

# IGNITE

Interoperability: APIs and FHIR Heat Up

Webinar 2: Accelerator Overviews (Da Vinci, Gravity, and CARIN)

INTEROPATHON | 2020 | Hosted by:



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# Today's Agenda

01

Welcome

## Da Vinci Overview

Use case and implementation  
guides for CDex, DEQM, and  
Prior Auth

02

## Gravity (SDOH) Overview

Overview of use case and implementation  
guide

03

## CARIN BlueButton Overview

Overview of use case and  
implementation guide

04

05

Q & A

<https://interoperabilityinstitute.org/virtual-interopathon/>



# HL7 DA VINCI PROJECT OVERVIEW AND USE CASE DEEP DIVE

MIHIN

May 7, 2020





## Project Challenge

To ensure the success of the industry's **shift to Value Based Care**



### Transform out of Controlled Chaos:

Develop **rapid multi-stakeholder** process to identify, exercise and implement initial use cases.



### Collaboration:

Minimize the development and deployment of **unique solutions**. **Promote** industry wide **standards** and adoption.



### Success Measures:

Use of FHIR®, implementation guides and pilot projects.



# Da Vinci 2020 Multi-Stakeholder Membership

## PROVIDERS



## INDUSTRY PARTNERS



## EHRs



## PAYERS



## VENDORS



## DEPLOYMENT



For current membership: <http://www.hl7.org/about/davinci/members.cfm>

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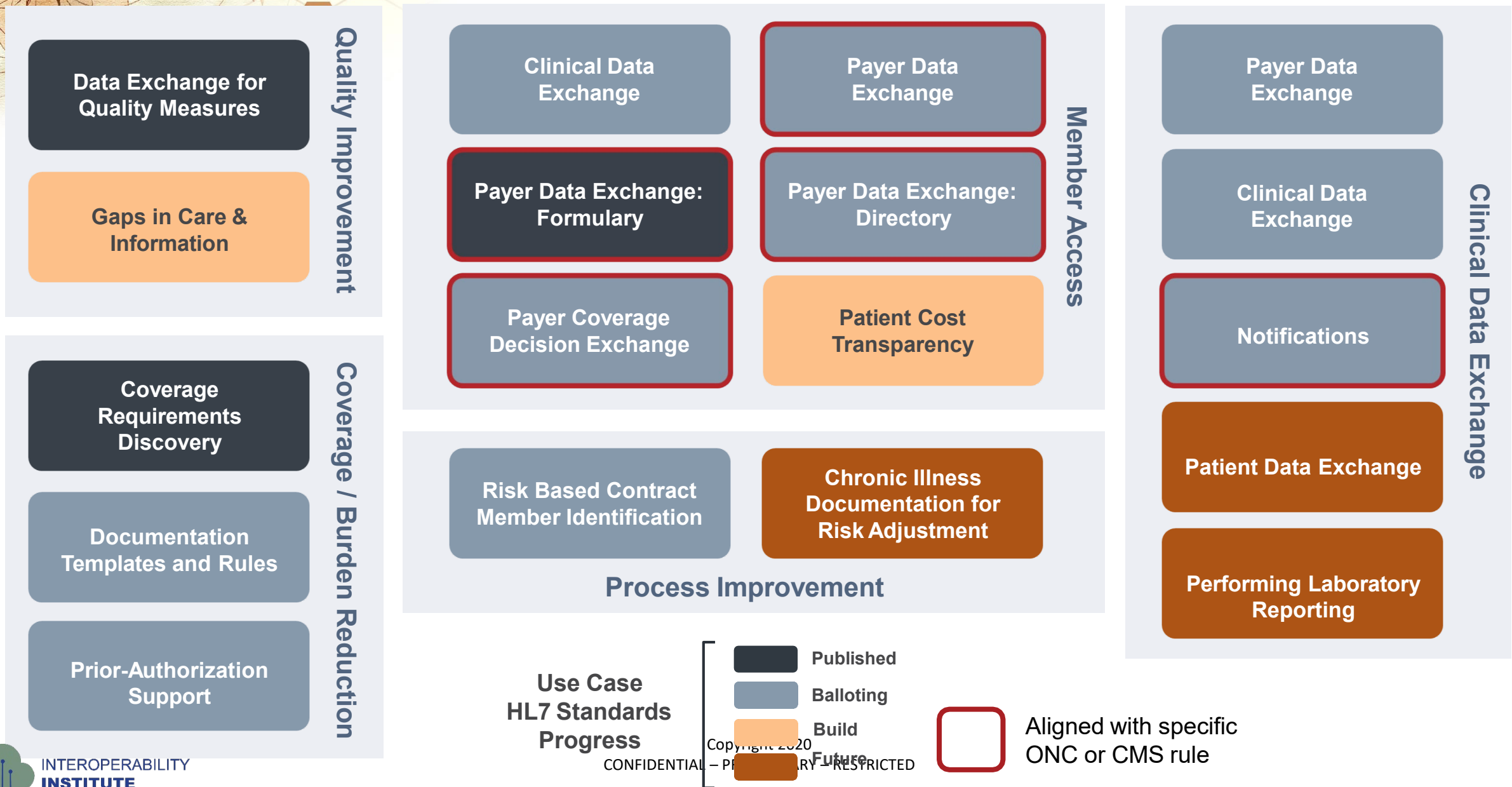
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\*Indicates a founding member of the Da Vinci Project.

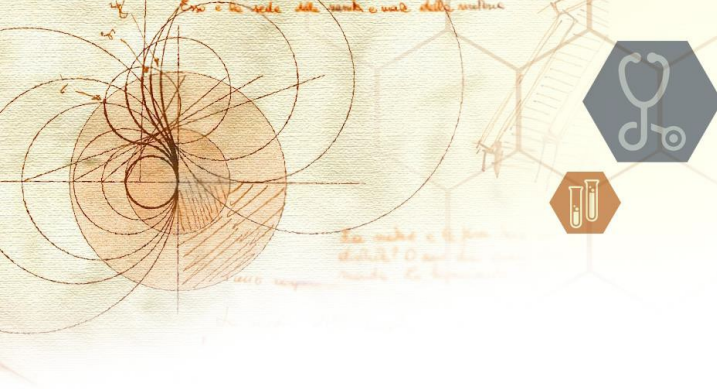
Organization shown in primary Da Vinci role, Many members participate across categories.



# Use Case Focus Areas







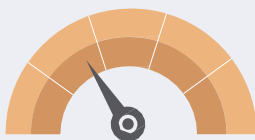
Standard Phase	Future	Build	Rollout	Published
Connectathon	<1	2-4	5+	
Live	<1	1-3	>4	
Progress				

