

# Getting Started with open.epic

# **Presenters**

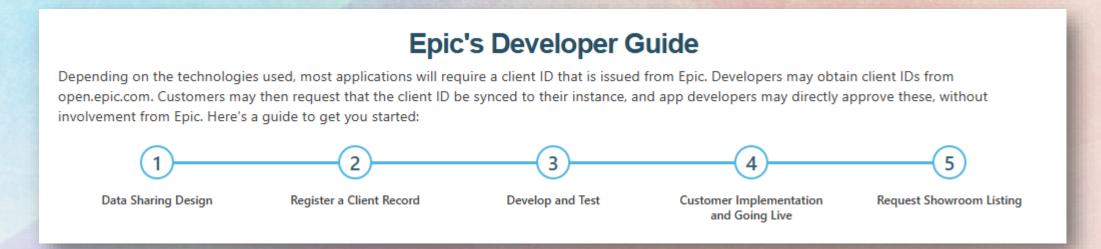


Justin Hewitt

Showroom Technical Services

# **Learning Objectives**

- 1. Understand Epic's standards-first approach to data exchange
- 2. Walk the road(map) from app concept to Go-Live
- 3. Strategies for successful connectivity and collaboration with customers



# **Agenda**

- **O1** Data Sharing Philosophy and Design
  - Overview of supported standards, our websites, and architecting your data exchange
- Obtain client IDs for implementation of OAuth 2.0
- Develop and Test

  Simulate app launches and connectivity by connecting to our FHIR developer sandbox
- O4 Customer Implementation and Going Live
  Strategize your install project and Go Live with Epic customers
- 05 Request Showroom Listing

  Market your live product in Connection Hub

# **Sharing Data** with **Patients** & **Providers**







14 million patient charts exchanged daily

>52% of exchanges are with non-Epic systems









# **Generalize** to **Benefit More** with **Industry Standards**



5x more FHIR APIs than required



#### **Interfaces**



+368 billion

interface messages annually



+55,000

active interfaces



+2,600

vendors



## open.epic.com



#### Paths Epic Provides for Third Parties to Connect

available on open.epic.com



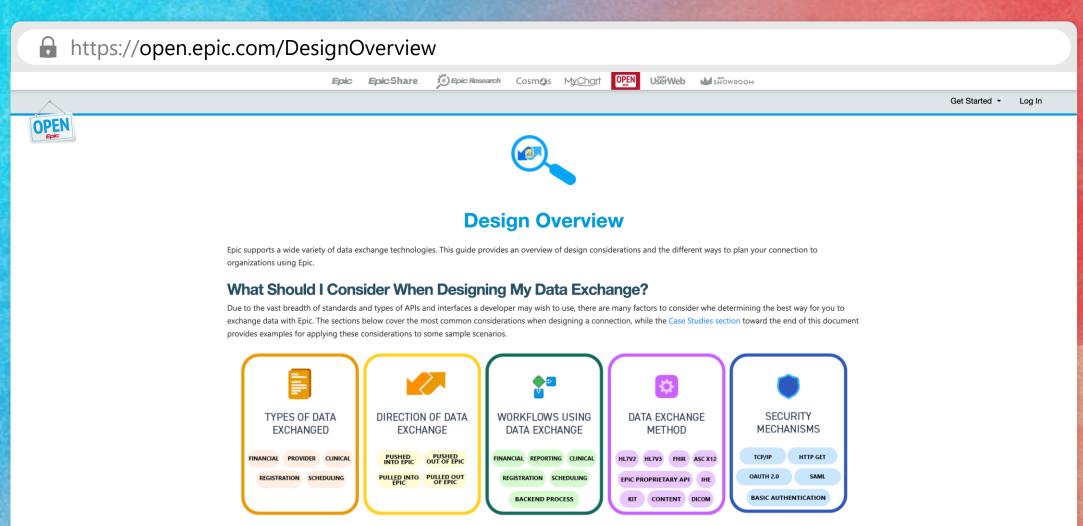


180+ standardsbased interfaces including HL7, DICOM, ASC X12, and more



150+ Epic-created public APIs
for scenarios where there was no standard

# **Data Exchange Tutorial**

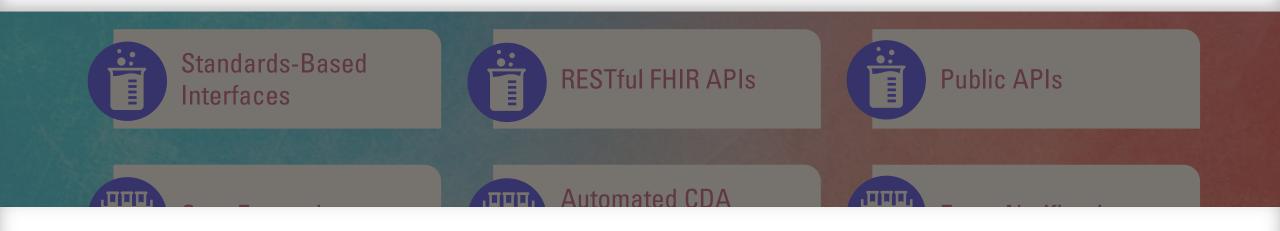


Types of Data to Exchange

Before you begin designing your connection, you must first understand what data you plan to exchange with Epic. Start by defining the discrete types of data your app will work with, and define a scope for the level of detail required within that data set. For example, you may need to exchange medication information. You should then more specifically define data elements you need within that data type, such as dosage information, RxNorm codes, etc.

