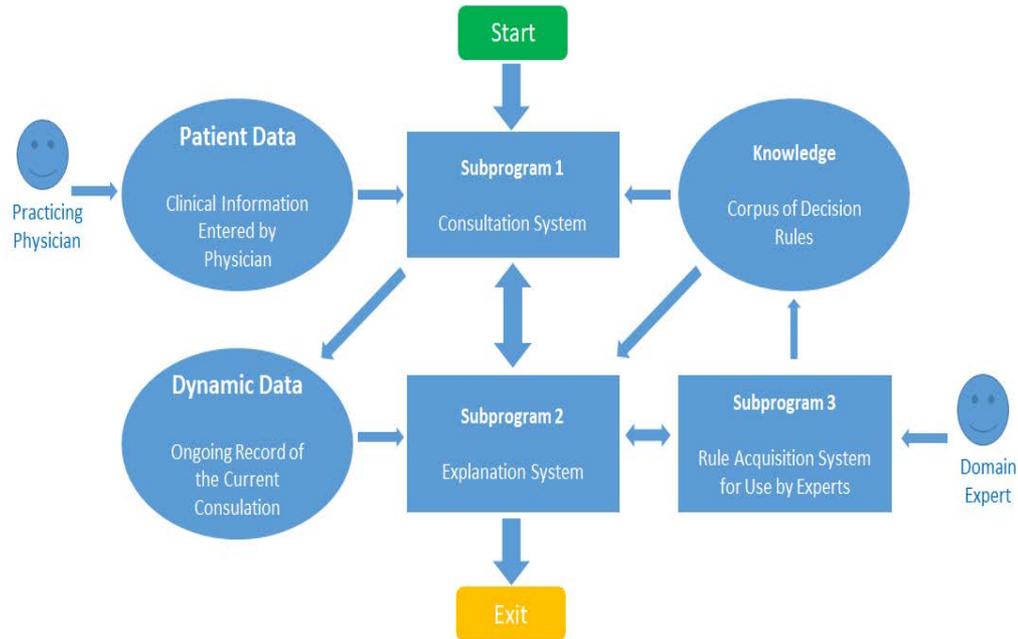
#### The Twelfth Annual Meeting of the MUMPS USERS' GROUP

San Francisco Hilton Hotel  
May 31 - June 4, 1965  
San Francisco, California

The Twelfth Annual Conference of the MUMPS Users' Group will bring together professionals from the medical, business, academic and scientific communities to share knowledge and ideas relating to the MUMPS computer language. The extended conference program will cover many areas, including MUMPS and the medical use of computers, applications of MUMPS and the continuing development of COBOL. For each programmer, introductory tutorials on MUMPS programming, appropriate techniques and a wide array of presentations will be offered. Experienced MUMPS programmers will take special interest in the wide assortment of new advanced tutorials and readable discussions that will be offered. A major focus of the conference will be to provide a forum in which general and practical MUMPS users may share their exchange of ideas and deal with their most problems. In addition, there will be business tutorials, workshops, computer use and data processing seminars, and seminars designed to promote insurance among attendees. In addition, hardware, software and program products will be presented in their latest products. Overall, the one feature will offer full opportunity to learn as well as to teach.



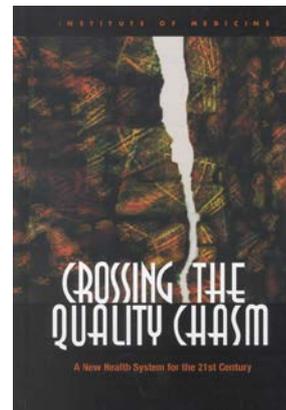
# Clinical Decision Support Circa 1976



*Courtesy Ted Shortliffe*

# IOM, 2001

safe, effective, patient-centered, timely, efficient, equitable

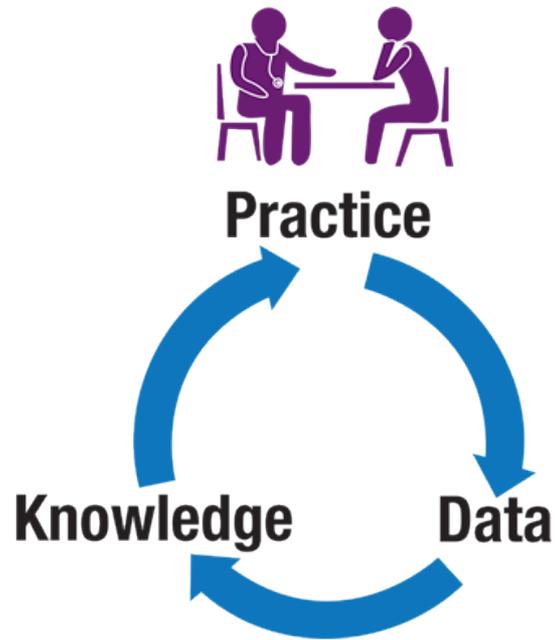


<http://www.ihl.org/resources/Pages/ImprovementStories/AcrosstheChasmSixAimsforChangingtheHealthCareSystem.aspx>



#HIMSS19

# Learning Health System



# Necessary Informatics Substrate

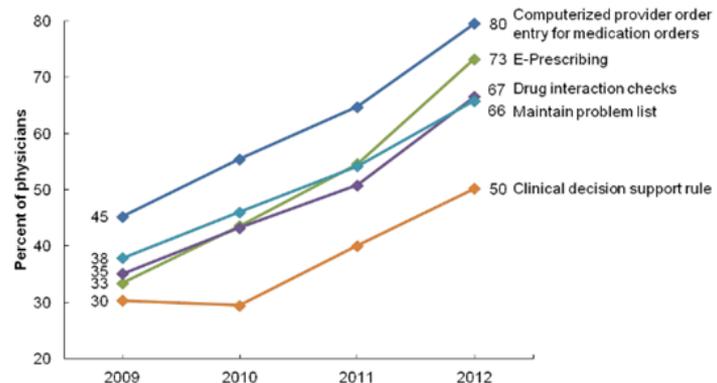


# HITECH

**EHR System Use at EDs and OPDs**



BROOKINGS



# Administrative vs Clinical Interoperability

- Brief history of healthcare interoperability
- Administrative (HIPAA) vs Clinical approaches
  - Administrative
    - Classic HIPAA Transactions
      - Claims
      - Eligibility
      - Referrals and Authorizations
      - Remittance Advice
    - Clinical
      - HL7 (Health Level 7) Transactions
      - Continuity of Care Documents
      - Admission/Discharge/Transfer
      - FHIR Messages