# Use Case Maturity

## Quality Improvement



Data Exchange for Quality Measures



Gaps in Care & Information

## Coverage/Burden Reduction



Coverage Requirements Discovery



Documentation Templates and Rules



Prior-Authorization Support

## Member Access



Clinical Data Exchange



Payer Data Exchange



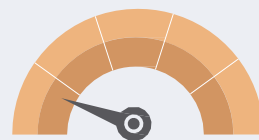
Directory



Formulary



Coverage Decision Exchange

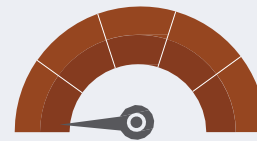


Price Cost Transparency

## Process Improvement



Risk Based Contract Member Identification



Risk Adjustment for Chronic Illness Documentation

## Clinical Data Exchange



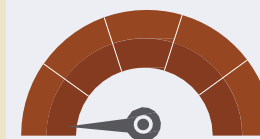
Payer Data Exchange



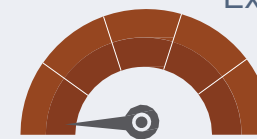
Clinical Data Exchange



Notifications



Patient Data Exchange



Performing Laboratory Reporting



Aligned with specific ONC or CMS rule

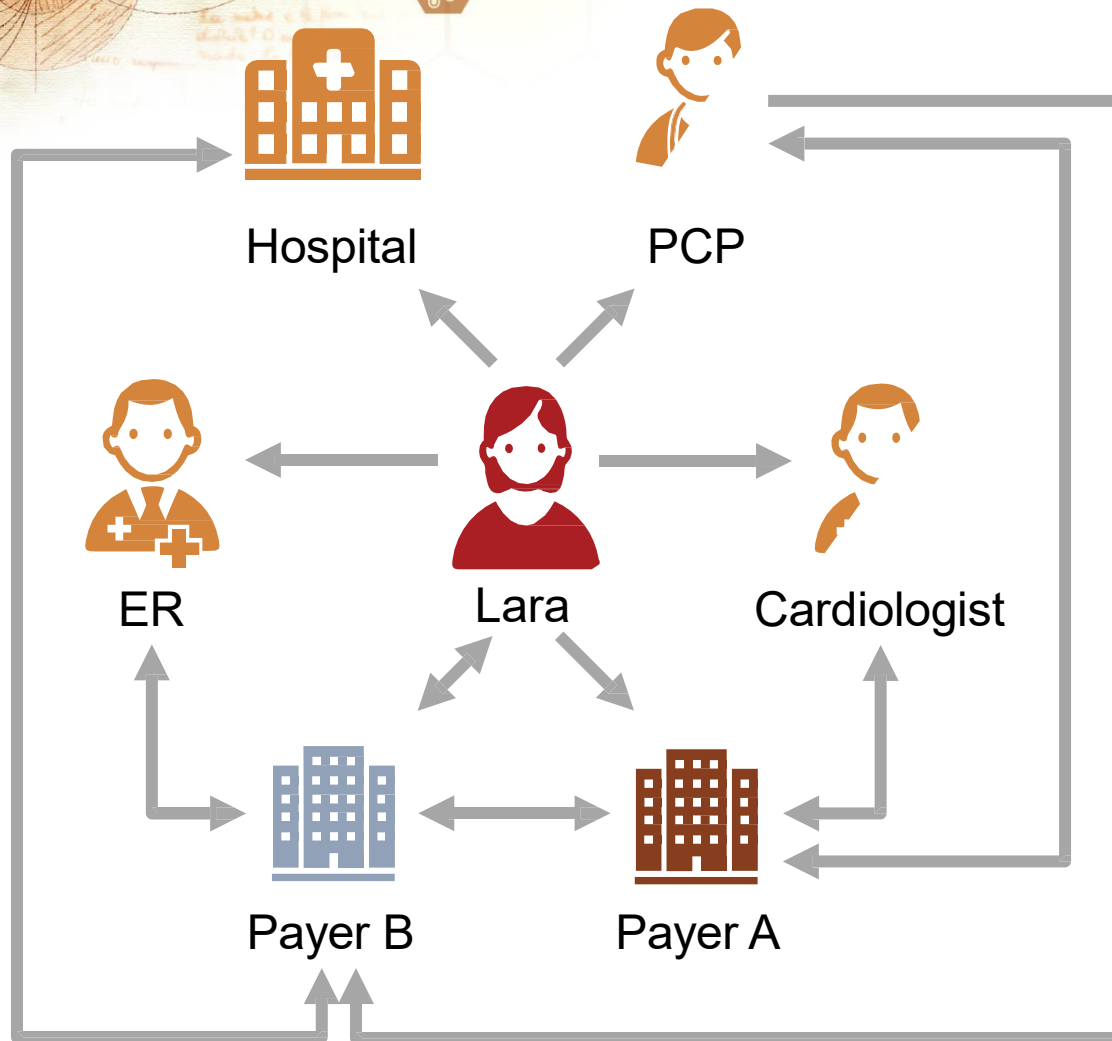


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# Da Vinci Demonstration

## Lara's Patient Journey

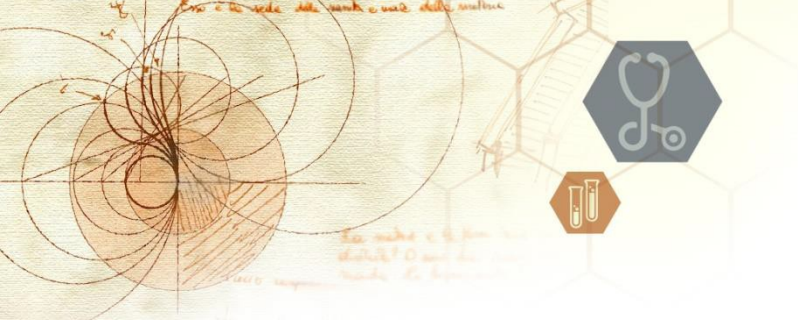


### Benefits of Implementing Da Vinci

-  Create transparency and reduce burden for patients, providers and payers across all sets of patient experience
-  Saves money and time by minimizing the development of one-off solutions
-  Leverage the collective expertise and efforts of industry experts and HL7 FHIR
-  Reduce burden and waste by focusing on known high volume, manual activities that can be automated,
-  Allow efficient, effective real-time data exchange to effect patient outcomes and support VBC

Booth Activities	Stats
Number of Members	46
Members Demonstrating	22+
Number of Demos	30+
Panel Discussions	5
Use Cases in Flight	14





