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Medication Reconciliation Hackathon

Implementing FHIR

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Topics

What we'll talk about:

1. FHIR Use Cases
2. Specific Implementation Experiences
3. The SMART Part (EHR Launch)

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FHIR Use Case: Personal Health Record

Description: The patient can access their medical information through a RESTful API usually provided by a third party.

Flow:

- Provides the patient with a login that identifies them (or links the patient record to an external identity provided by OpenID, Facebook, Google, etc.)
- Authenticates the client using an appropriate OAuth server for the login (possibly their own) and restricts the client to viewing records associated with the specific patient (or patients, where appropriate access has been arranged)

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FHIR Use Case: Personal Health Record

Examples:

- **Blue Button**
  (https://www.healthit.gov/topic/health-it-initiatives/blue-button)

"This data reveals a variety of information about a beneficiary's health, including type of Medicare coverage, drug prescriptions, primary care treatment and cost. Beneficiaries also have full control over how their data can be used and by whom, with identity and authorization controlled by MyMedicare.gov.

Blue Button 2.0 uses the HL7 FHIR standard for beneficiary data and the OAuth 2.0 standard for beneficiary authorization."

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https://bluebutton.cms.gov/

FHIR Use Case: Personal Health Record

Examples:

Apple Health Records
(https://www.apple.com/healthcare/health-records/)

"The Health app makes it easier than ever for users to visualize and securely store their health records. Now your patients can aggregate their health records from multiple institutions alongside their patient-generated data, creating a more holistic view of their health."

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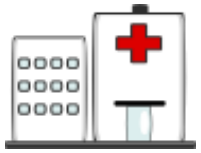
https://www.apple.com/healthcare/health-records/