# Value of provider/payer data exchange

- Required to be successful at value based care
- Full integrated care delivery can only be achieved through it
- Cost reduction can be achieved through it
  - Optimized workflows in a single system
  - Reduced duplicity
- Provider abrasion can be mitigated
  - Authorization/referral processing in workflow
  - Medical records exchange for administrative purposes
- “In workflow” integration is enabled by it
- Provides a mechanism to share analytics in clinical workflow for
  - Identification of populations and individuals needing attention needing management
  - Provides guidance on which actions or behavioral changes are needed to achieve desired outcomes
  - Predicts the benefits of interventions
  - Ensures feedback on the results of the interventions



# Value Based Care's Role

- Value based care requires that we collectively understand the entire health profile of patients so that the pro-active, appropriate care at the appropriate time can be delivered
- Big Data and FHIR integration provide the mechanisms of risk stratification, pro-active solutions, hospitalization avoidance, over utilization avoidance, and better quality of life
- Paying for performance as demonstrated by health outcomes has fundamentally changed the landscape
- Sharing data and analytics is a key enabler in achieving the desired outcomes since enables the following:
  - Identification of populations and individuals needing attention needing management
  - Provides guidance on which actions or behavioral changes are needed to achieve desired outcomes
  - Predicts the benefits of interventions
  - Ensures feedback on the results of the interventions



# Industry inflection point

- Value based care drives the need for integration
- API/FHIR adoption is increasing
- 21<sup>st</sup> Century Cures Act is a lever to enable integration and interoperability
- Industry initiatives such as are accelerating the cause, cross pollinating use cases, and pushing innovation
  - Da Vinci
  - *FAST* (ONC Convened)
  - Argonaut
  - Carin
- Blue Button 2.0 and other CMS and ONC support
- Need for innovation

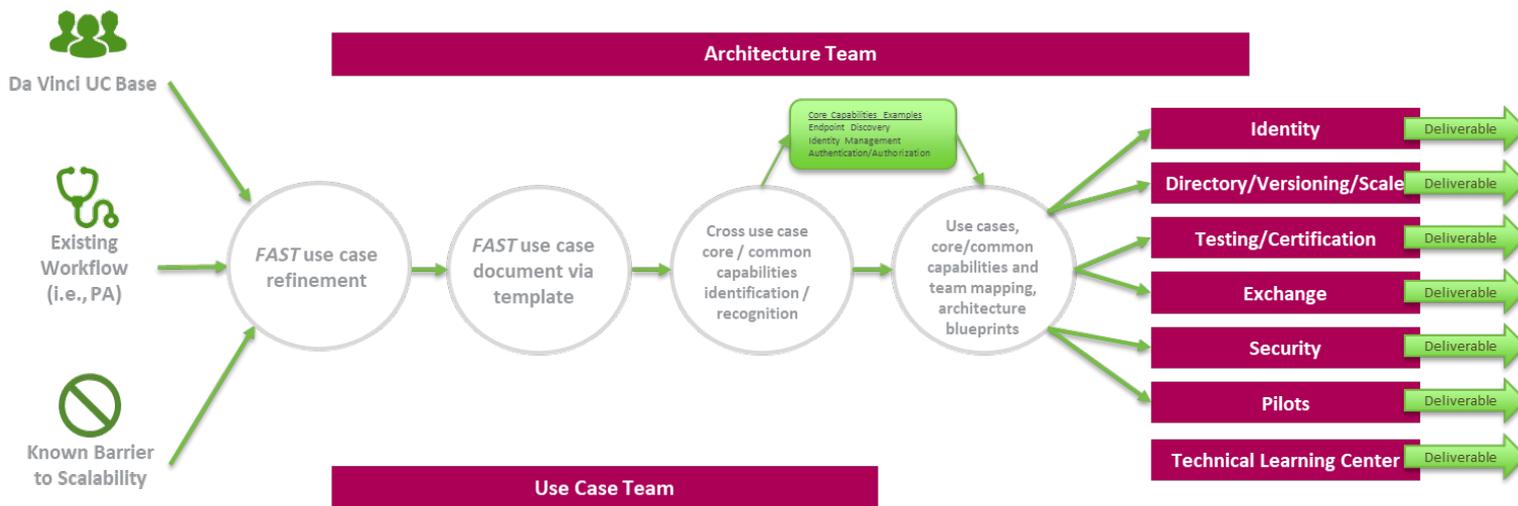


## Da Vinci and FAST Initiatives (A symbiotic relationship)

- Da Vinci is functional
- FAST is scale and infrastructure
- Both can influence public policy

Use Case Sources

Tiger Teams



# 21<sup>st</sup> Century Cures Act

- Enacted by the 114<sup>th</sup> Congress in December 2016
- Meant to streamline drug and device approval
- Mandates API usage
  - “... that the entity has in place data sharing programs or capabilities based on common data elements through such mechanisms **as application programming interfaces without the requirement for vendor-specific interfaces**;
  - [...] publish **application programming interfaces and associated documentation**, with respect to health information within such records, for search and indexing, semantic harmonization and vocabulary translation, and user interface applications; and
  - [...] demonstrate to the satisfaction of the Secretary that health information from such records are able to be exchanged, accessed, and used through the use of **application programming interfaces without special effort**, as authorized under applicable law.”