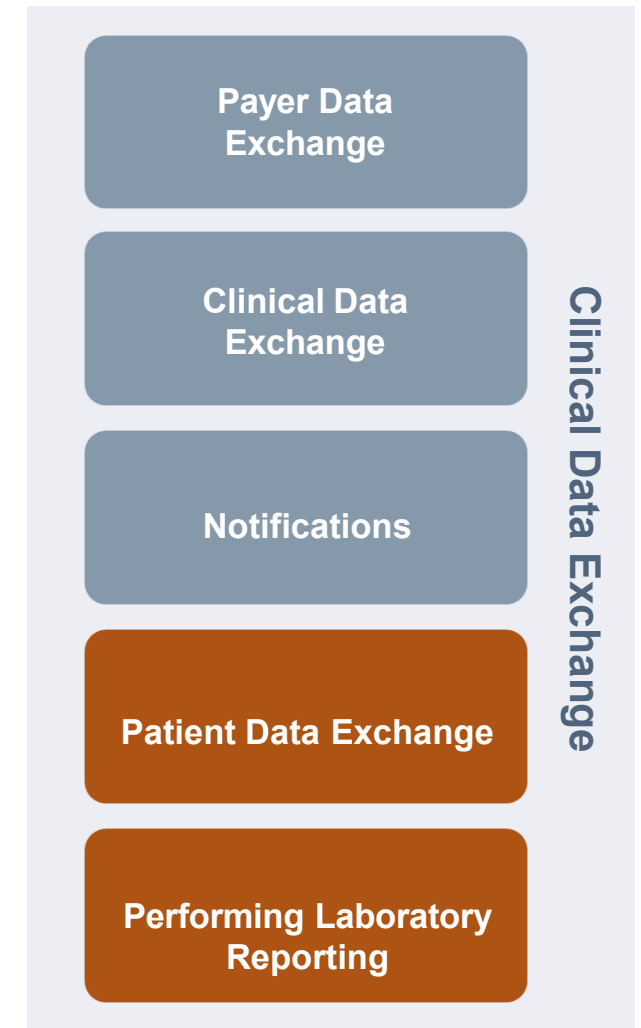
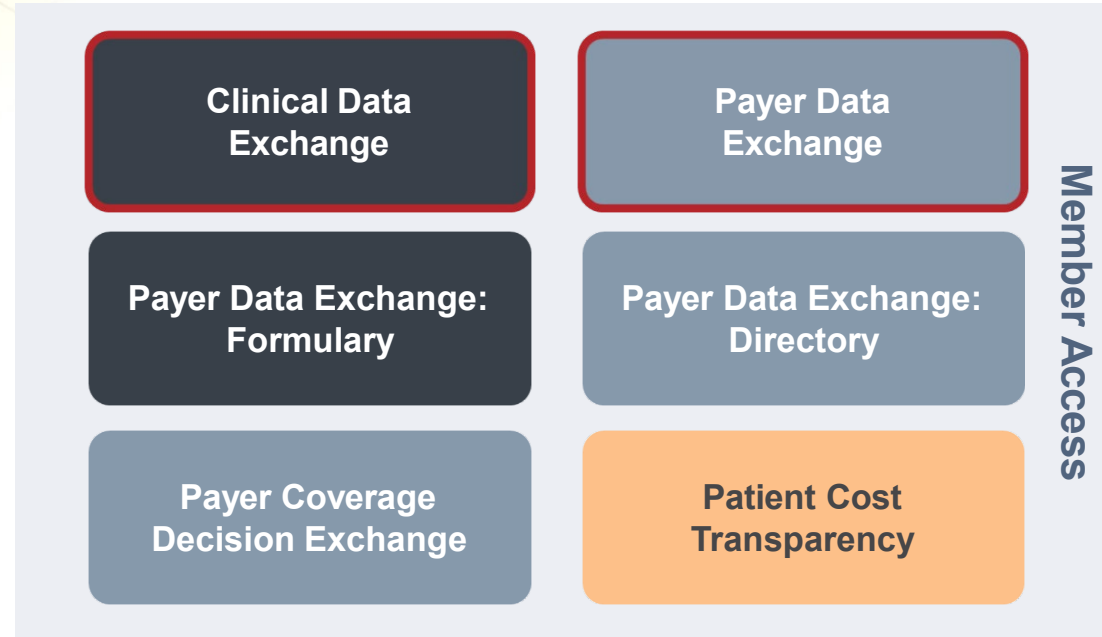
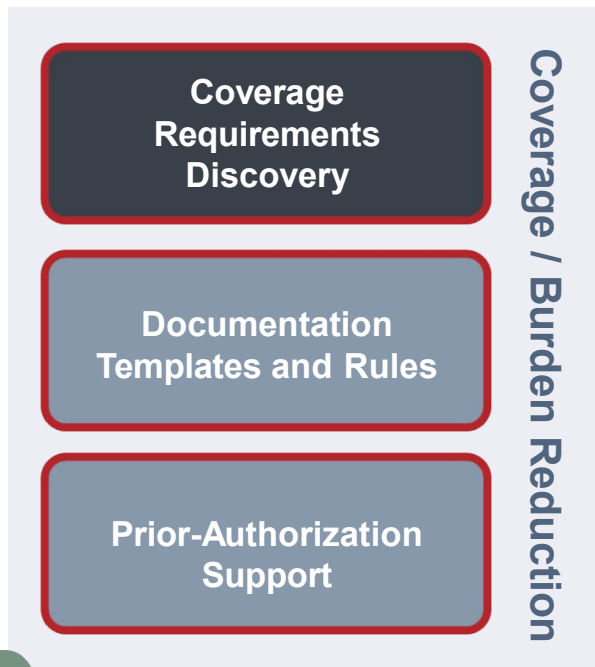
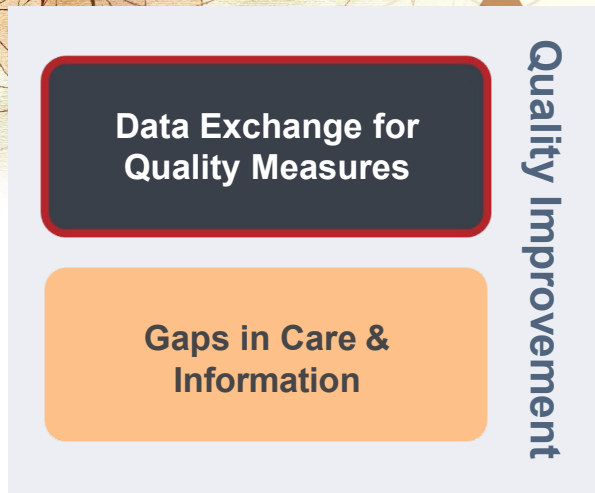
# Da Vinci Implementation Guides

IG	Status	# Times Tested
Quality Improvement		
<a href="#">Data Exchange for Quality Measures (DEQM)</a>	STU 2 Ballot 1 based on FHIR R4	7
Gaps in Care	Active Development	N/A
Coverage/ Burden Reduction		
<a href="#">Coverage Requirements Discovery (CRD)</a>	STU 1 Ballot 2 based on FHIR R4	7
<a href="#">Documentation Templates &amp; Rules (DTR)</a>	STU 1 Ballot 2 based on FHIR R4	6
<a href="#">Prior Authorization Support (PAS)</a>	STU 1 Ballot 1 based on FHIR R4	4
Member Access		
<a href="#">Health Record Exchange Framework (HREx)</a>	STU 1 Ballot 1 based on FHIR R4	N/A
<a href="#">Clinical Data Exchange (CDex)</a>	STU 1 Ballot 1 based on FHIR R4	5
<a href="#">Payer Data Exchange (PDex)</a>	STU 1 Ballot 1 based on FHIR R4	5
<a href="#">Payer Data Exchange (PDex): Formulary</a>	STU 1 Ballot 1 based on FHIR R4	4

IG	Status	# Times Tested
<a href="#">Payer Data Exchange (PDex): Plan Network Directory</a>	STU 1 Ballot 1 based on FHIR R4	4
<a href="#">Payer-Payer Coverage Decision Exchange</a>	STU 1 Ballot 1 based on FHIR R4	4
Patient Cost Transparency	Planning	N/A
Clinical Data Exchange		
<a href="#">Notifications</a>	STU 1 Ballot 1 based on FHIR R4	4
Patient Data Exchange	Planning	N/A
Performing Laboratory Reporting	Planning	N/A
Process Improvement		
<a href="#">Risk Based Contract Member Identification</a>	STU 1 Ballot 1 based on FHIR R4	2
Chronic Illness Documentation Risk Adjustment	Planning	N/A



# FOCUS FOR MIHIN CONNECTATHON



Use Case  
HL7 Standards  
Progress



Implementation Guides  
for MIHIN Connectathon





Providers



PA Request



Medical Records



Fax



Telephone



Portals



Electronic Transactions



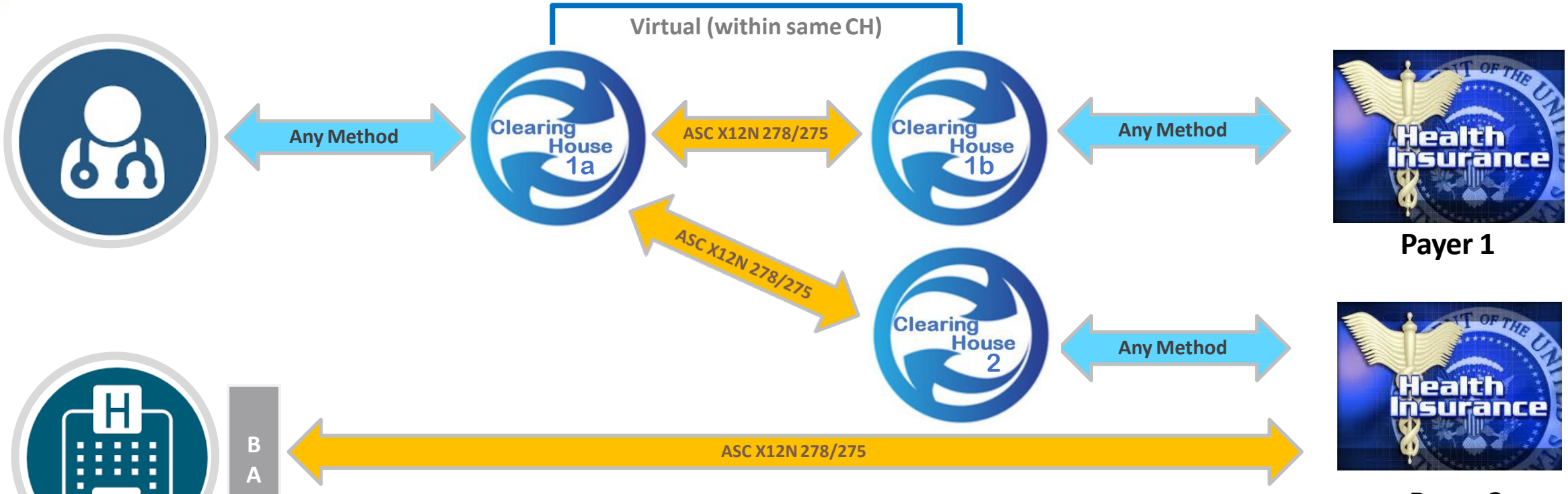
Payers



Currently providers and payer exchange prior authorization requests and supporting medical records using a number of methods: telephone, fax, portals, and electronic transactions