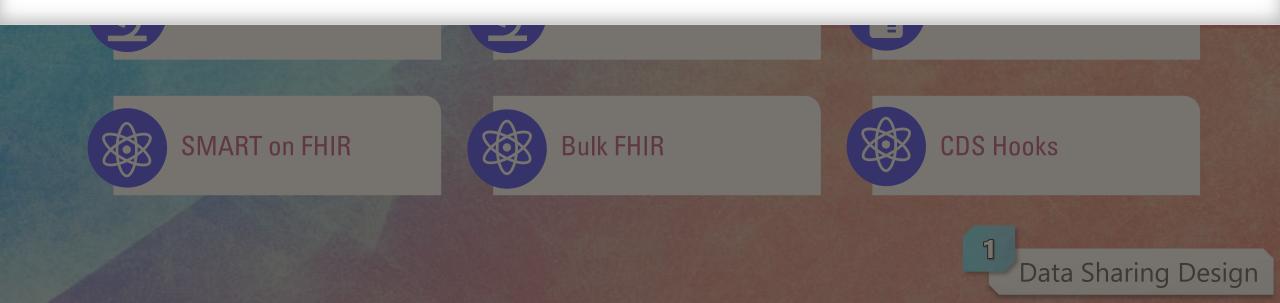
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# **Data Exchange Tutorial**



When designing a new integration, start with the <u>use case</u>.

The <u>technology</u> will follow.



## Common Interfaces & Use Cases



Appointment Scheduling
Blood Transfusions
Financial Transactions
Flowsheet and Device Data
Inventory/Supply Management
Medication Administrations

Orders and Results
Patient Administration
Referral Management
Surgical Scheduling/Tracking
Transcriptions/Documents
Vaccine Administrations



External Paid Rx Claims Medication Dispense History Medication History Refill Requests from Pharmacy Rx Prior Authorization Rx to Retail Pharmacy Rx Benefits Claims Adjudication



Authorization
Benefit Enrollment
Claim Remittance Advice
Claim Status

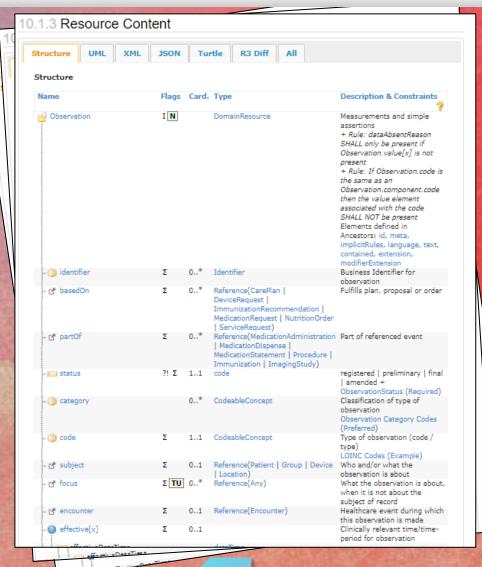
Claims
Eligibility Verification
Referral Request

#### FHIR APIs & Use Cases



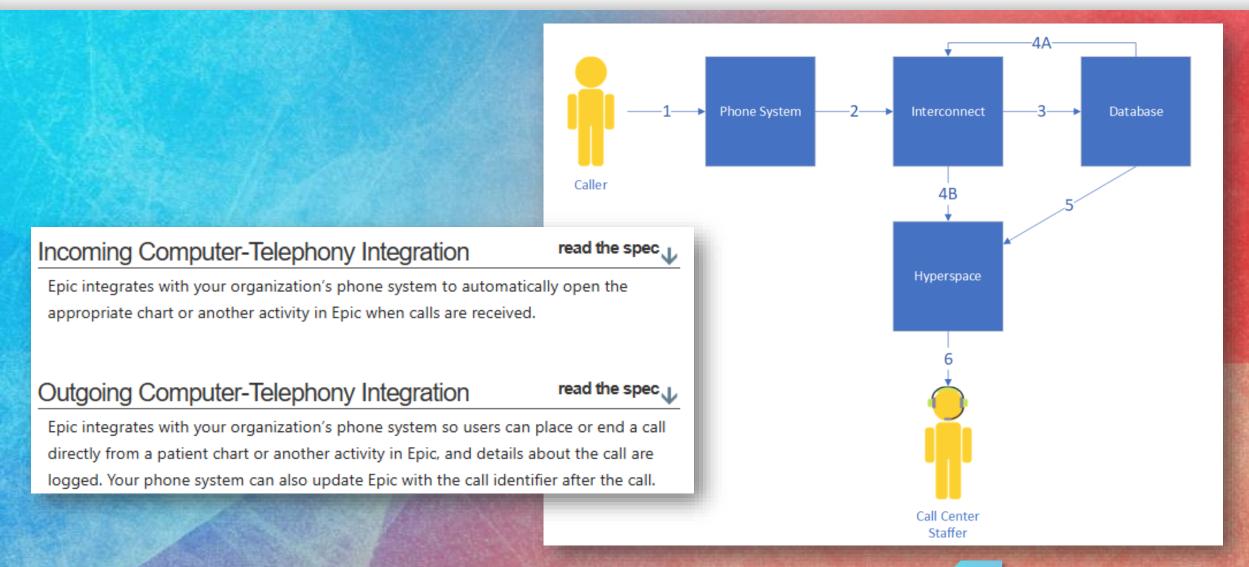
138 billion messages

in the past year



1

# **Epic Public APIs**



# **Data Sharing Playbooks**



https://open.epic.com/Playbooks

**Epic**Share











Get Started ▼



#### **Data Sharing Playbooks**

Data Sharing Playbooks offer practical recommendations for connecting with Epic community members. Each playbook highlights proven approaches to common data sharing use cases, whether supporting patient-directed access, enabling providers to deliver whole-person care, or improving operations. By leveraging open standards, these playbooks help innovators accelerate safe, reliable connections.