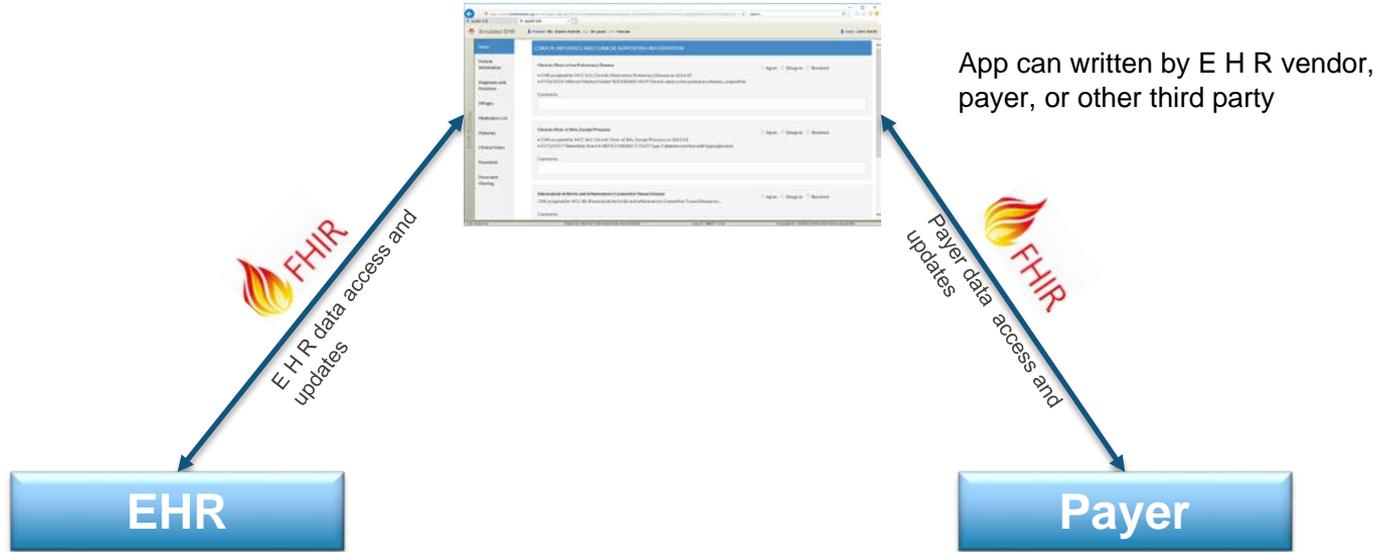
# API 101

- An API is a software intermediary which allows applications to talk to each other
- Given that APIs are defined at a specific data perspective, they can be 'Lego-blocked' together as building block for more complex purposes
- APIs are a foundational technology that drives modern computing and the API economy (Amazon, Netflix, Google, Facebook, EBay, YouTube, Twitter, & etc.)
- APIs enable innovation in an unprecedented manner
- APIs are not new... simplified, easy to use versions of them are



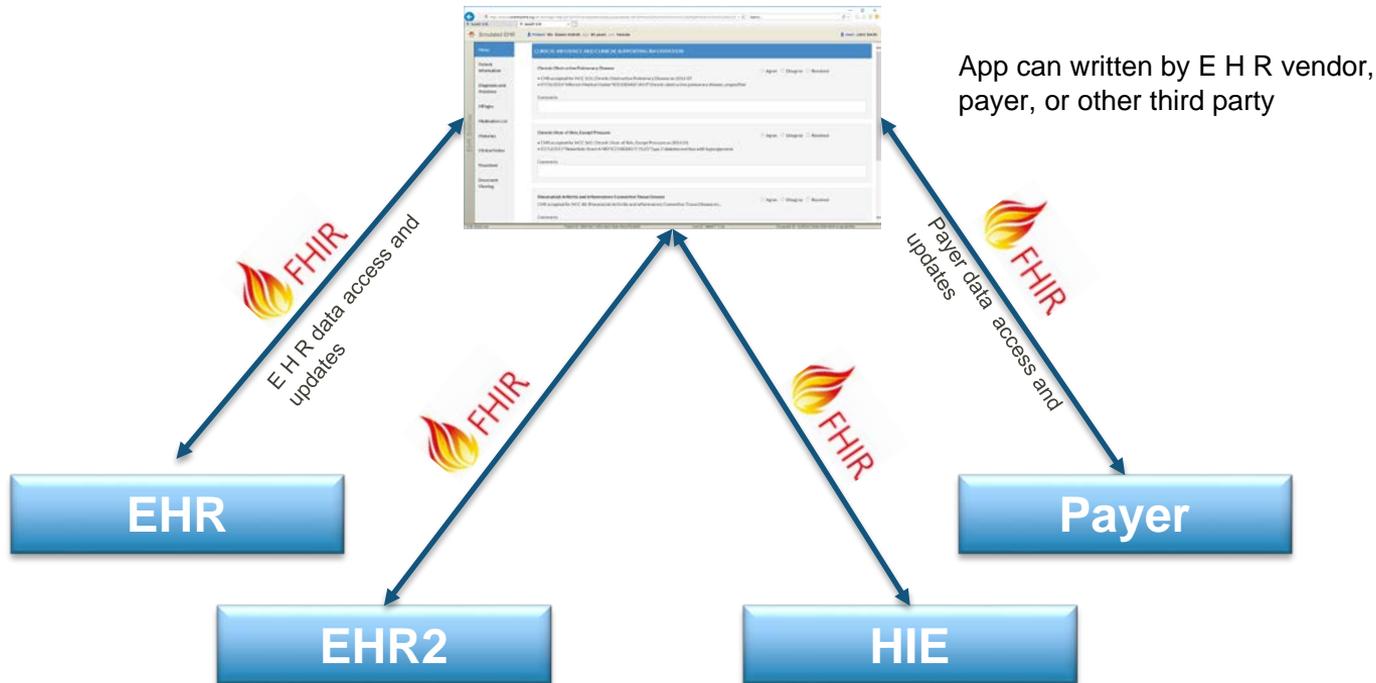
# Where does SMART Fit?

SMART app in E H R accessing payer FHIR resources



# Where does SMART Fit?

SMART app running in E H R accessing many FHIR enabled nodes



# Workflow Integration

The screenshot displays a simulated EHR interface. At the top, the browser address bar shows the URL: `launch.smarthealthit.org/ehr.html?app=http%3A%2F%2Fcernerpatientsample.azurewebsites.net%2Fhome%2Flaunch%3Flaunch%3DeyJhjoimSIsmYiOixln0%26iss%3Dht...`. The page header identifies the patient as **Mrs. Mabelle MacGyver**, age 81 (deceased), female, and the user as **John Smith**.