↔ Must be ASC X12N 278 (PA request) / 275 (attachment with CDA)  
↔ May be any method (including ASC X12N)



Per the reqs (i.e. §162.923 Requirements for covered entities), if the Clearinghouse services both payer and provider, they must act as two virtual clearinghouses and must provide the transaction as a HIPAA compliant standard transaction internally – not currently enforced by CMS

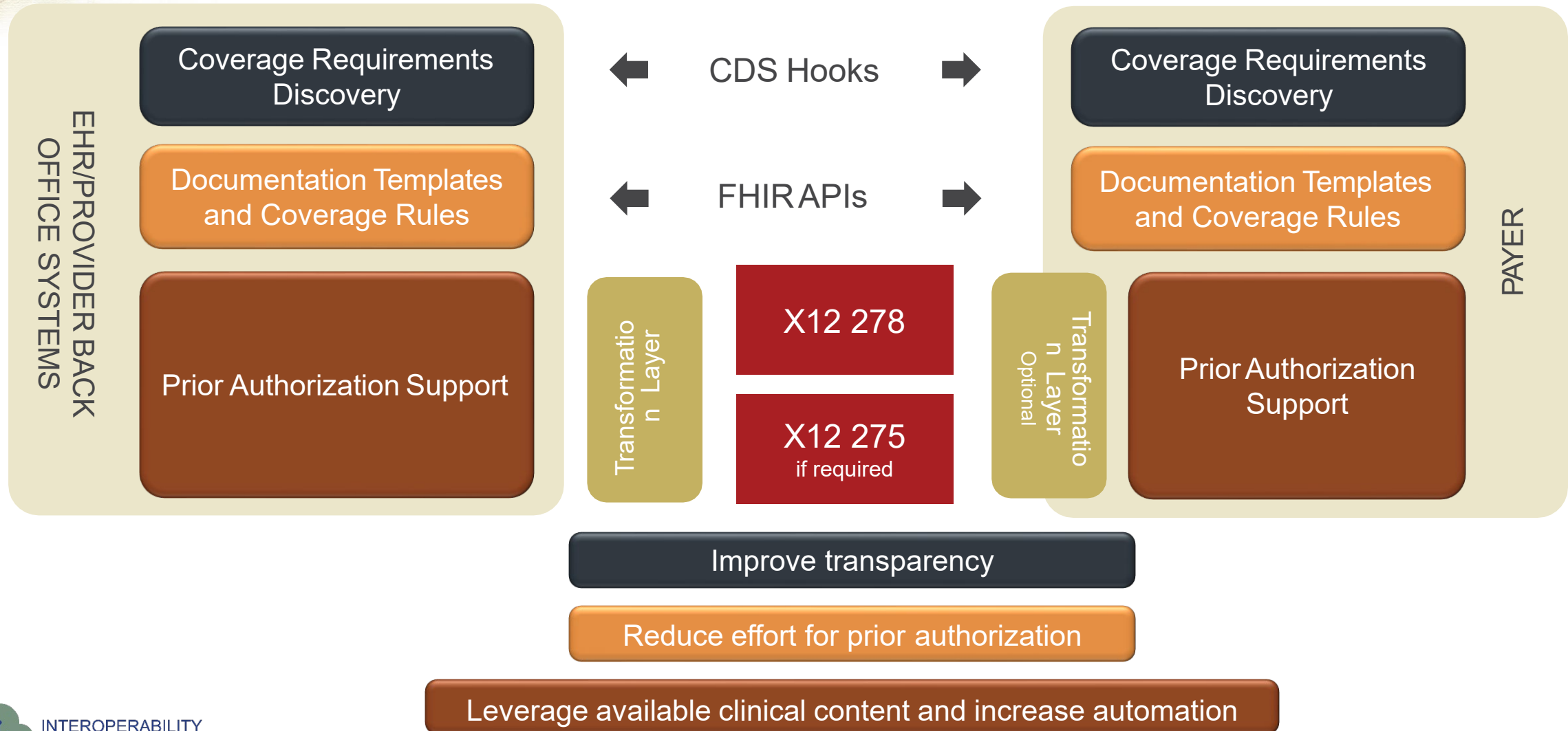


## A composite image featuring a blue pencil, a syringe icon, a molecular structure, and a network diagram. The background is a light brown, textured surface. A blue pencil is positioned diagonally from the top left. A grey hexagon with a white syringe icon is in the top right. A brown hexagon with a white molecular structure icon is in the bottom center. A network diagram with nodes and arrows is in the bottom right.





# Power to Reduce, Inform and Delegate Prior Authorization Support





# Coverage Requirements Discovery

## SUMMARY

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

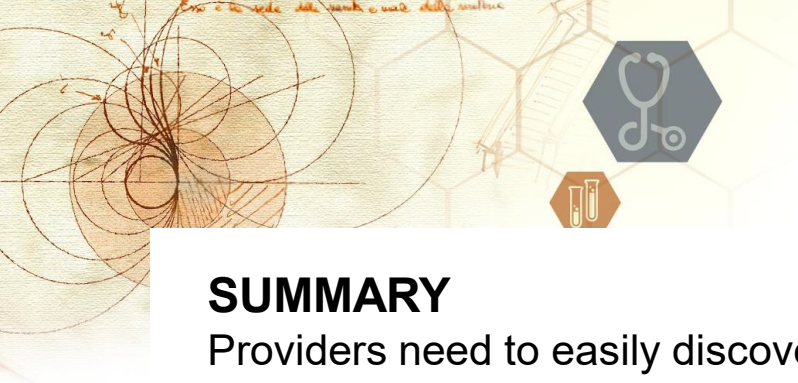
- Plan conditions only (e.g. no need for PHI)
- Member identification (PHI) in the event the specific plan is not known at the time of request

Response may be

- The answer to the discover request
- A list of services, templates, documents, rules
- URI to retrieve specific items (e.g. template)

## STATUS

Stage	Ballot Reconciliation & Connectathons
Implementation Guide	<a href="#">CRD FHIR IG (v0.3.0: STU1 ballot 2) based on FHIR R4</a>
Reference Implementation	<a href="#">CRD GitHub Repository</a>
Confluence Artifacts	<a href="#">Coverage Requirements Discovery (CRD)</a>





# 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
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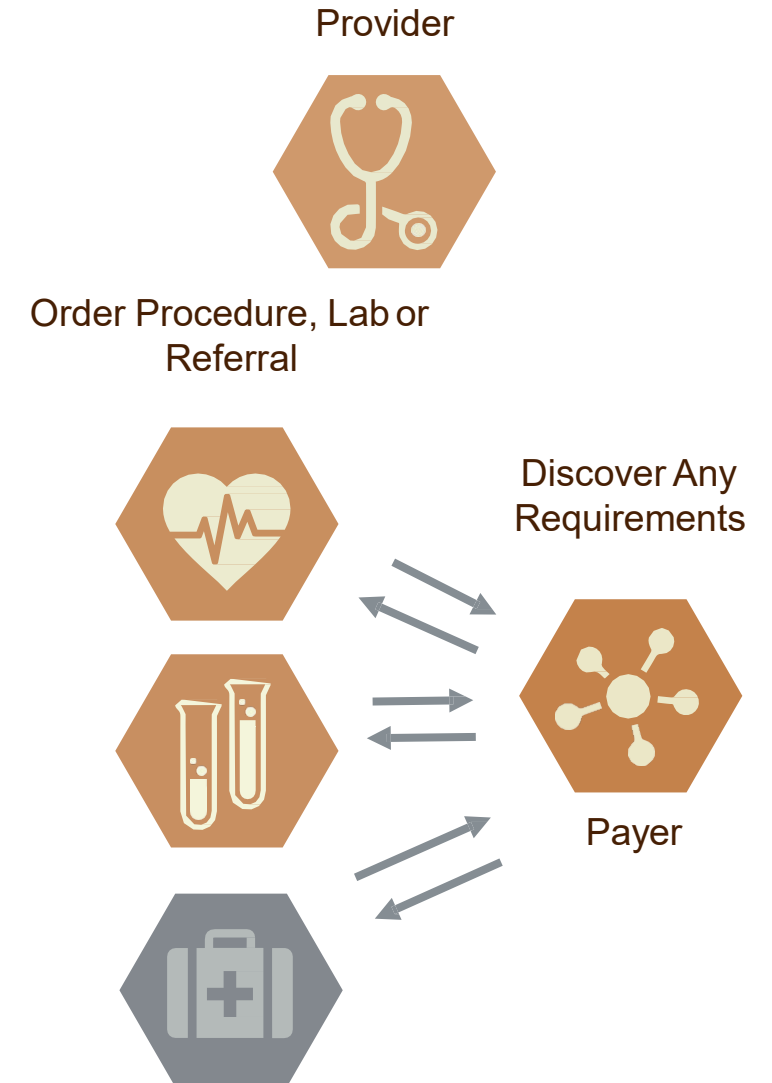
With a FHIR based API, providers can discover in real-time specific payer requirements that may affect the ability to have certain services or devices covered by the responsible payer.