Provider Workflows



Operational Efficiency

#### **Alert Managers**

Alert Managers ingest alerts from a variety of devices, such as inpatient vitals monitors, and determine who should get notified for each alert via Epic's Alert Communicator.

#### **Ambulatory Cardiac Devices**

Wearable cardiac devices like Holter monitors, event monitors, long-term continuous monitors and mobile cardiac telemetry, are used to monitor and record cardiac data while a patient is away from the office or hospital.

#### **Automated Dispensing System**

Automated Dispensing Systems (ADS) are computerized devices that store, dispense, and track medications at the point of service by receiving patient and order information to determine available medications and send dispense information back to Epic when medications are removed.

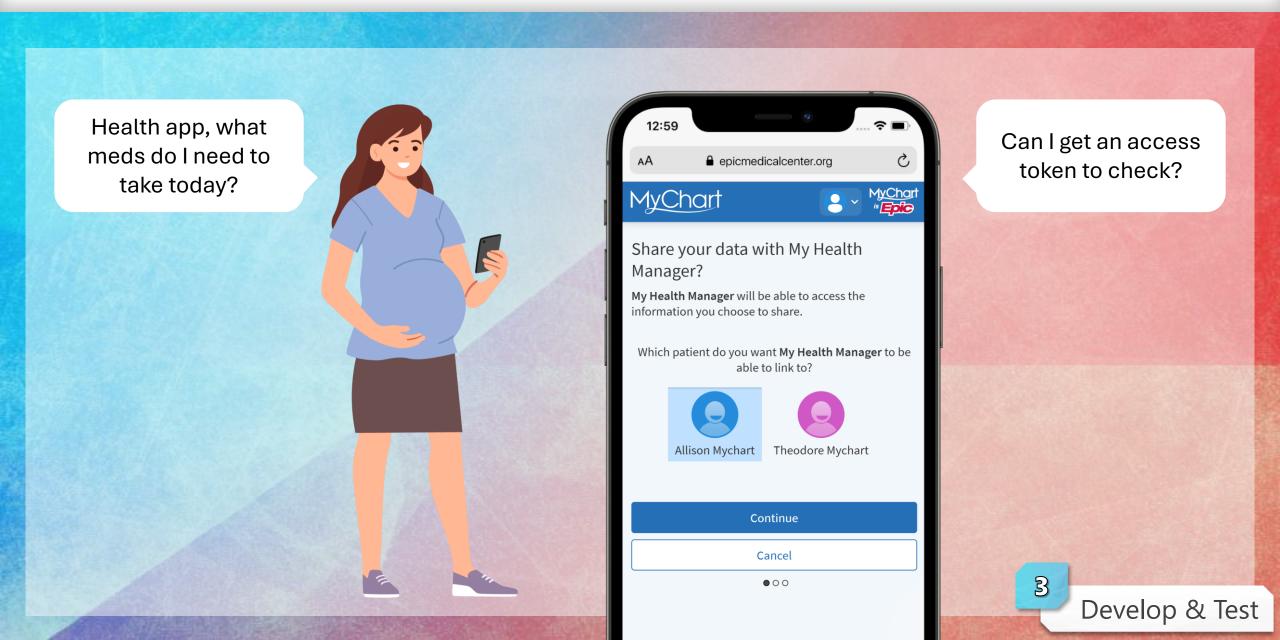
**Bayesian Medication Dosing Decision Support** 