The interface features an **EHR Sidebar** on the left with the following menu items: Patient Information, Diagnoses and Problems, MPages, Medication List, Histories, Clinical Notes, Flowsheet, and Document Viewing.

The main content area is titled **CLINICAL INFERENCE AND CLINICAL SUPPORTING INFORMATION**. It contains two diagnostic sections:

- Chronic Obstructive Pulmonary Disease**: Includes radio buttons for **Agree**, **Disagree**, and **Resolved**. The text below lists:
  - CMS accepted for HCC 111: Chronic Obstructive Pulmonary Disease on 2016-07
  - 07/31/2016\*Hillcrest Medical Center\*ICD10DIAG\*J44.9\*Chronic obstructive pulmonary disease, unspecified
- Chronic Ulcer of Skin, Except Pressure**: Includes radio buttons for **Agree**, **Disagree**, and **Resolved**. The text below lists:
  - CMS accepted for HCC 161: Chronic Ulcer of Skin, Except Pressure on 2016-01
  - 07/13/2017\*Wakefield, Brent A MD\*ICD10DIAG\*E11.65\*Type 2 diabetes mellitus with hyperglycemia

Each section includes a **Comments** text area for additional notes.

The footer of the interface shows the following status information:

- EHR Status bar
- Patient ID: 35ea8d5b-0d2e-4b77-a873-2f4951830842
- User ID: SMART-1234
- Encounter ID: b2bb3977-200f-4362-a5cb-b0c8d2b22a3c



## Da Vinci Use Cases

- Data Exchange for Quality Measures (DEQM): aka Medication Reconciliation Post-Discharge (MRP)
  - Payers and providers need common transport tools to share the data required to complete medication reconciliation at all transitions care, for care management plans, during medication changes
  - Proof of 30 day medication reconciliations is increasingly required for value based care incentives. Providers and care coordinators face the challenge of collecting accurate and complete patient medication records across care settings.
- Coverage Requirements Discovery
  - Providers need to easily discover which payer covered services or devices have:
    - Specific documentation requirements
    - Rules for determining need for specific treatments/services
    - Requirement for Prior Authorization (PA) or other approvals
    - Specific guidance
  - With a FHIR based API, providers can discover in real-time specific payer requirements that may affect the ability to have certain services or devices covered by the responsible payer.
- Documentation Templates and Coverage Rules
  - The goal of this use case is to reduce provider burden and simplify process by establishing electronic versions of administrative and clinical requirements that can become part of the providers daily workflow
- eHealth Record Exchange: HEDIS/Stars & Clinician Exchange
  - FHIR provides a way to request and deliver electronic attachments between payers, providers, and clearinghouses using modern web standards.

# Da Vinci Use Case Inventory

- Notification (ADT): Transitions in Care, ER admit/discharge
- Risk Based Contract Member Identification
- Authorization Support
- Quality Measure Reporting
- Laboratory Results

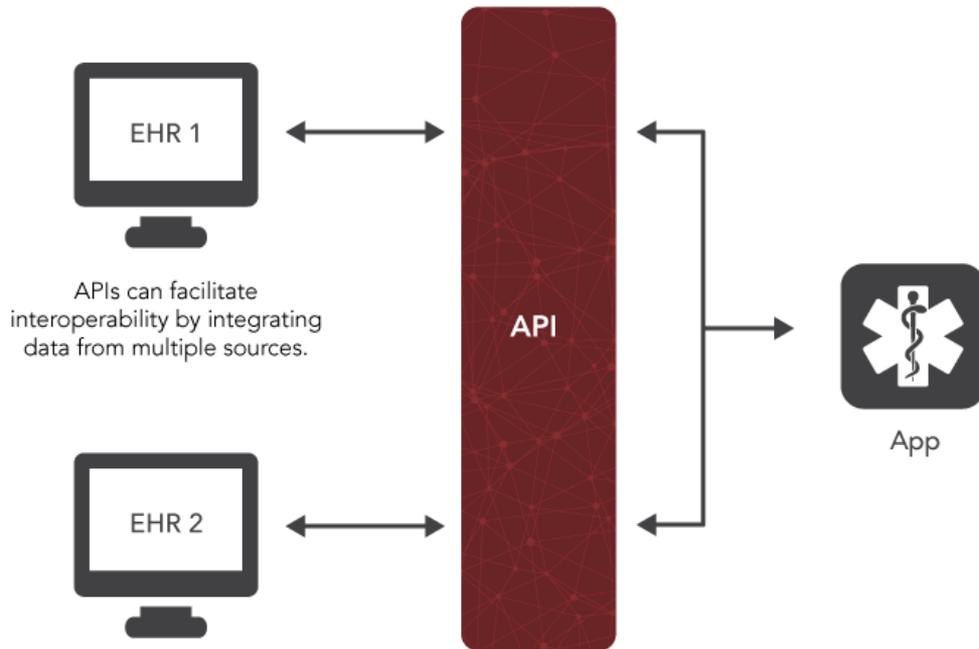


# Interoperability Landscape

- The discussion used to be ‘we have a variety of tools for integration, let see what one works for this situation.’
- The discussion now is ‘we support FHIR and SMART as our preferred model.’
- Other established models of interoperability are still in play and appropriate including
  - XDS
  - Direct (including FHIR attachments)
- Level of optimism, partnership, and cooperation that is unprecedented



# Interoperability



# SMART on FHIR



## Featured Apps

Sort: Name (A-Z) ▾

Featured Apps

All Apps

Care Coordination

Clinical Research

Data Visualization

Disease Management

Genomics

Medication

Patient Engagement

Population Health

Risk Calculation

FHIR Tools



### 1upHealth - Aggregated Patient Data

[View](#)

1upHealth

Helps providers view patient data aggregated from external health systems. Patients can connect their medical data sources using FHIR.

**Support:** Web **Specialties:** Trauma, Pediatrics, Cardiology

**Designed for:** Clinicians & Patients



### ACT.md

[View](#)

ACT.md

ACT.md extends EMR's across the community, removing the silos that prevent you from addressing social determinants of health.