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 discovery request
- A list of services, templates, documents, rules
- URL to retrieve specific items (e.g. template)





# Coverage Requirements Discovery

1. Based on a specific clinical workflow event:

scheduling,  
start of encounter,  
planning treatment,  
ordering,  
discharge

Providers send FHIR based request, with appropriate clinical context to the responsible payer

2. Payer may request additional information from the provider EHR using existing FHIR APIs
3. Payer responds to the EHR with any specific requirements that may impact the clinical decisions or coverage



*Provider utilizes this information to make treatment decisions while considering specific payer coverage requirements.*



Provider

Provider requests coverage requirements from payer

Optional: request additional information

Payer responds to the request



Payer

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# Documentation Templates & Coverage Rules (DTR)

## SUMMARY

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)

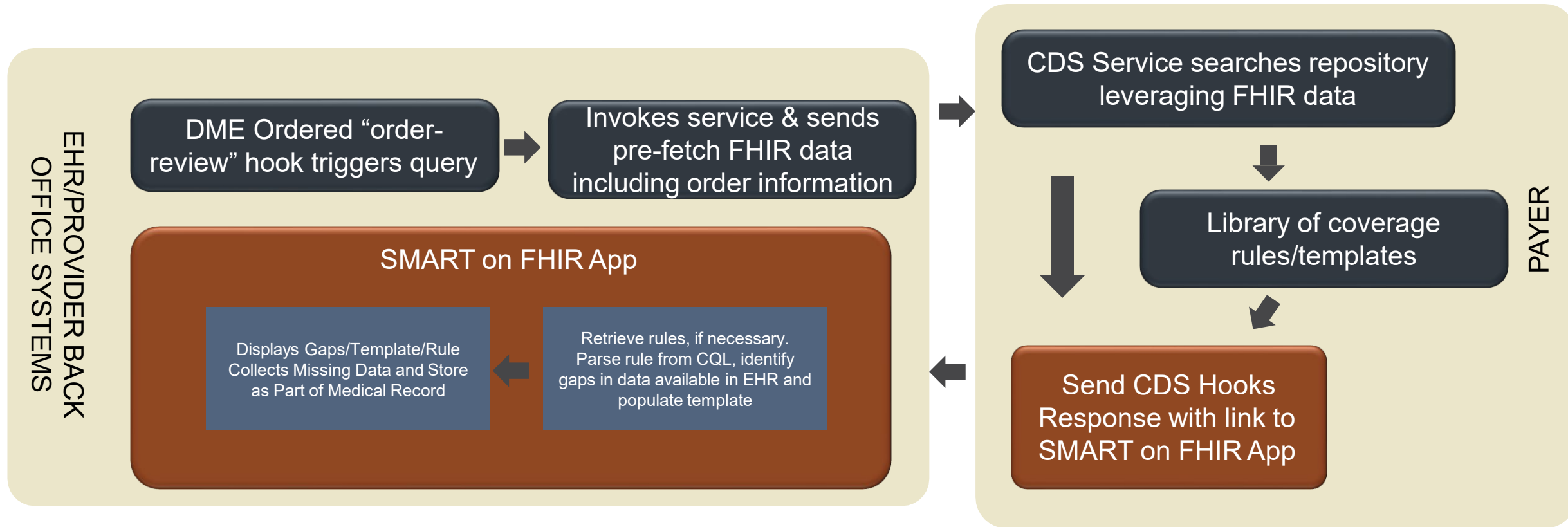
- Address coverage requirements, documentation compliance, and detect misuse/ abuse
- Provide value based care requirements at point of service
- Collect, in real-time, patient information to alert provider or care team

## STATUS

Stage	May Ballot Reconciliation & Sept STU Ballot
Implementation Guide	<a href="#">DTR FHIR IG (v0.1.0: Ballot for Comment) based on FHIR R3</a>
Reference Implementation	<a href="#">DTR GitHub Repository</a>
Confluence Artifacts	<a href="#">Documentation Templates and Payer Rules (DTR)</a>



# CRD and Document Templates & Rules







# Documentation Templates and Payer Rules (DTR)

Providers need to easily incorporate payer requirements into their clinical workflow

- Specific documentation requirements,
- Rules for determining need for specific treatments/services
- Requirement for Prior Authorization (PA) or other approvals
- Specific guidance.

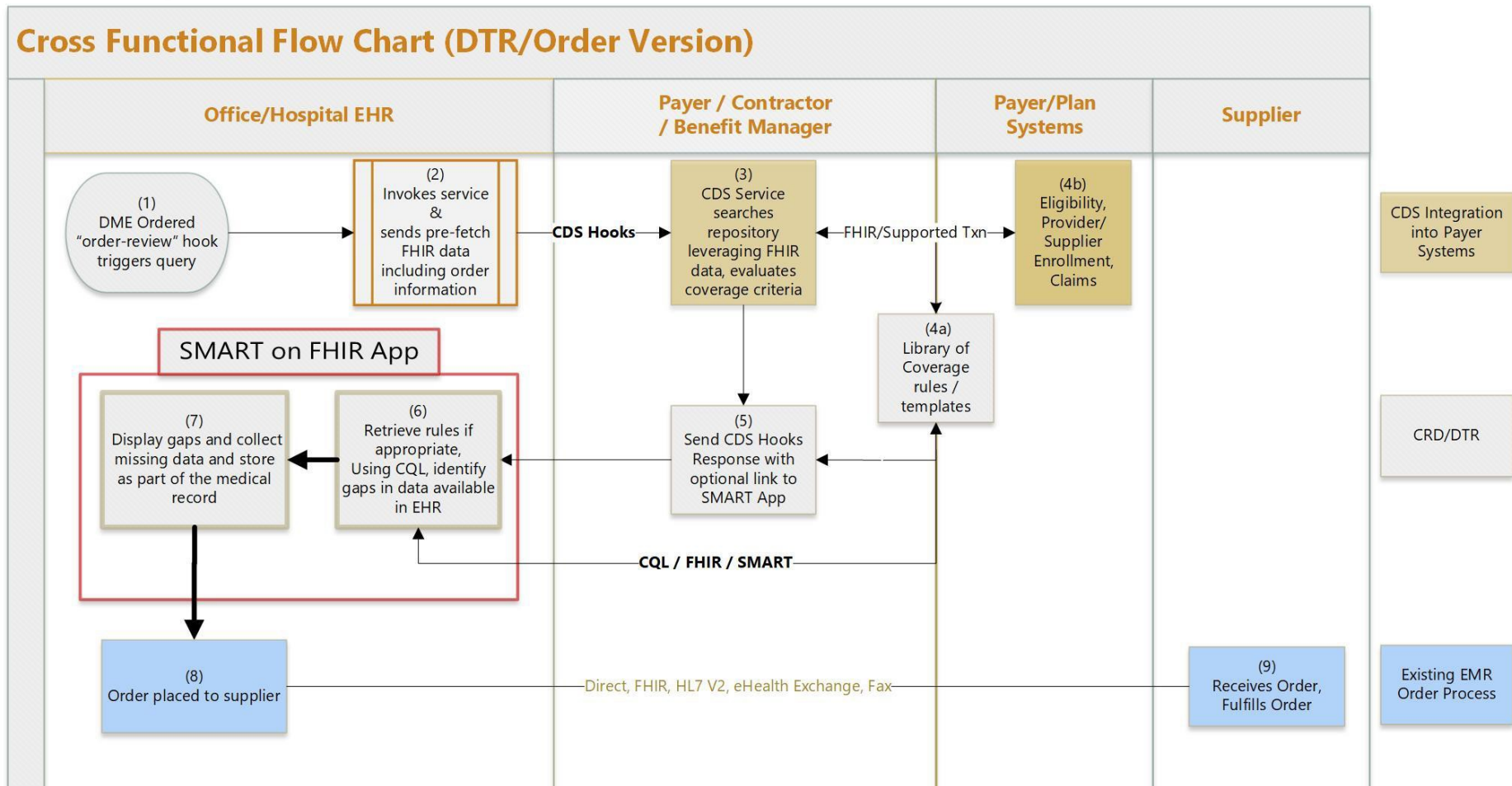
Use a FHIR based standard for representing payer “rules” to communicate, in real-time, payer medical necessity and best clinical practice requirements that may affect the ability to have certain services or devices covered by the responsible payer.