# Register a Client Record



## OAuth 2.0 in a Nutshell



## OAuth 2.0 in a Nutshell

OAUTH

2.0

#### **Actors**

Define who does what

#### Workflow

How access tokens are obtained

#### **Security**

How messages are exchanged securely

### **Authentication Layer**

How identity is communicated



## Scopes

Define what data the client can access



## **Standardized APIs**

Common data format



#### **Context**

Support users within their workflow

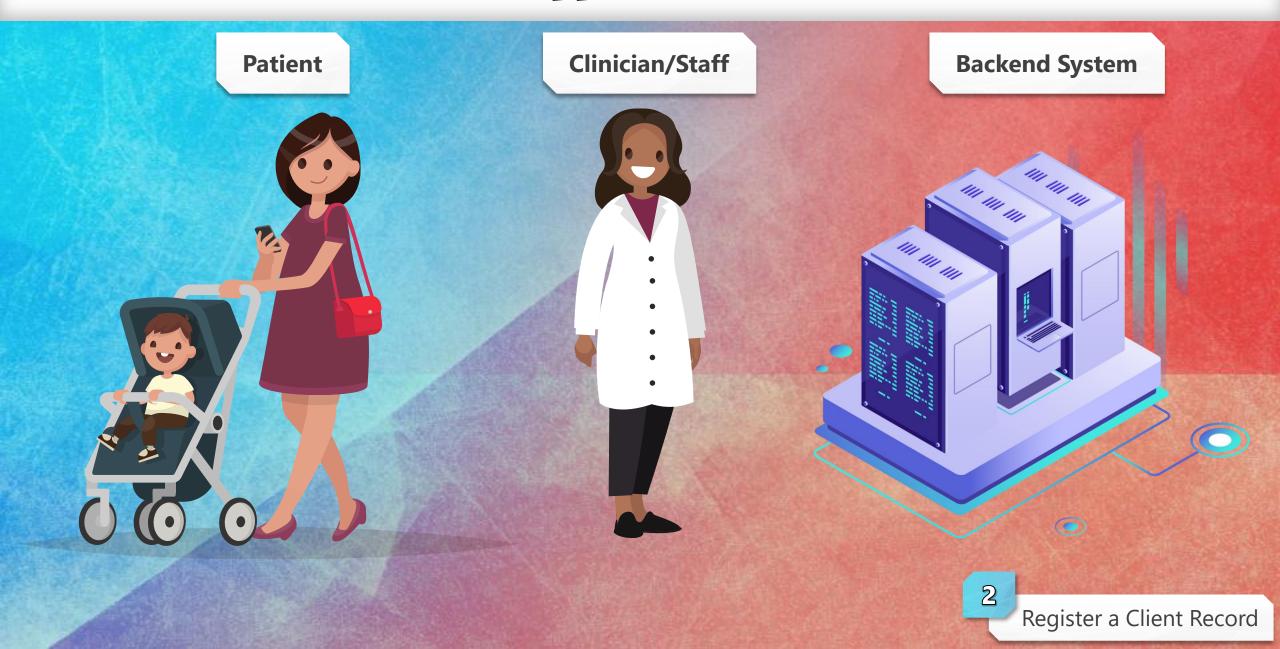


#### Scale

Expand across systems



# **App Contexts**



# When to and Why Make an App



#### **Client ID Validation**

- Incoming APIs
- Incoming HL7 over HTTP
- Some Outgoing APIs

#### Hello my name is

e2b9c7c0-f4c4-4cda-8632-2eb17a1c7f40



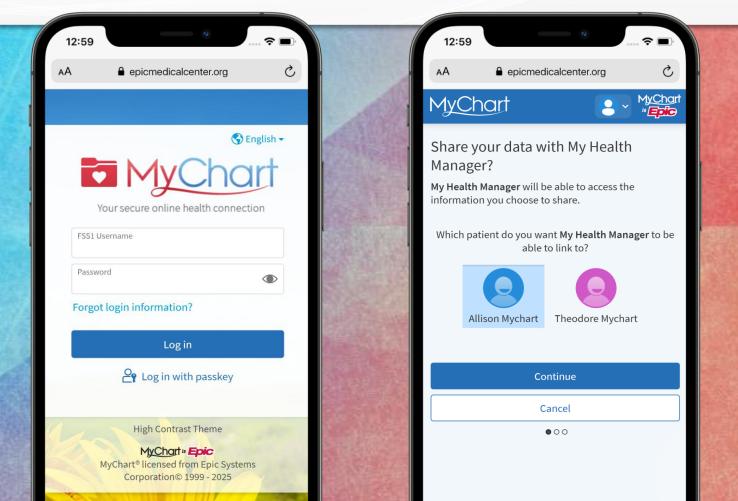
Use the Non-Production Client ID in the Sandbox

Application Name  Close Encounters of the Health Kind	Version 1.0	
Client ID	Non-Production Client ID	
f02ea342-ef6a-42e0-af14-8daff1a67b99	e2b9c7c0-f4c4-4cda-8632-2eb17a1c7f40	

2

#### **Standalone** (Patients or Providers)

User authorizes your app via their Epic login page, for example, MyChart.

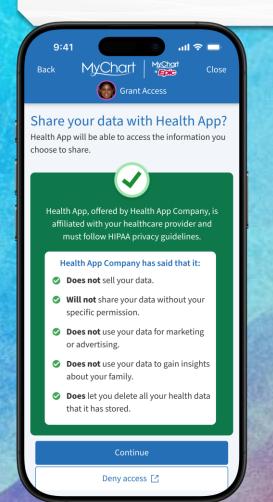


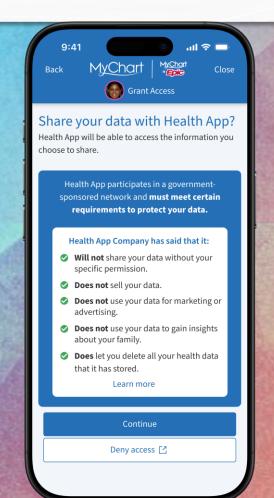
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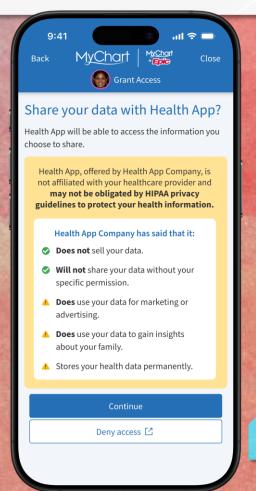
Develop & Test

#### **Standalone** (Patients or Providers)

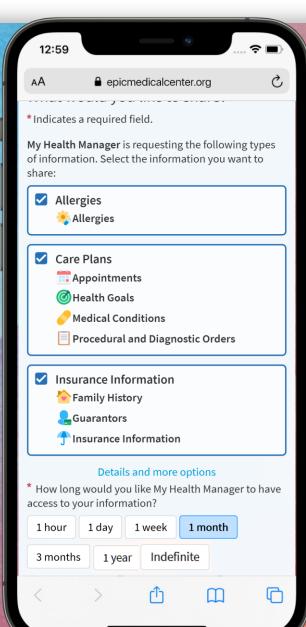
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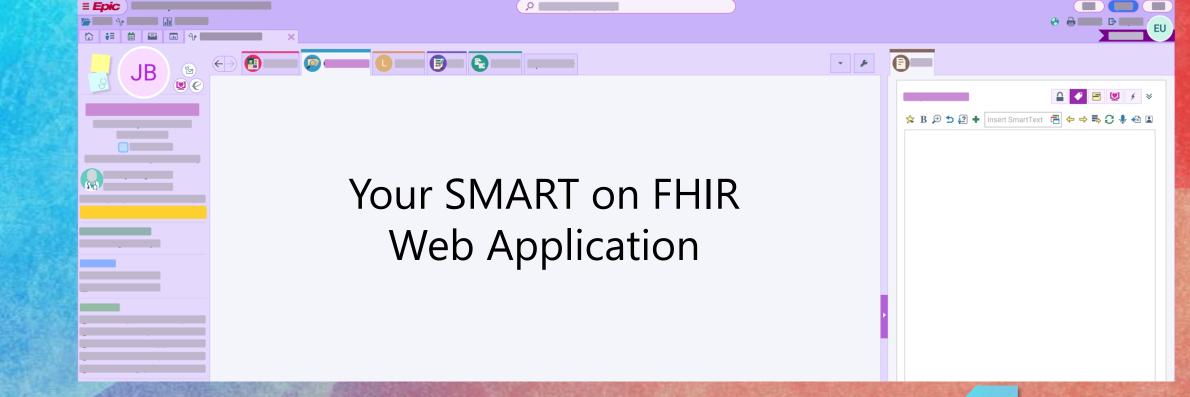