**Support:** Web, iOS, Android **Specialties:** Pediatrics, Rheumatology, Oncology

**Designed for:** Clinicians & Patients



### Adherence - Surescripts Medication Management Solution

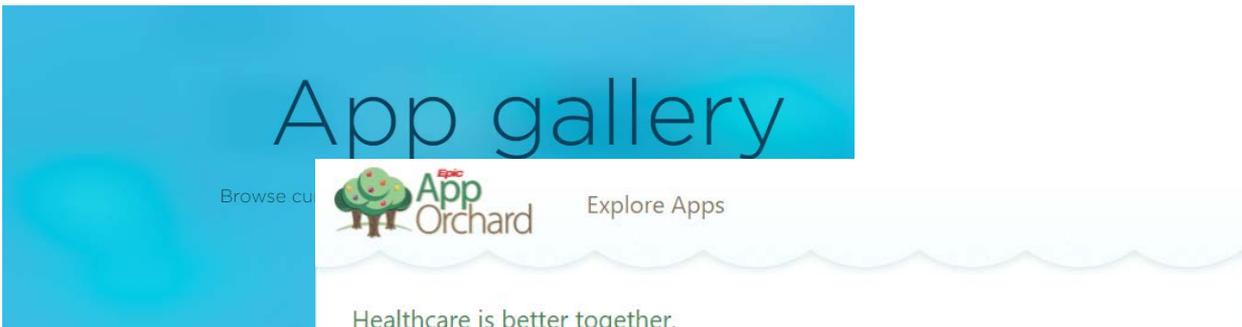
[View](#)

Surescripts, LLC



# EMR Vendor FHIR App Galleries

Cerner | code Start Coding About App Gallery Submit an App FAQs Forum



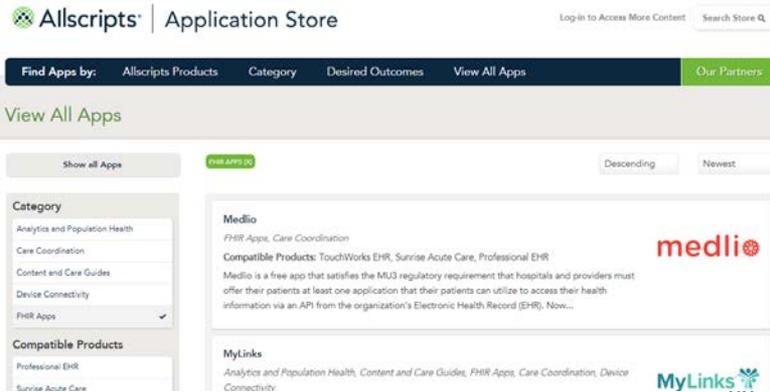
Healthcare is better together.

The App Orchard is where developers can for Epic community members to explore a



## Marketplace for apps

Access a marketplace of apps for



# Within the Clinical Workflow

**Boxer, Jake P** | DOB: 07/14/1961 | Age: 55 years | Sex: Male | MRN: 00010013  
 Allergies: cephalosporins | Dose Weight: | Isolation: | Resuscitation Status: | Clinical Trials:  
 Care Team: <No Primary Contact> | Loc: BW 15NW; 15004; 2 | CommonWell: Not Enrolled | HealthLife: Yes | Advance Dir:

**Mr. John Dokes** | Edit Health Data | DETAILS

**PATIENT INFORMATION**

Full Name: Mr. John Dokes  
 Date of Birth: 1960-03-14 (57y)  
 Gender: Male  
 Patient ID: CV5002

**COMPREHENSIVE DIABETES CARE**

Type 2  
 SCREENINGS  
 Last Foot: Mar 01, 2017 Normal  
 Last Urine: Jan 02, 2017 Normal  
 Last Creatinine: Jan 02, 2017 0.7  
 Last Eye: Mar 01, 2017 Normal

Allergies: sulfa  
 Statin: None  
 ACE-I/ARB: Lisinopril (Oral Pill)  
 Aspirin: None

**WELLBEING SCORE** 54 | See how we calculate this score

A1C: 9.2%  
 BMI: 32.6  
 LDL: 99 mg/dL  
 BP: 122/78

LOGBOOK | MEDICATIONS | MODELING | LABS & VITALS | TARGETS | CARE PLANS

Logbook | TABLE | GRAPH | CGM | ADD ENTRY | MESSAGE PATIENT

Date	Early	Breakfast			Lunch			Dinner			Bedtime	
	3am	before	after	between	before	after	between	before	after	between	before	after
2018-01-24	•	•	•	•	•	•	•	•	•	•	•	•

# A Better EHR: Juxly Timeline

The screenshot displays a patient timeline for a patient at Baseline East Medical Center. The timeline includes the following entries:

- 9:57 am**: Inpatient at Baseline East Medical Center, BE Hospital, 1N, 0151, A (3/1/2017). Staff: Hancock, Herbie, Akinola, Akeem, McCurdy, Michael, Hong, Jennifer, Argonault, Test, Portal, Portal, Vogel, Jason, Hanov, Yegor, Pickering, Kathy.
- 3/21/2017 8:33 am**: CHEMISTRY (Sodium Lvl, Potassium Lvl, Glucose Lvl) and URINALYSIS (UA Ketones 2).
- 3/1/2017 3:00 am**: Renal angiogram.
- 2/17/2017 1:57 pm**: CHEMISTRY (Total Bilirubin < 0.1 mg/dL, 4-8 mg/dL).
- 2/7/2017 12:55 pm**: Outpatient at Baseline East Medical Center, Medical Pavilion, FPC (2/7/2017). Staff: Pivónka, Fran, McCurdy, Michael, Portal, Portal, Dickey, Doug.
- 2/7/2017 8:49 am**: influenza virus vaccine, inactivated. Staff: Pickering, Kathy.
- 2/3/2017 10:36 am**: insulin glargine (Lantus) 25 units, 0.25 mL, Subcutaneous, Daily. Stopped: 2/3/2017 - 8/4/2017. Staff: Pickering, Kathy.
- 2/3/2017**: Renal angiogram.