The template/rules may (examples, not complete list)

- Specify provider documentation requirements for coverage, medical necessity
- Provide guidance / documentation requirements regarding social determinates that are antecedents for specific care
- Collect information for some purpose (e.g. authorizations)
- Indicate clinical requirements including appropriate use
- Collect specific documentation for Quality Measures
- Respond with specific information as requested/documented in the template/rules



# DTR/Order Flow







# Prior Authorization Support

## SUMMARY

A FHIR-based B2B process to allow implementers to use existing IT infrastructure resources for exchanging prior authorization. Existing business agreements can also be reused.

This use case assumes that the goal is define API services to enable provider, at point of service, to request authorization (including all necessary clinical information to support the request) and receive immediate authorization.

The assumption is that this use case will leverage the ASC X12N 278 and 275 for compliance with HIPAA.

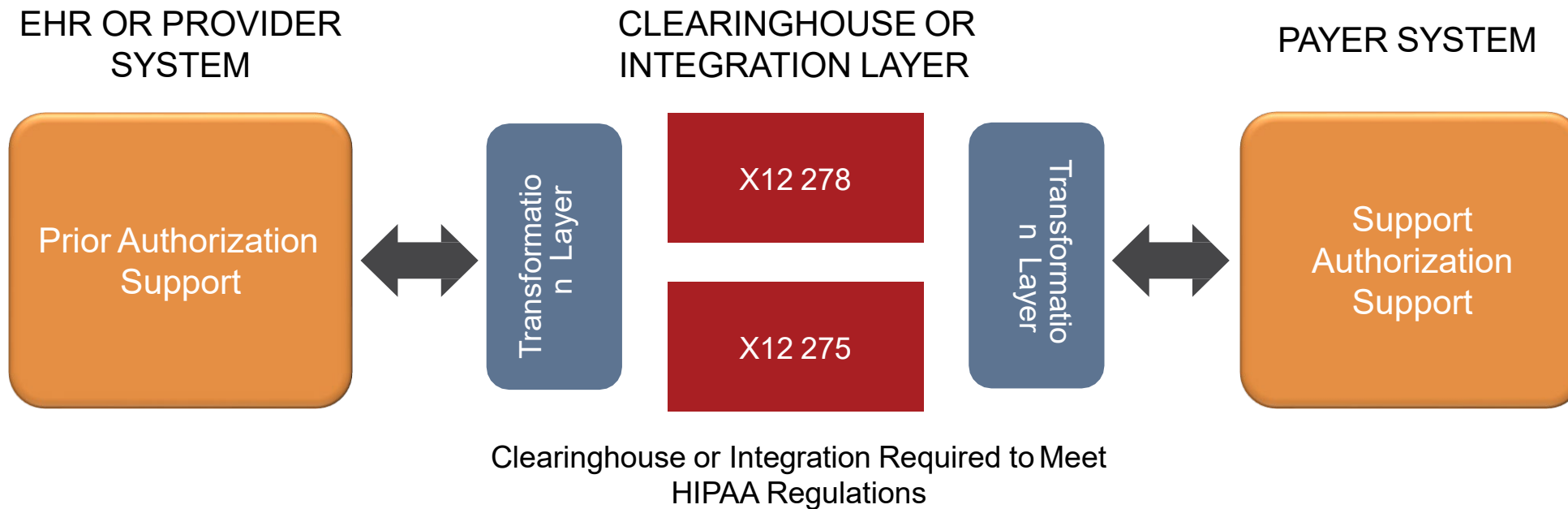
Clearinghouses can continue to route and translate data as appropriate. Investigate ability to enable translation layer to convert FHIR resources to HIPAA format.

## STATUS

Stage	September STU Ballot
Implementation Guide	<a href="#">Prior Authorization Support – CI Build</a>
Reference Implementation	<a href="#">Prior Auth Support GitHub Repository</a>
Confluence Artifacts	<a href="#">Prior Authorization Support</a>