- Added in response to 21st Century Cures
- Gives proxies and patients granular control over what data is shared



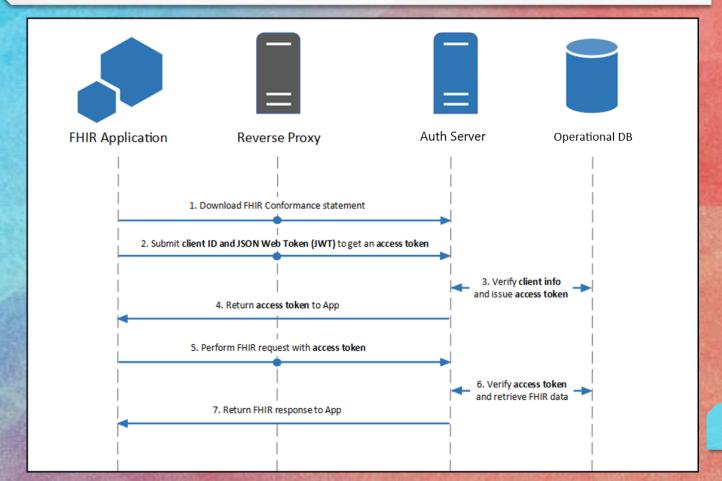
#### **SMART EHR Launch (Patients or Providers)**

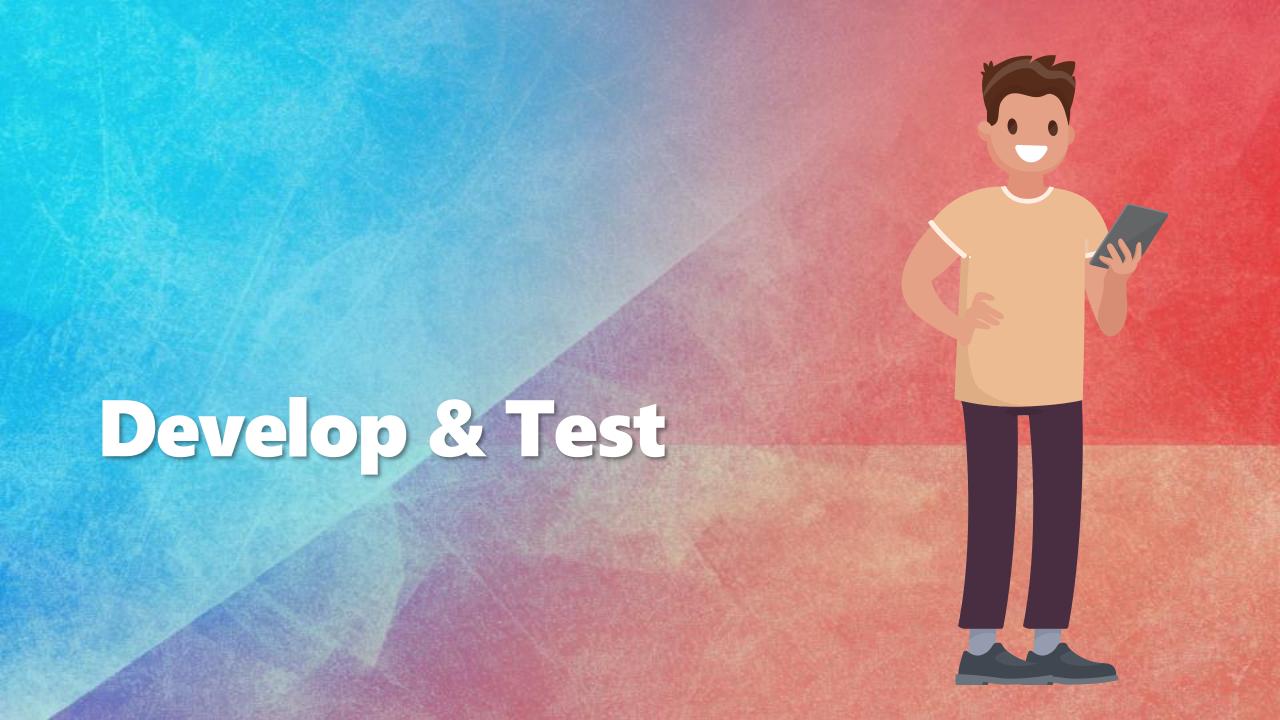
Launch from Epic and use token information to obtain user and patient contextual information.



#### **Backend Services**

Retrieve data outside of user-initiated workflows





# **Building FHIRAPI Calls/Structure**

Observation . Read (Vital Signs) (R4)

"Resource"

"Action"

"Subresource"

"Version"

# **Building FHRAPI Calls / Documentation**

Observation.Read (Vital Signs) (R4) USCDI @

General Information

HTTP Method:

URL Template:

Supported OAuth 2.0 User Types: 1

GET

api/FHIR/R4/Observation/{ID}

Backend Systems and Non-OAuth 2.0, Clinicians or Administrative

Users, Patients

#### Description

The FHIR Observation resource defines measurements and assertions about a patient, including vital signs, laboratory data, imaging results, devices measurements, clinical assessment tools, personal characteristics, social history, and core characteristics.