On the right side, there are panels for:

- Allergies**: sulfa drugs, ibuprofen, acetaminophen/codeine/guaFENesin/PE, penicillins, ibuprofen, calamine-diphenhydramine topical (Dec 14, 2012).
- Medications**: (Empty list)
- Surgical History**:
 

Surgery, elective	Nov 28, 2017
Cholecystectomy;	Aug 2, 2017
Inguinal hernia on right side	May 14, 2017
Renal angiogram	Feb 3, 2017
- Problems**:
 

Estimated RAF	0.874
Atherosclerosis of other coronary artery bypass graft(s) with unstable angina pectoris	Dec 12, 2017
Chronic viral hepatitis C	Dec 5, 2017
Chronic atrial fibrillation	Nov 30, 2017
Chronic obstructive pulmonary disease with acute lower respiratory infection	Oct 3, 2017
Chronic obstructive pulmonary disease with acute lower respiratory infection	Oct 3, 2017
Chronic obstructive pulmonary disease with acute lower respiratory infection	Oct 3, 2017
Chronic obstructive pulmonary disease with acute lower respiratory infection	Oct 3, 2017

At the bottom, there is a navigation bar with filters: Loaded, Encounters (4), Meds (15), Labs (42), Vitals (9), Procedures (4), Diagnoses (3). The interface is powered by Juxly.

No standards regarding discrete data

No integrated communication

**Not user-friendly**

Big data but not smart data

# Continuous, Coordinated Care: RIMIDI

Mr. John Dokes [Edit Health Data](#) DETAILS

**PATIENT INFORMATION**

Full Name  
Mr. John Dokes

Date of Birth  
1960-03-14 (57y)

Gender  
Male

Patient ID  
CV5002

**COMPREHENSIVE DIABETES CARE**

Type 2

SCREENINGS

Last Foot  
Mar 01, 2017 Normal

Last Urine  
Jan 02, 2017 Normal

Last Creatinine  
Jan 02, 2017 0.7

Last Eye  
Mar 01, 2017 Normal  
=====

**WELLBEING SCORE**

54 [See how we calculate this score](#)

A1C 9.2%  
BMI 32.6  
LDL 99 mg/dL  
BP 122/78

LOGBOOK   MEDICATIONS   MODELING   LABS & VITALS   TARGETS   CARE PLANS

Logbook TABLE GRAPH CGM ADD ENTRY   MESSAGE PATIENT

Date	Early	Breakfast			Lunch			Dinner			Bedtime	
	3am	before	after	between	before	after	between	before	after	between	before	after
2018-01-24	●	●	●	●	●	●	●	●	●	●	●	●
2018-01-23	●	●	●	●	●	●	●	●	●	●	●	●
2018-01-22	●	●	●	●	●	●	●	●	●	●	●	●
2018-01-21	●	●	●	●	●	●	●	●	●	●	●	●
2018-01-20	●	●	●	●	●	●	●	●	●	●	●	●

EHR Data

No standards regarding discrete data

No integrated communication

Not user-friendly

Big data but not smart data

Patient Generated Data

# Medicare

API

## Blue Button 2.0

A developer-friendly, standards-based API that enables Medicare beneficiaries to connect their claims data to the applications, services and research programs they trust.

[View the documentation --](#)[Sign up for the Developer Sandbox --](#)

### ***Reduce patient burden***

A research organization can pre-populate a medication lists for a patient during clinical trial enrollment.

### ***Streamline information about different kinds of care over time***

A primary care physician can access information on other patient care (e.g. related to behavioral health) to better inform treatment.

### ***Uncover new insights that can improve health outcomes***

A pharmacy can determine if a beneficiary gets healthier over time due to medication adherence.

### ***Access and monitor health information in one place***

A health application can aggregate data into a health dashboard for beneficiaries.



# Blue Button 2.0 API

In March 2018, CMS announced their FHIR based Blue Button 2.0 API that enables Medicare beneficiaries to connect their claims data to the applications, services and research programs they trust

## What It Is

- API that contains **four years** of Medicare Part A, B, and D data for **53 million Medicare beneficiaries**
- Data includes **information a beneficiary's health**, including Medicare coverage type, drug prescriptions, primary care treatment and cost
- **Beneficiaries have full control** over how their data can be used and by whom



## How It Works

- **App** developers, such as payers and Apple, create and register their apps with Blue Button
- **Using** the app, we can provide beneficiaries with the ability to review the data usage agreement and provide consent digitally
- **Data** can then be accessed by the app using the API services provided by Blue Button in many ways to benefit the member

## Key Benefits



Reduces **patient burden**



**Streamlines information** about different kinds of care over time



**Enables new insights and experiences** to improve health outcomes



Accesses and monitors **health information in one place**

# VA API

## VA Digital | API Platform Management

### VA Benefits API

Build tools to help Veterans electronically manage, submit, track, and receive notifications on their claims.

[Learn more](#)

### VA Health API

Build tools to help Veterans manage their health, view their medical records, schedule an appointment, find a specialty facility, and securely share their information with caregivers and providers.

[Learn more](#)

### VA Facilities API

Get information on VA facilities including contact information, location, hours of operation, available services, appointment wait times, and patient satisfaction.

[Learn more](#)

### VA Veteran Verification API **COMING SOON**

Build tools to help Veterans verify their Veteran status electronically on job sites, e-commerce sites, and third-party benefit sites.

[Learn more](#)