FHIR Use Case: Document Sharing

Provider

Patient



Hospital

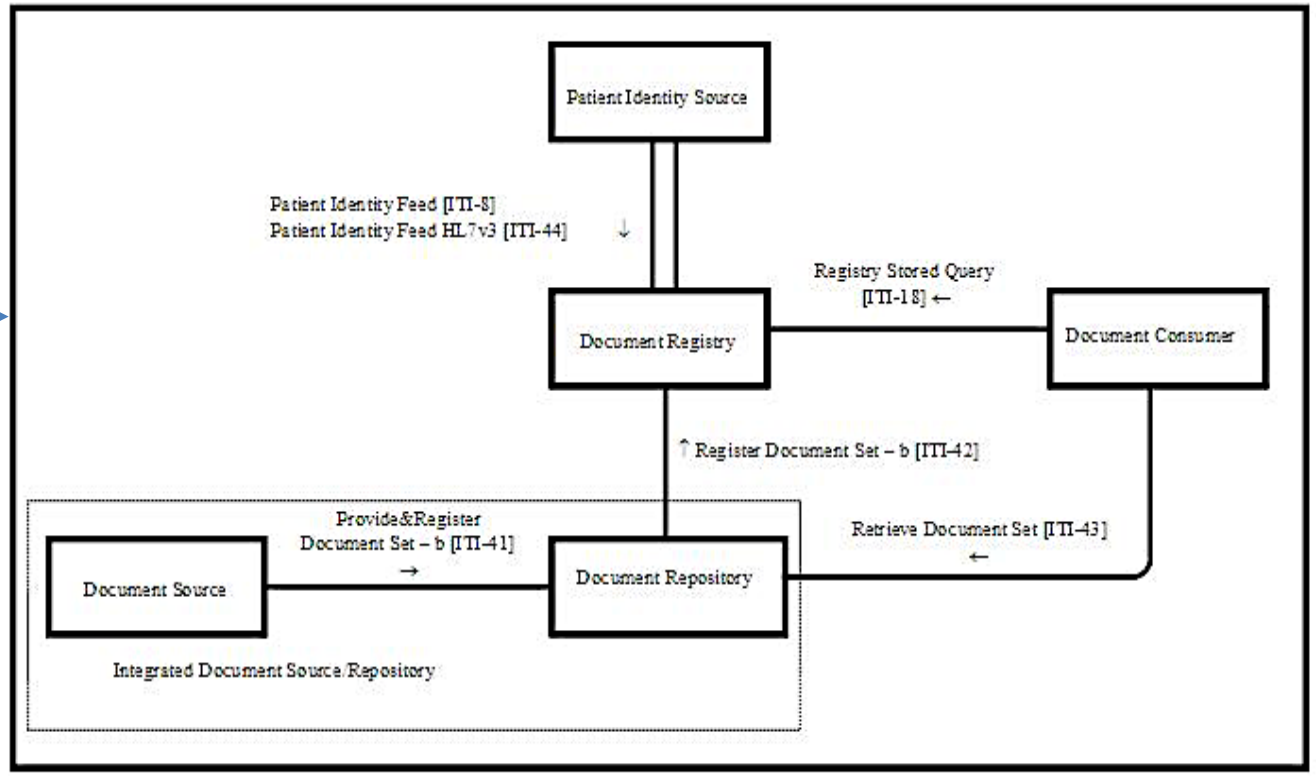
FHIR Server

Payor

Insurer

IHE – Integrating the Healthcare Enterprise

https://www.ihe.net/



https://wiki.ihe.net/index.php/Cross-Enterprise_Document_Sharing

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FHIR Use Case: Document Sharing

Example Provider Use Case for Document Sharing

I'm looking at my patient's chart in my EHR. I have a widget that is really a FHIR app and can connect to a local HIE so I can get a community view of my patient's medical information.

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FHIR Use Case: Document Sharing

Example Person Use for Document Sharing

I'm at my doctor's office and she asks me a question about a medication I'm taking. It doesn't sound familiar so I access the myCTHealth app to look it up. The app provides access to my data from around the state through a FHIR based resource server. Some of the data comes from source systems that can only provide Continuity of Care Documents (CCD), which my app transforms so they are easily understandable on my phone. My provider asks me if I would mind sharing the data so I select my provider from the list in the app and hit the send button. This sends the CCD to my provider's EHR.

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FHIR Use Case: Health Payers

The Da Vinci Project Use Cases

1. Data Exchange for Quality Measures (DEQM): Medication Reconciliation Post-Discharge (MRP)

Payers and providers need common transport tools to share the data required to complete medication reconciliation at all transitions of care.

2. 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

3. eHealth Record Exchange: Clinical Data Exchange (CDex)

Providers and Payers need to exchange information regarding prior and current healthcare services planned for or received by the patient/member to more effectively manage the patients care.

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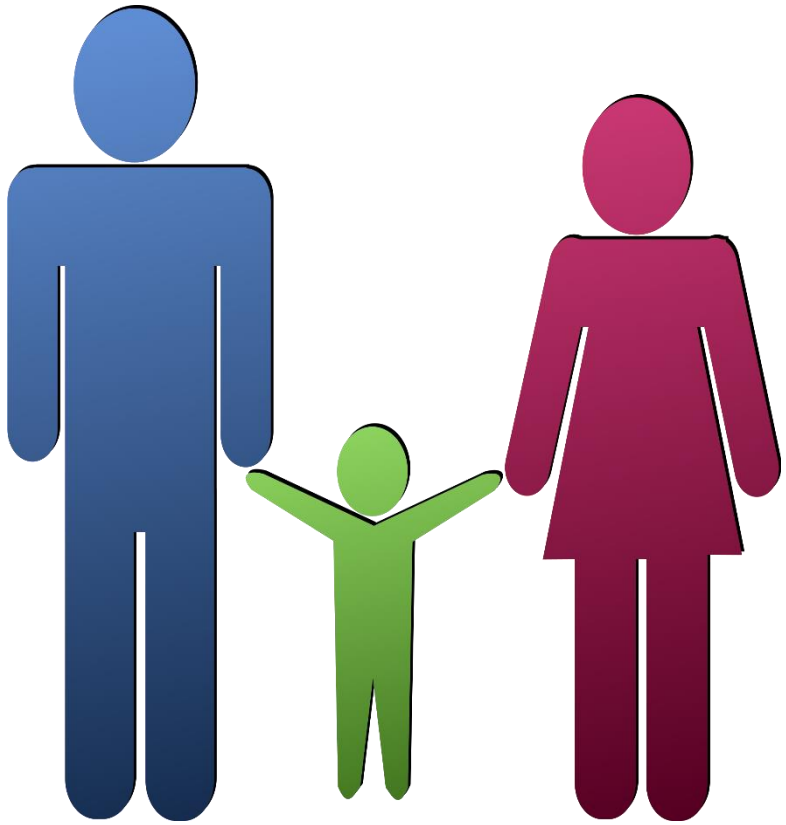
Many more: http://www.hl7.org/about/davinci/index.cfm

FHIR Use Case: Insurance Coverage



I need to get life insurance to protect my growing family. My insurance agent asks me to sign a medical release so he can get my medical data electronically to provide the best policy rate. Behind the scenes the insurer uses various Health Care APIs to connect to EHRs that provide a life insurance use case.