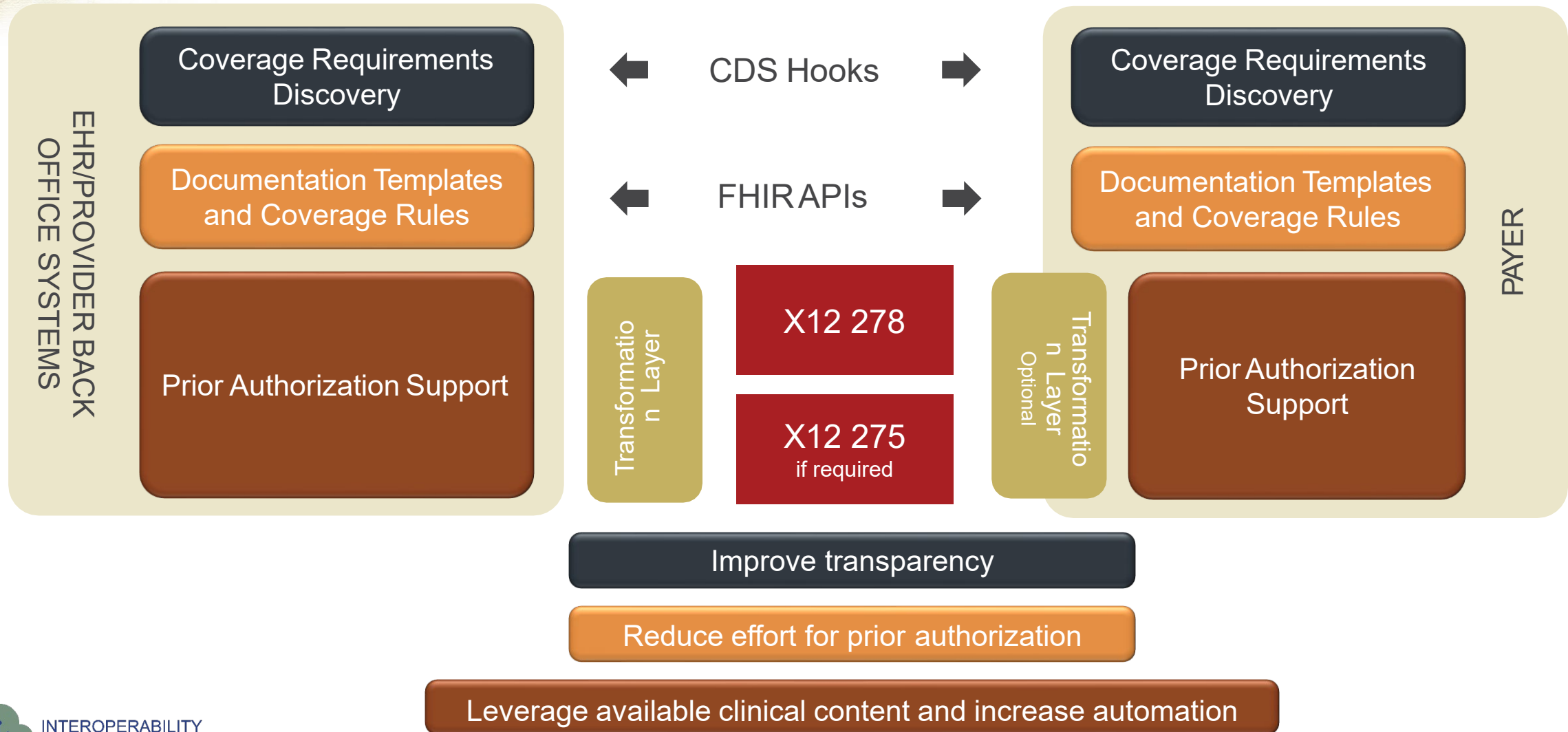


# Prior Authorization Support Abstraction/Transform for HIPAA Compliance

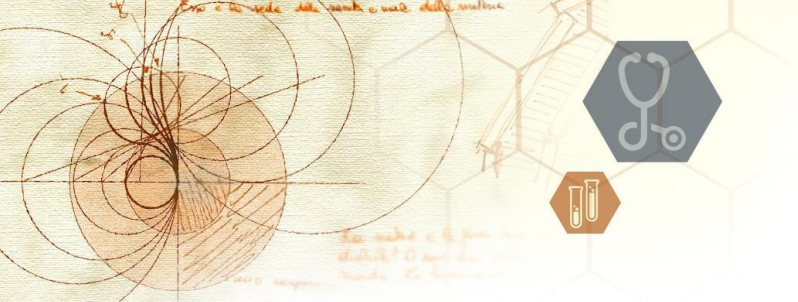




# Power to Reduce, Inform and Delegate Prior Authorization Support



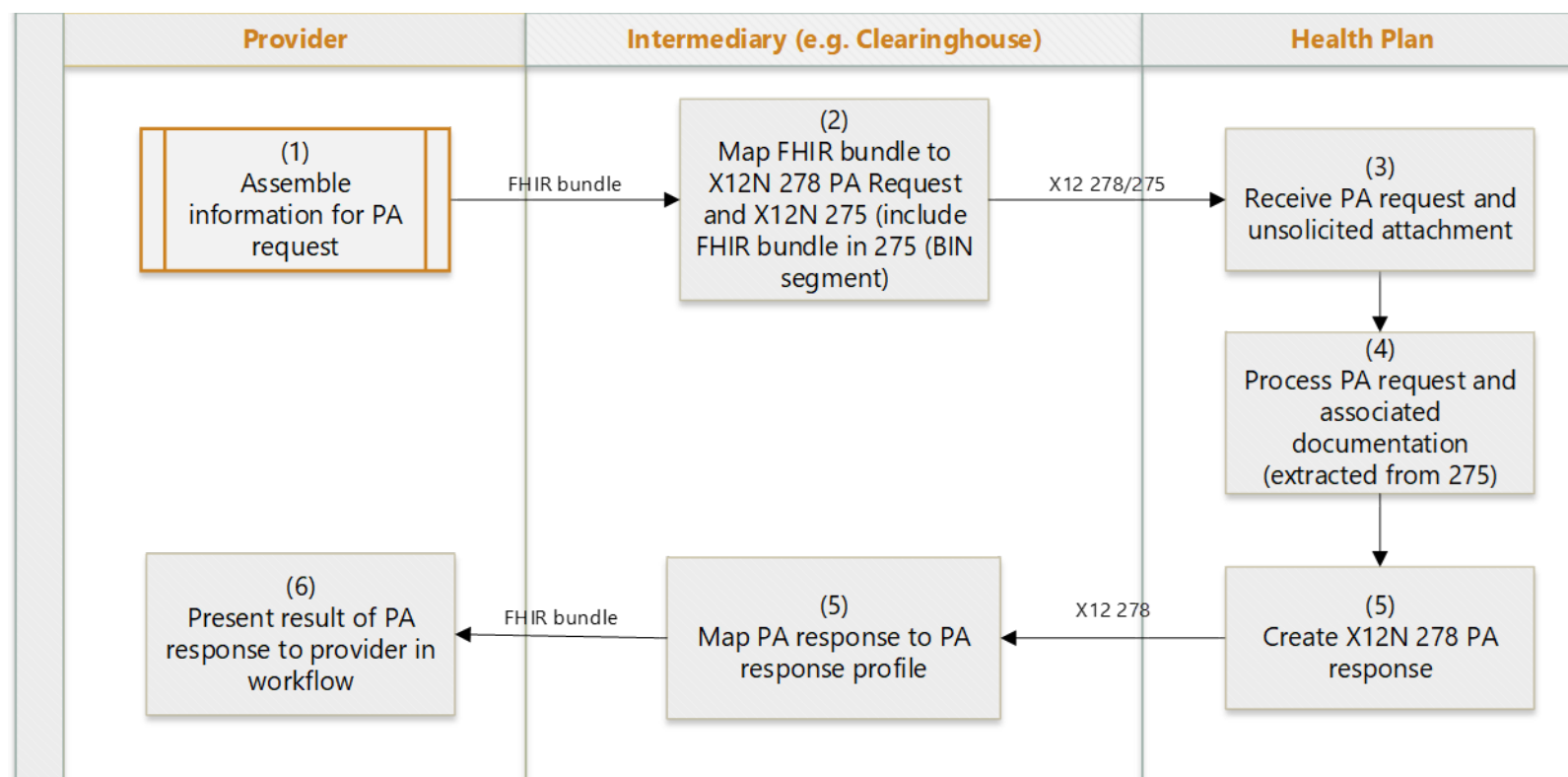




## Prior Authorization Workflow (X12 processing at Health Plan)

### Integrating FHIR and X12

- 1) Create FHIR bundle with required X12 information and supporting clinical documentation
- 2) Convert FHIR bundle to X12 278, X12 275 and X12 278 I
- 3) Process by payers as X12 278 with unsolicited attachments
- 4) Convert X12 278 response o FHIR bundle
- 5) Present results to provider