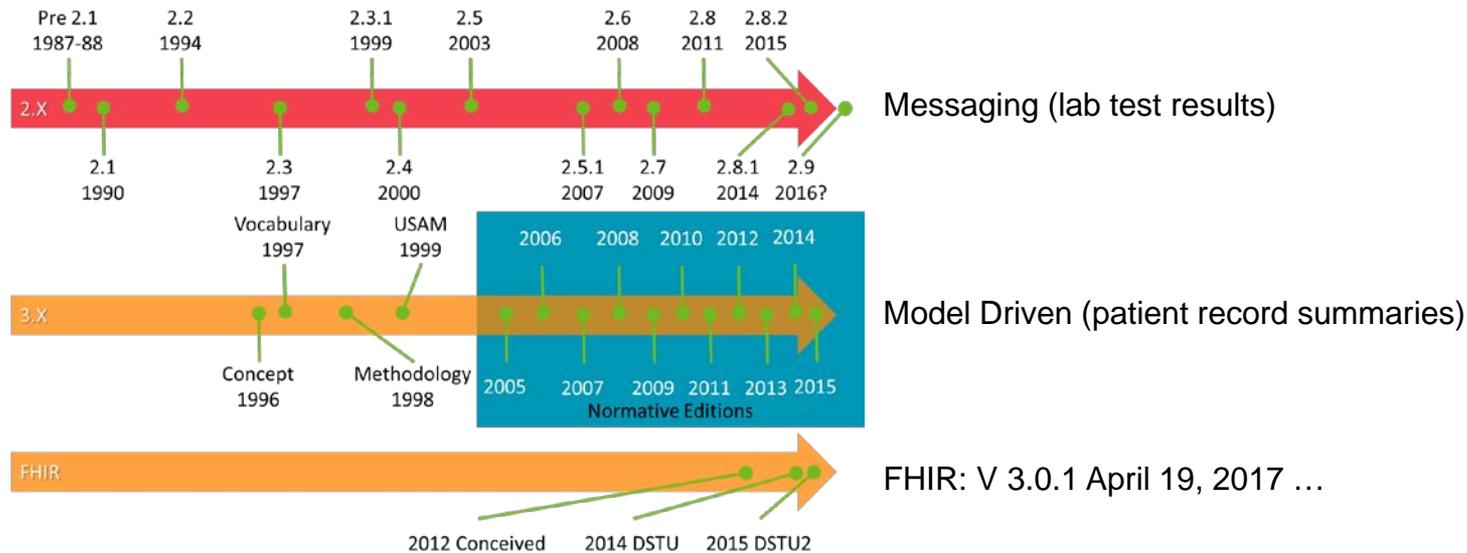
# Apple: Patient Controlled Health Record



# How: A Lingua Franca



# HL7 Timeline

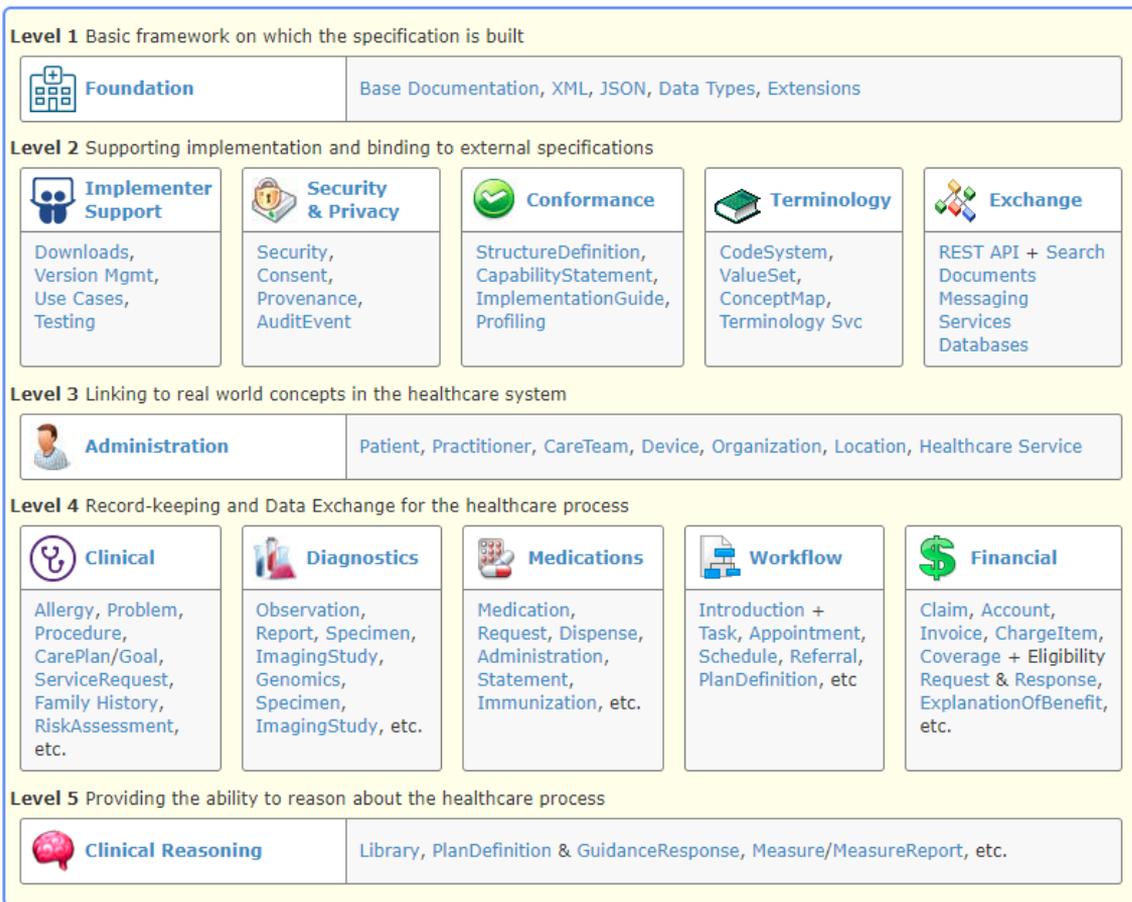


Messaging (lab test results)

Model Driven (patient record summaries)

FHIR: V 3.0.1 April 19, 2017 ...

# A Common Data Model



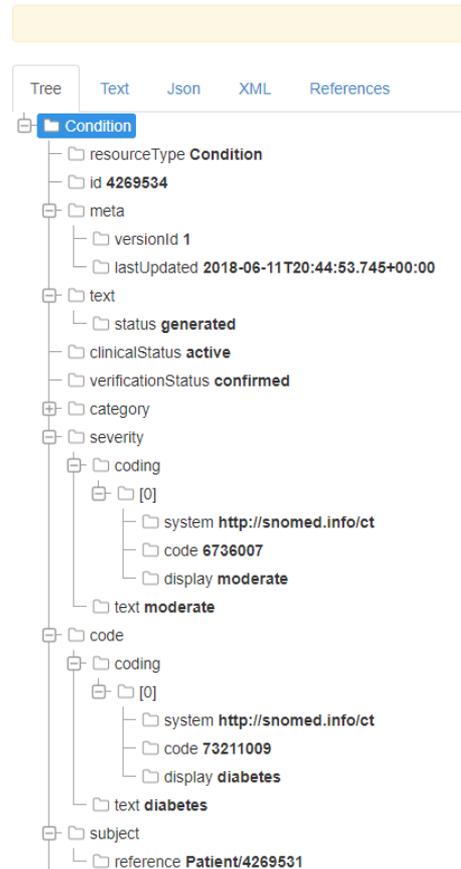
# Condition: Human View

## Resource Types

Appointment	2
<b>Condition</b>	<b>11</b>
Encounter	10
List	2
MedicationStatement	19
Observation	30
Patient	1
Practitioner	2