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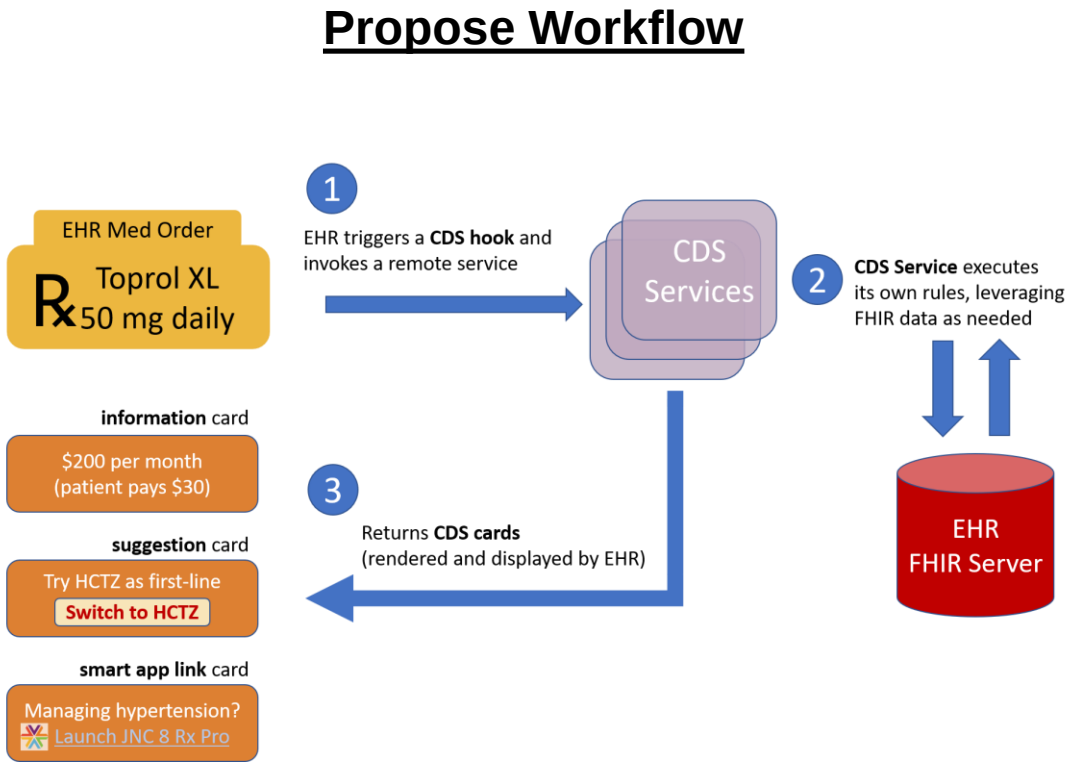
FHIR Use Case: Clinical Decision Support (CDS)

CDS Hooks

A "hook"-based pattern for invoking decision support from within a clinician's workflow. The API supports:

- Synchronous, workflow-triggered CDS calls returning information and suggestions
- Launching a user-facing SMART app when CDS requires additional interaction

Still in active development (https://cds-hooks.org/)



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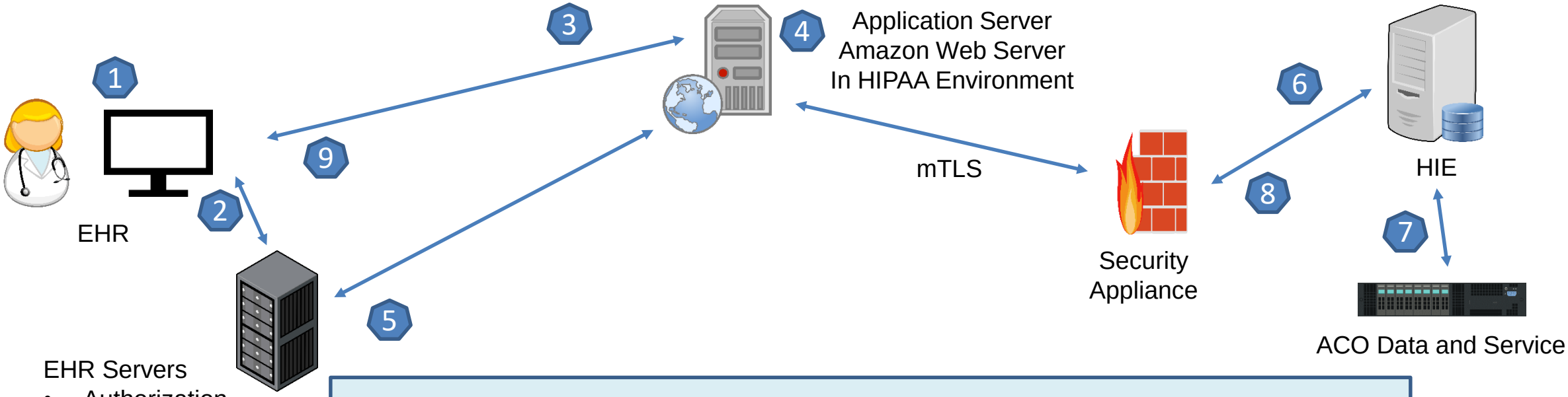
Patient Care Tracker