The following types of vital information and corresponding LOINC codes are supported by default. How specific types of data translate from within the Epic system to FHIR might vary depending on organizational configuration:

- 2708-6 Oxygen saturation in arterial blood
- 2710-2 Oxygen saturation in capillary blood by oximetry
- 29463-7 Body weight
- · 3141-9 Body weight measured
- 3150-0 Inhaled oxygen concentration
- 3151-8 Inhaled oxygen flow rate
- 59408-5 Oxygen saturation in arterial blood by pulse oximetry (SpO2)
- · 8287-5 Head occipital-frontal circumference by tape measure
- 8302-2 Body height

3

Try It 👄

# **Building FHERAPI Calls / Documentation**

#### **Native Request Elements**

Name	Description	Is Optional	Is Array
category (String)	Use "vital-signs" to search for vitals observations.	conditional 📵	false
code (String)	LOINC code, CADSR code, flowsheet ID, or encoded flowsheet ID. Either this element or category must be provided.		
	The code element value varies depending upon what is passed (for example, a flowsheet ID vs. a LOINC code). If using a flowsheet ID, the system value is different between Epic organizations, and it is also different between production and non-production environments for the same organization.	conditional 1	false
date (String)	The date range for when the observation was taken.  For growth chart data (Epic version August 2021 and later), only the most recent observation within the timeframe is returned.	true	false
patient (String)	Reference to a patient resource the observation is about. Either this element or subject must be provided. If both are provided, they must match.	conditional 1	false
subject (String)	Reference to a patient resource the observation is about.  Either this element or patient must be provided. If both are provided, they must match.	conditional 1	false

# **Building FHRAPI Calls / Documentation**

#### **Post-filter Request Elements**

encounter (String)

Starting in the May 2024 version of Epic, the following search parameters that use a post-filtering mechanism are available. When responding to a request, the Epic FHIR server first retrieves all results that match your search (using any native search parameters you've provided), then filters down those results based on the additional post-filtered parameters you've specified.

For more information about post-filter parameters and related considerations, refer to the General Considerations section of the FHIR Search Parameters document.

Name	Description	Is Optional	Is Array
based-on (String)	Unsupported	true	false
combo-code (String)	Matches to the code or component.code element in the response.	true	false
combo-data-absent-reason (String)	The reason why the expected value in the element Observation.value[x] or Observation.component.value[x] is missing.	true	false
combo-value-concept (String)	The value or component value of the observation, if that value is a CodeableConcept. Matches to valueCodeableConcept or component.valueCodeableConcept.	true	false
component-code (String)	Matches to the component.code element in the response.	true	false
component-data-absent-reason (String)	The reason why the expected value in the element Observation.component.value[x] is missing.	true	false
component-value-concept (String)	The component value of the observation, if that value is a CodeableConcept. Matches to component.valueCodeableConcept.	true	false
data-absent-reason (String)	The reason why the expected value in the element Observation.value[x] is missing.	true	false
derived-from (String)	Unsupported	true	false
device (String)	Unsupported	true	3
-	Encounter associated with this observation value, if applicable.		5

When multiple encounters are involved, such as for growth

Develop & Test

true

# **Building FHRAPI Calls / Documentation**

#### TRO

#### Observation.Read (Vital Signs) (R4) USCDI (1)

#### General Information

HTTP Method:

URL Template:

Supported OAuth 2.0 User Types: 🕣

GET

api/FHIR/R4/Observation/{ID}

Backend Systems and Non-OAuth 2.0, Clinicians or Administrative Users. Patients

#### Description

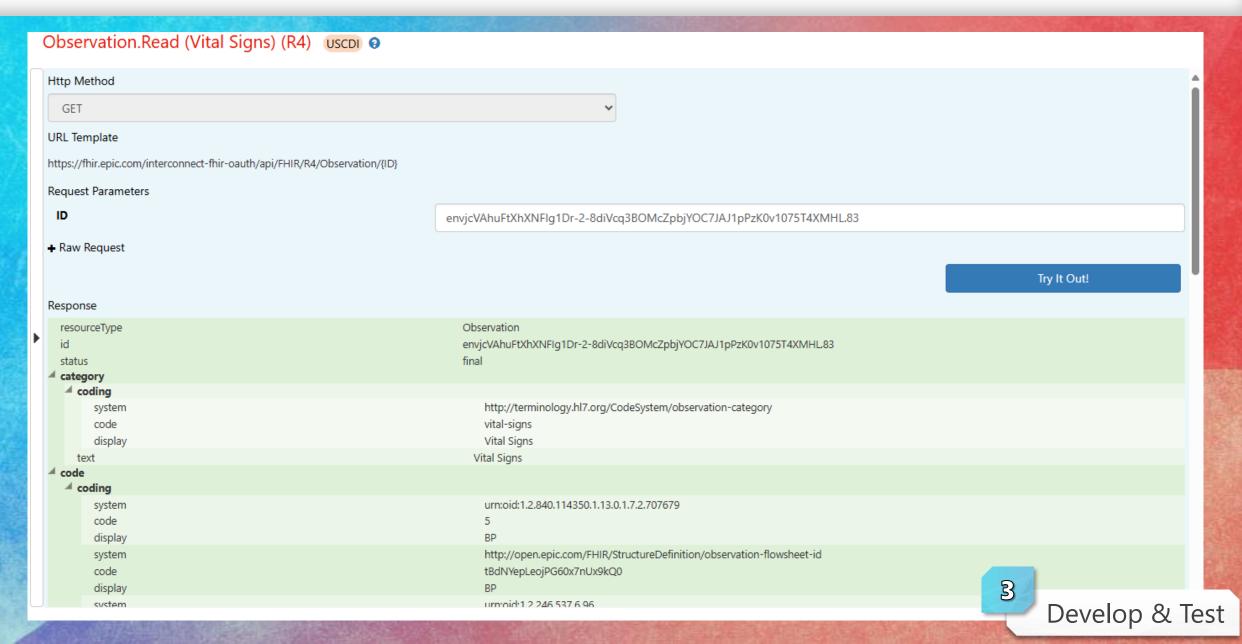
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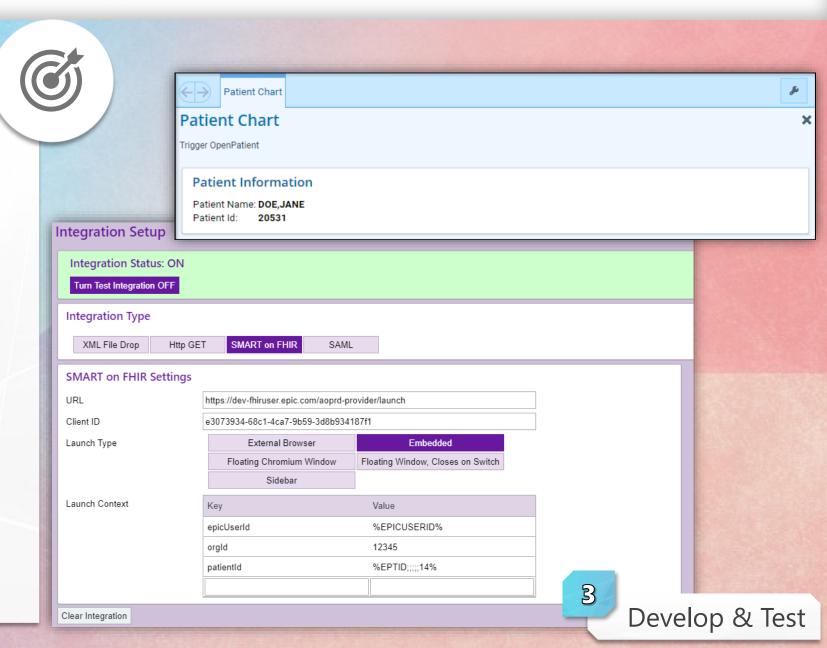
# Building FHIR API Calls / Testing & Try-It Cases



# **Testing with the Hyperdrive Client Test Harness**

#### **Supported Workflows**

- SMART on FHIR, FHIRcast, Subspace, XML File Drop, HTTP GET, and SAML
- Speech Recognition for Embedded Apps
- Scan Acquisition, Viewing, and Signature Deficiencies
- E-Signature
- Desktop and Kiosk Generic Authentication
- Electronic Payment Integration







# Deploying and Collaborating



## **Automatic Client Record Distribution**



#### "Auto Download"

- **US Health Systems** only, no involvement required
- The patient is the sole authority on if the app is fit for use
- Must meet the relevant criteria

https://fhir.epic.com/Documentation?docId=patientfacingfhirapps



API Specifications

Documentation ♥



Epic recommends that you tho production to ensure that you deployment.

**Patient-Facing Apps** Using FHIR

Community Member's site prior to a go-live in ach API for that community member's Epic

#### Automatic Client Record Distribution &

#### Automatic Client ID Distribution: USCDI Apps &

Client IDs for USCDI apps will automatically download to a community member's Epic instances when all of the following conditions are met:

- The application:
  - Is created through Epic on FHIR
  - In Epic August 2024 and later:
    - Uses only USCDI v3 FHIR APIs, which are documented in the appendix below †
  - In Epic May 2024 and earlier:
    - Uses only USCDI v1 FHIR APIs, which are documented in the appendix below †
  - Only reads data from Epic
  - Is patient-facing
  - Does not use refresh tokens OR uses refresh tokens and has a client secret uploaded by the vendor for that community member
  - Is marked "Ready for Production" and was marked ready after Sept. 3rd, 2020
    - Apps can be marked "Ready for Sandbox Use" to test with our Epic on FHIR environment prior to marking the app "Ready for Production"
- The Community Member:
  - Has signed the open.epic API Subscription Agreement
  - · Has not disabled auto-download functionality

View Data Use Questionnaire

I accept the terms of use of open.epic.

Client IDs for this app will be automatically downloaded to certain customer systems upon marking it ready for production. 😯



Deploy & Collaborate

# **Collaboration & Project Planning**

#### **Install Tips**

- Involve customer operations and IT teams early in the project
  - Customer staff can contact their Epic representatives for expert help
- Each customer has their own instance of Epic
  - Expect variation in mappable data elements, workflows, patient identity, etc.
- Reference our technology-specific app implementation briefs



# **Collaboration & Project Planning**

Reference our technology-specific app implementation briefs



https://fhir.epic.com/Documentation?docId=implementing

#### Implementing a SMART on FHIR EHR or Standalone Launch &

Many apps launch from a user workflow in Hyperspace to an external web application and use a single-sign-on workflow through SMART on FHIR to log the user in to the external page. SMART on FHIR is the recommended practice for app integrations that launch from Epic. For more information on building with this technology, see our <u>SMART on FHIR</u> <u>launch simulator</u>, and our <u>Hyperdrive Test Harness</u> for testing out your integration using self-service tools.

SMART on FHIR is unique in its support of standalone launch. During a standalone launch, an app can redirect the Epic user to an Epic login page. By authenticating, the user authorizes the app to access information from Epic. You will need to verify that your app has the correct user type set and understand which login credentials can be used in each case. This is the related to the "Who will primarily be using this app?" question. If you have selected:

- · Patients: Users must use their MyChart login credentials to authenticate.
- Clinicians or Administrative Users: Users must use their EMP login credentials to authenticate.