## Condition resources

<b>diabetes</b>
hypertension
angina
asthma
high cholesterol
onychomycosis
GERD
rheumatoid arthritis - both hands
rheumatoid arthritis - left elbow
depression
neuropathic pain



# A Uniform API



# “Just Like” Amazon!

[https://www.amazon.com.au/s/ref=nb\\_sb\\_noss?url=search-alias%3Daps&field-keywords=size+10+ladies+blue+sweater](https://www.amazon.com.au/s/ref=nb_sb_noss?url=search-alias%3Daps&field-keywords=size+10+ladies+blue+sweater)

[http://hapi.fhir.org/baseDstu3/Condition?code=SNOMED-CT|73211009](http://hapi.fhir.org/baseDstu3/Condition?code=SNOMED-CT|<u>73211009</u>)



# Trusted Exchange Framework and Common Agreement (TEFCA)

- What is it and where does it fit?

## Part A—Principles for Trusted Exchange

General principles that provide guardrails to engender trust between Health Information Networks (HINs). Six (6) categories:

- » **Principle 1 - Standardization:** Adhere to industry and federally recognized standards, policies, best practices, and procedures.
- » **Principle 2 - Transparency:** Conduct all exchange openly and transparently.
- » **Principle 3 - Cooperation and Non-Discrimination:** Collaborate with stakeholders across the continuum of care to exchange electronic health information, even when a stakeholder may be a business competitor.
- » **Principle 4 - Security and Patient Safety:** Exchange electronic health information securely and in a manner that promotes patient safety and ensures data integrity.
- » **Principle 5 - Access:** Ensure that patients and their caregivers have easy access to their electronic health information.
- » **Principle 6 - Data-driven Accountability:** Exchange multiple records at one time to enable identification and trending of data to lower the cost of care and improve the health of the population.

## Trusted Exchange Framework

### PART A

### 6 PRINCIPLES

### PART B

### TERMS AND CONDITIONS

## Part B—Minimum Required Terms and Conditions for Trusted Exchange

A minimum set of terms and conditions for the purpose of ensuring that common practices are in place and required of all participants who participate in the Trusted Exchange Framework, including:

- » Common authentication processes of trusted health information network participants;
- » A common set of rules for trusted exchange;
- » A minimum core set of organizational and operational policies to enable the exchange of electronic health information among networks.



# Remaining Gaps/Concerns

- FHIR has brought monumental progress and hope!
- Remaining gaps/concerns
  - Quality of data
  - Harmonization and standardization of data
  - Adoption of a RESTful paradigm and associated principles in healthcare
  - Versioning
  - Scale



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"I will tell you right upfront: This is really hard; it's really humbling; it's really complicated, but if we all work together, we can really save lives at a scale that is unimaginable, because of the impact of these technologies."



*Eric Schmidt, PhD, former Google CEO and former executive chairman of Alphabet*



# Questions

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- Please complete online session evaluation!





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# Appendix



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## Use cases - Data Exchange for Quality Measures (DEQM) (aka: Medication Reconciliation Post-Discharge, MRP)

- Payers and providers need common transport tools to share the data required to complete medication reconciliation at all transitions care, for care management plans, during medication changes.
- Proof of 30 day medication reconciliations is increasingly required for value based care incentives. Providers and care coordinators face the challenge of collecting accurate and complete patient medication records across care settings.
- 30 day medication reconciliation consists of multiple steps:
  - In-patient discharge
  - Discharge medication list
  - Exchange of the medication list with the responsible provider (may be via payer)
  - Including discharge medications in responsible providers EHR
  - Reconciliation of all medications
  - Attestation to the reconciliation (focus of the current use case)



## Use Case – Coverage Requirements Discovery (CRD)

- Providers need to easily discover which payer covered services or devices have:
  - Specific documentation requirements
  - Rules for determining need for specific treatments/services
  - Requirement for Prior Authorization (PA) or other approvals
  - Specific guidance
- With a FHIR based API, providers can discover in real-time specific payer requirements that may affect the ability to have certain services or devices covered by the responsible payer.
- The discovery may be based on:
  - Plan conditions only (e.g. no need for PHI)
  - Member identification (PHI) in the event the specific plan is not known at the time of request
- Response may be:
  - The answer to the discover request
  - A list of services, templates, documents, rules
  - URI to retrieve specific items (e.g. template)



## Use Case – Documentation Templates and Coverage Rules

- Providers are challenged to deal with the diversity of administrative and clinical requirements that impact documenting the need for treatment and selecting the appropriate best path for care. The current environment is made more complex by the large number of payer based requirements that must be met to document that covered services and devices are medically necessary and appropriate.
- The goal of this use case is to reduce provider burden and simplify process by establishing electronic versions of administrative and clinical requirements that can become part of the providers daily workflow. An exemplar for this use case is to follow the approach taken to incorporate formulary requirements interactively into the medication selection process. Proposal includes the ability to inject payer coverage criteria into provider workflows akin to clinical decision support (CDS Hooks), to expose rules prospectively while providers are making care decisions. A limited reference implementation on a limited use case (e.g. Home Oxygen Therapy)
  - Address coverage requirements, documentation compliance, and detect misuse / abuse
  - Provide value based care requirements at point of service
  - Collect, in real-time, patient information to alert provider or care team



## Use Cases – eHealth Record Exchange (HEDIS/Stars & Clinician Exchange)

Today most attachments are transmitted manually via FAX or traditional mail, resulting in significant inefficiencies and higher costs. The majority of electronic attachments are sent via web portal uploads (proprietary) or via X12 transactions (as part of HIPAA EDI regulations). However, outside the realm of HIPAA, it is important to support the value-based care needs for clinical information exchange to support risk adjustment data and for provider-to-provider exchange for improved care management.