High Level Requirements for Care Provider:

- Identify if a patient is a member of the BeHealthy ACO.
- Identify if my patient has completed their Care Needs Screening (ACO requirement).
- Show all the providers who have worked with my patient in the last few years.
- Provide contact information for providers.
- View my patient's most recent clinical engagements from the HIE and provide some detail about the nature of the engagement.
- See patient demographic information.
- Present the above information in my normal EHR workflow.

Real World FHIR Implementation



Flow:

1. Public FHIR Client launch by EHR
2. JS client coordinates authentication with EHR authentication server
3. JS client calls application server to request patient data
4. App server checks token against security criteria
5. App server calls EHR FHIR server (passing token) for Patient Resource
6. App Server calls HIE service for aggregated patient community data
7. HIE Service calls ACO service for ACO specific data
8. HIE service returns HIE and ACO data to Application Server
9. Application server formats data and returns to JS client

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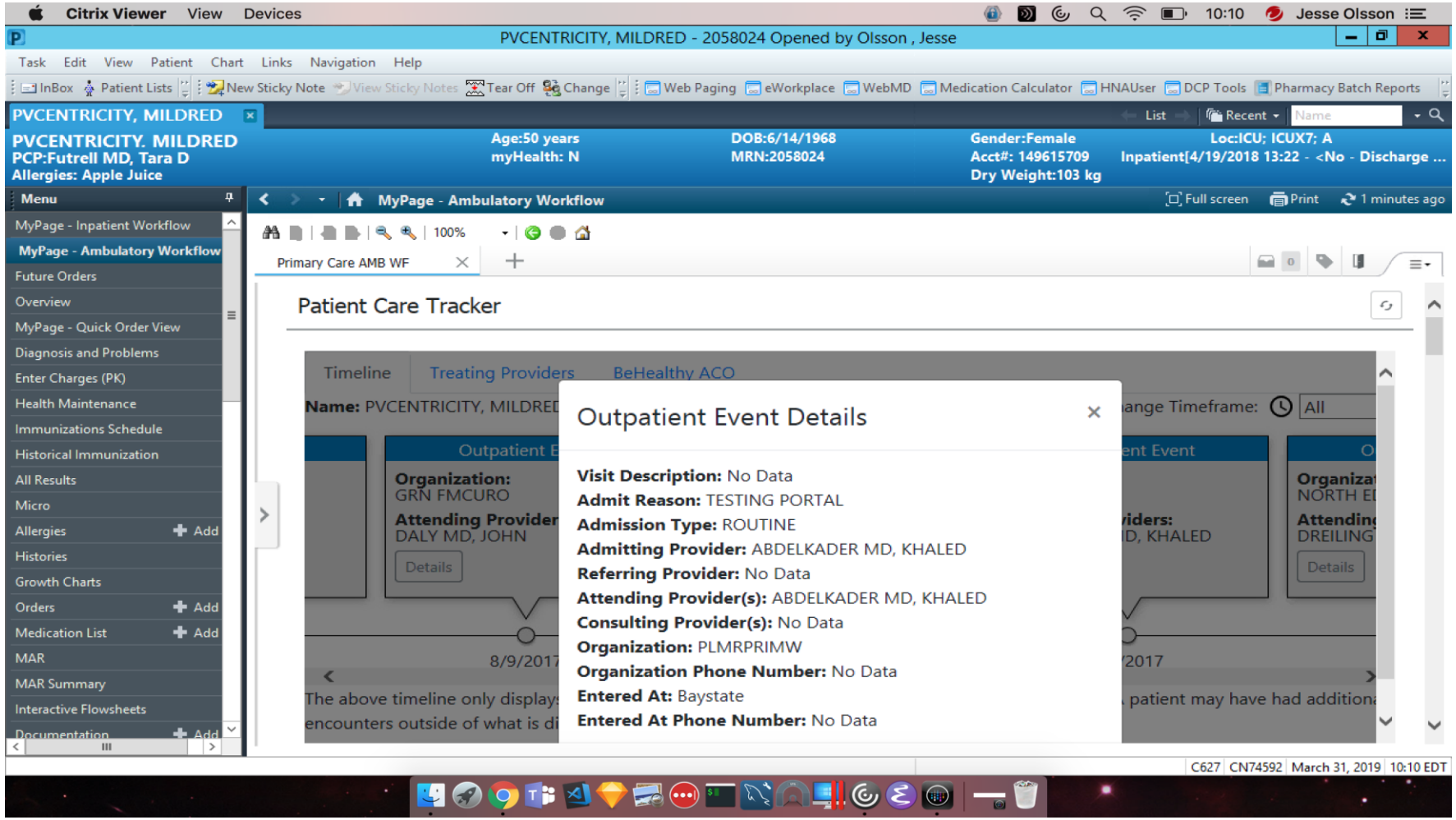
Real World FHIR Implementation