As you develop your SMART on FHIR integration, consider how to make your app's integration as performant as possible by limiting FHIR API calls or performing them asynchronously from the web page load. Users want to interact with your app right away, not wait for it to load.

#### Information to send to the Customer §

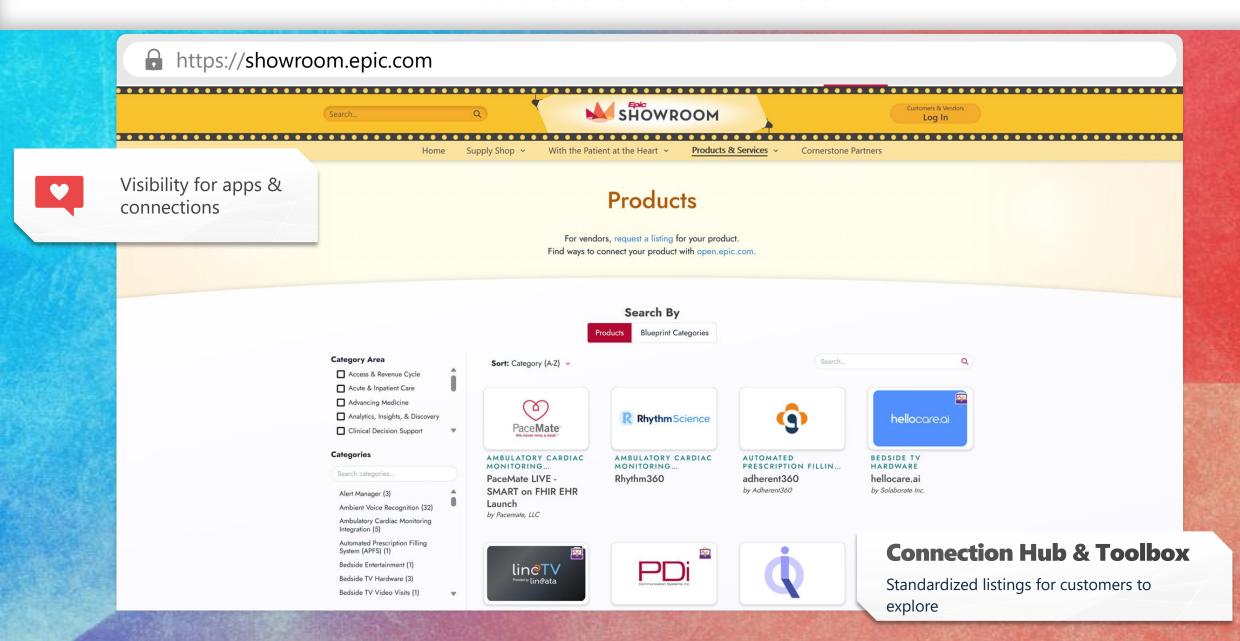
When you've tested it out and are ready to implement your SMART on FHIR app with a customer, the customer will need just a couple of pieces of technical information to configure the SMART on FHIR launch in Epic. This is the same information you would have used yourself in the SMART on FHIR simulator:

- 1. Client IDs the organization will follow the <u>App Request</u> process to download your client ID to prepare for your install. For an EHR launch, they will use either the non-production or production client ID in their SMART on FHIR launch configuration, depending on the environment.
- 2. Launch URL For an EHR launch, the organization's application build team will need the launch URL for the initial landing page that kicks off your SMART on FHIR launch's OAuth 2.0 handshake.
- 3. **Tokens in OAuth 2.0 Context** for an EHR launch, the organization's application build team will need the list of context tokens that your app needs at the point of launch. These will be in the form of Key=Value pairs. Refer to <u>Token Library</u> for a list of possible tokens. It can be easiest to send your customers a table with the values you need.

# Request Showroom Listing



#### **Products on Showroom**



## **Connection Hub**



Showroom listing designation for live apps



Requires ≥1 live Epic connection



\$500 per app/year



Provide your own app details and screenshots



Purpose: gives customers a place to find solutions

# **Connection Hub Listing Tips**

Highlight **outcomes & benefits** (avoid unsupported superlatives)



Add images



Keep an **accurate list of APIs used** (work with your tech team)

# Recap

- 01 Data Sharing Philosophy and Design
  - Overview of supported standards, our websites, and architecting your data exchange
- 02 Register a Client Record
  - Obtain client IDs for implementation of OAuth 2.0
- 03 Develop and Test
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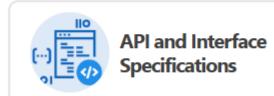
Market your live product in Connection Hub

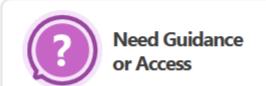
# Recap

#### **Let's Get Started**









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After Visit Summary, ASAP, Aura, Beacon, Beaker, Beans, BedTime, Best Care Choices for My Patient,
Bones, Break-the-Glass, Bugsy, Caboodle, Cadence, Canto, Care Everywhere, Charge Router, Cheers,
Chronicles, Clarity, Cogito ergo sum, Cohort, Comfort, Community Connect, Compass Rose, Cosmos,
Cosnome, Cupid, Discovery, Epic, EpicCare, EpicCare Link, Epicenter, EpicShare, EpicWeb, Epic Earth, Epic
Nexus, Epic Research, Garden Plot, Grand Central, Haiku, Happy Together, Healthy Planet, Hello World,
Hey Epic!, Hyperdrive, Hyperspace, Kaleidoscope, Kit, Limerick, Lucy, Lumens, MyChart, Nebula, OpTime,
Phoenix, Powered by Epic, Prelude, Radar, Radiant, Resolute, Revenue Guardian, Rover, Share
Everywhere, SmartForms, Sonnet, Stork, System Pulse, Tapestry, Trove, Welcome, Willow, Wisdom, With
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