Tracking Screen



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Real World FHIR Implementation

Treating Providers

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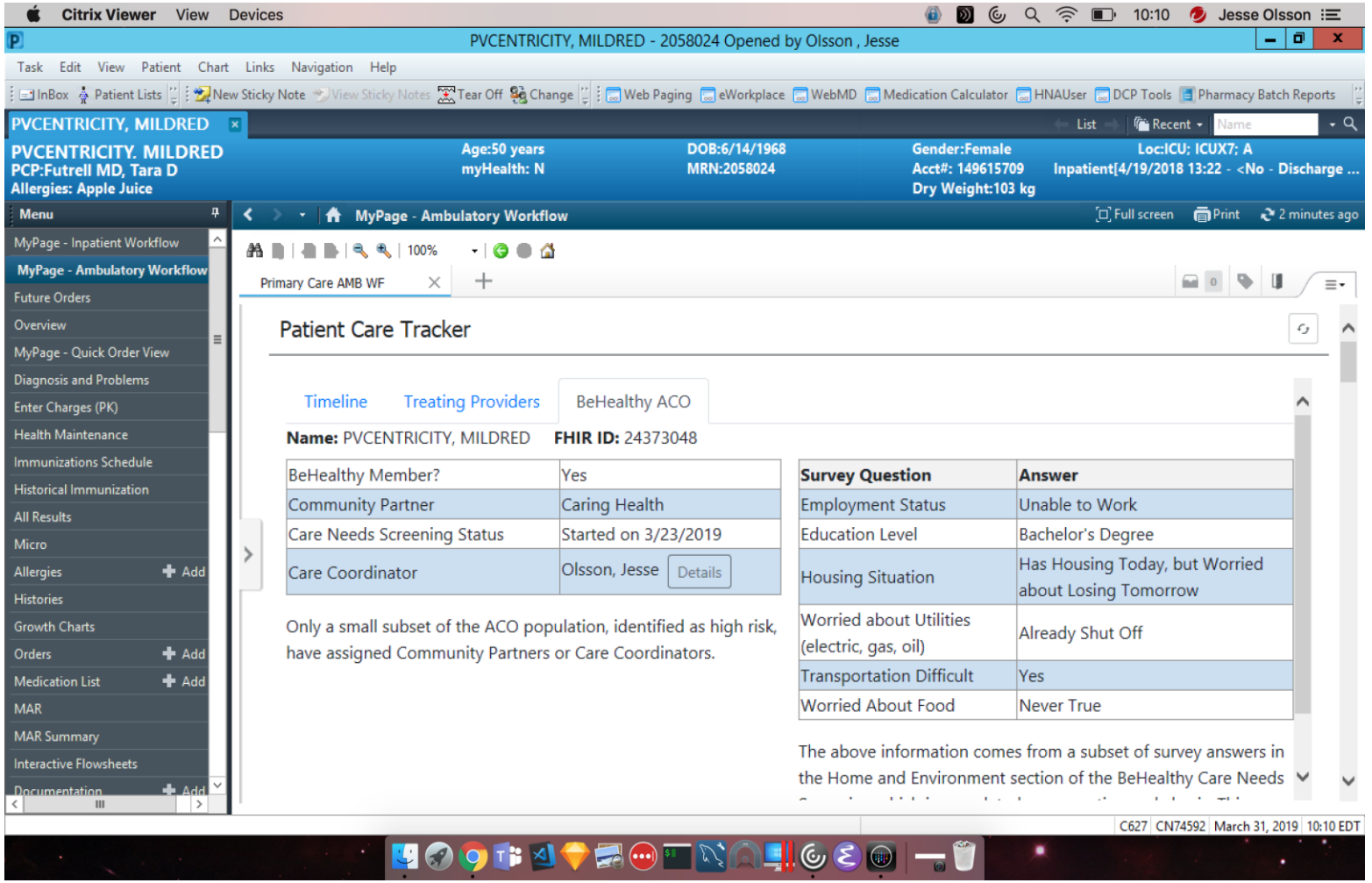
Real World FHIR Implementation



ACO DATA

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What Is SMART?

SMART—An App Platform for Healthcare

"SMART Health IT is an open, standards based technology platform that enables innovators to create apps that seamlessly and securely run across the healthcare system. Using an electronic health record (EHR) system or data warehouse that supports the SMART standard, patients, doctors, and healthcare practitioners can draw on this library of apps to improve clinical care, research, and public health."

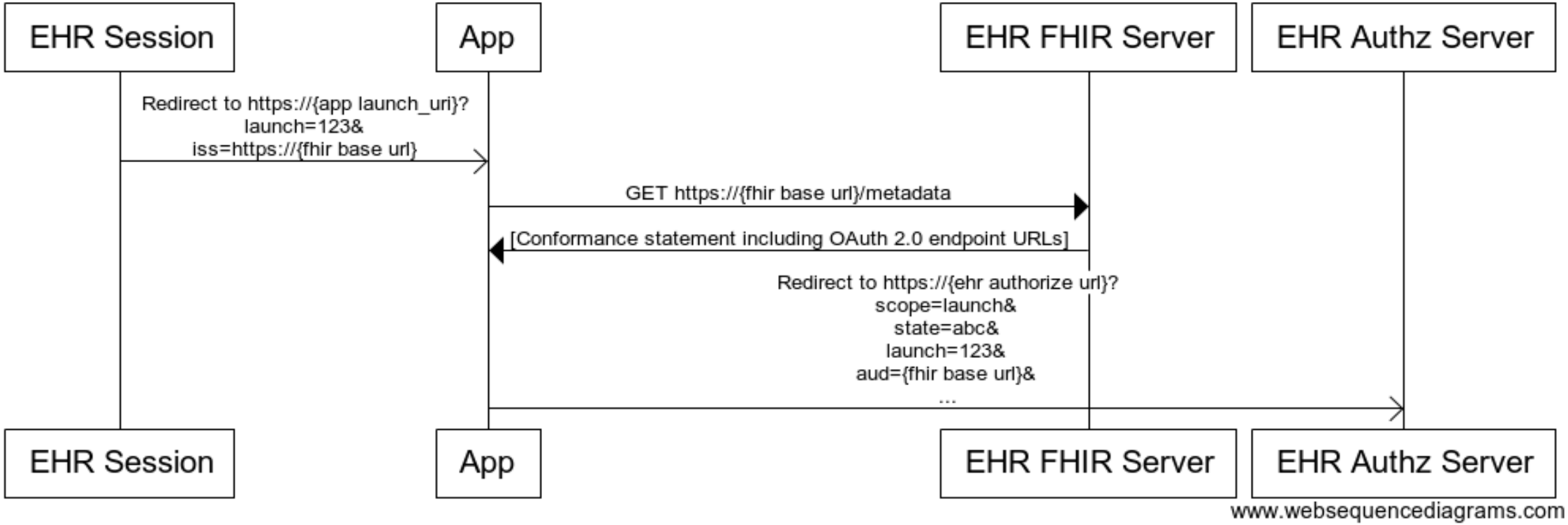
(https://smarthealthit.org/an-app-platform-for-healthcare/about/)

What Is SMART?

SMART standards outline a robust authorization model for apps based on the OAuth standard, providing a key component that enables innovation while keeping patients and providers in control of their data.

(https://smarthealthit.org/an-app-platform-for-healthcare/about/)

The SMART Part



(http://hl7.org/fhir/smart-app-launch/)

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Demo SMART
Server Orchestrated
Public Client Launch

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Questions

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