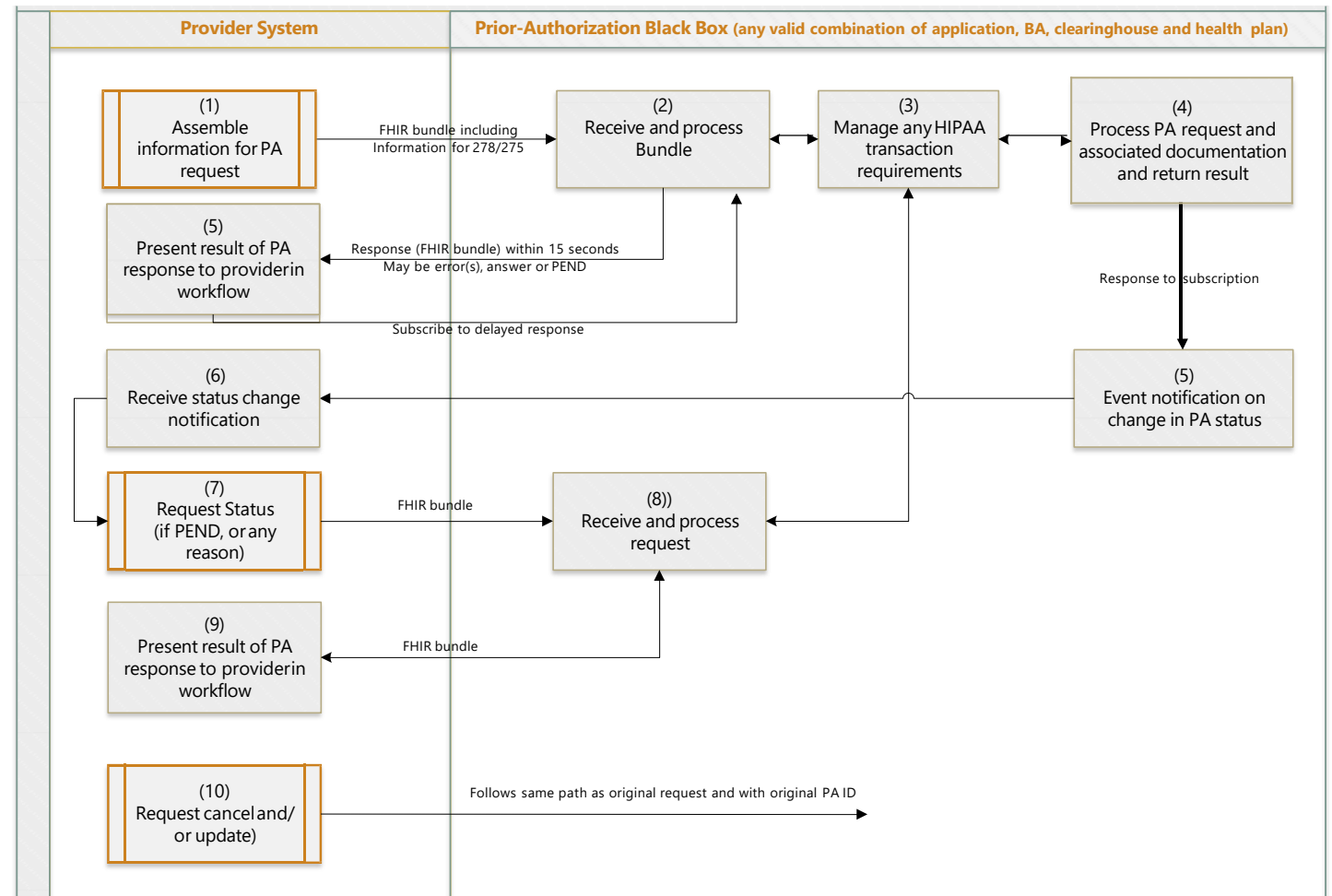




# FHIR Prior Authorization Endpoint Interactions

## FHIR PA endpoint requirements

- 1) Receive and process PA bundle
  - Respond in <15 seconds
- 2) Receive and process Subscription request for “PENDED” PA
  - Reply on change in PA status
- 3) Receive and reply to PA status query
- 4) Receive and process cancel
- 5) Receive and process update
- 6) Support Status, Cancel, Update from both ordering and performing provider



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# FHIR Prior Authorization Components

## Coverage Requirements

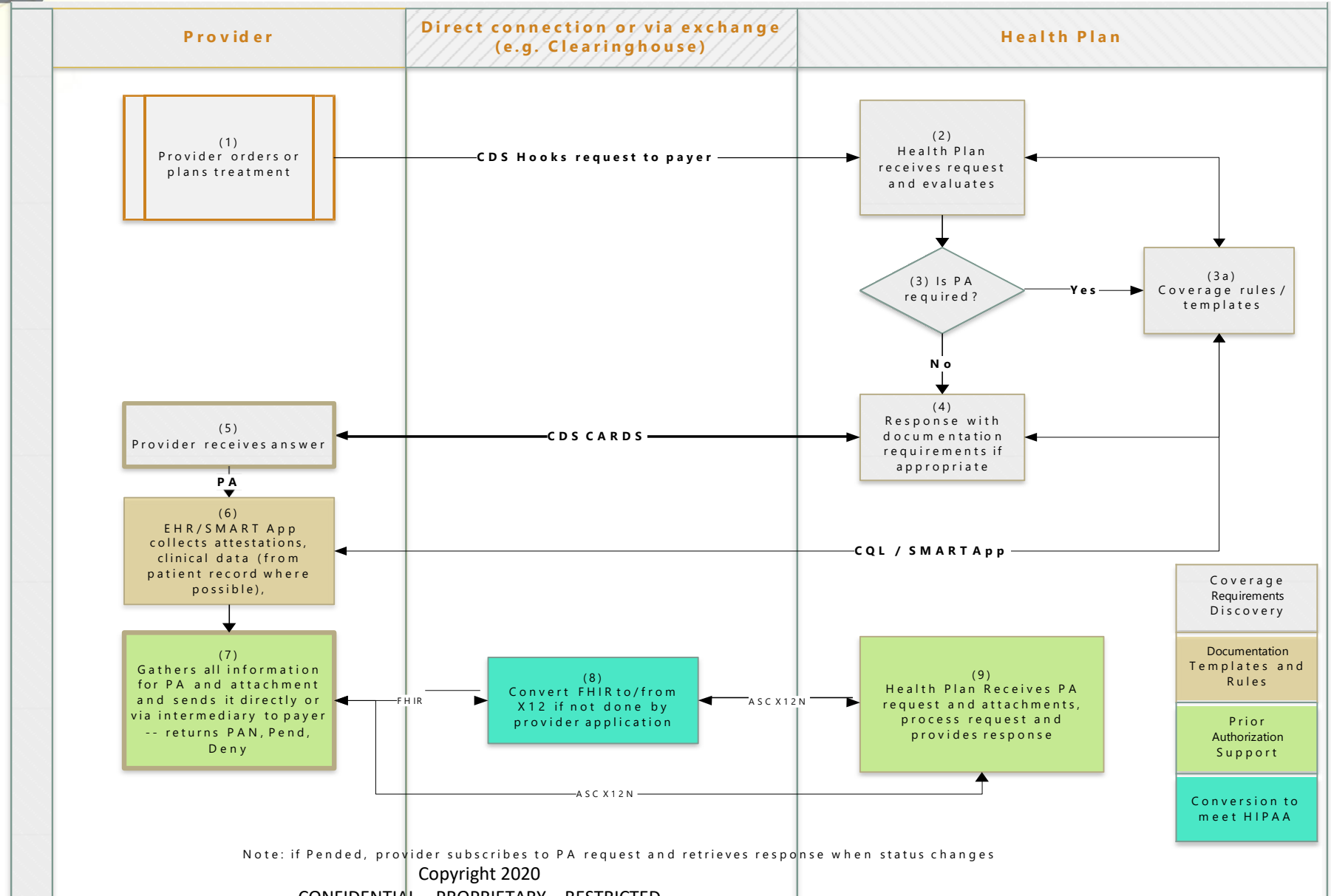
- 1) Initiates process using CDS hooks
- 2) As if PA is required

## Templates and Rules

- 1) If PA is required start SMART app and retrieve Payer Rules and Template
- 2) Prepopulate
- 3) Solicit missing info

## PA Support

- 1) Package clinical data and request/response
- 2) Manage exchanges with payer





Using new technologies (FHIR , CDS Hooks, SMART on FHIR, CQL) it is possible to integrate previously time intensive tasks into the clinical workflow to achieve significant efficiencies

We can substantially reduce provider burden by

1. Acquiring critical patient information while the patient is available
2. Obtain prior-authorizations in real-time for certain common services
3. Minimize rework by “getting it right the first time”

One critical impact of improving the prior-authorization workflow is the improvement on patient care and experience.





# Quality Improvement



# Data Exchange for Quality Measures (DEQM)

## SUMMARY

Use case creates a common framework for quality data exchange  
Enables the exchange of raw quality measure data between quality measurement Teams and Care teams that provide patient care  
Timely exchange of key data is critical to evaluate and capture quality

Emerging DEQM patterns

- 30 Day Medication Reconciliation (Attestation Pattern)
- Colorectal Cancer Screening (Screening Pattern)
- Venous Thromboembolism Prophylaxis (Process Pattern)

Initial example of how Da Vinci funding expandable framework  
Multiple groups providing resources to build out measures beyond Da Vinci

Evaluating missing components to expand types of measures/patterns that could leverage framework (i.e., public health)

## STATUS

Stage	Ballot Reconciliation & Connectathons
Implementation Guide	<a href="#">DEQM FHIR IG (v0.2.0: STU1 Ballot 2) based on FHIR R3</a>
30 Day Medication Reconciliation Reference Implementation	<a href="#">MRP-Reference-App</a>
	<a href="#">MRP-Payer-App</a>
	<a href="#">MRP-Operation-Submit-Example</a>
	<a href="#">MRP-Sample-Patients</a>
Colorectal Cancer Screening Reference Implementation	<a href="#">COL-CollectData-App</a>
	<a href="#">COL-Submit-App</a>
Confluence Artifacts	<a href="#">Data Exchange for Quality Measures (DEQM)</a>





# Data Exchange for Quality Measures

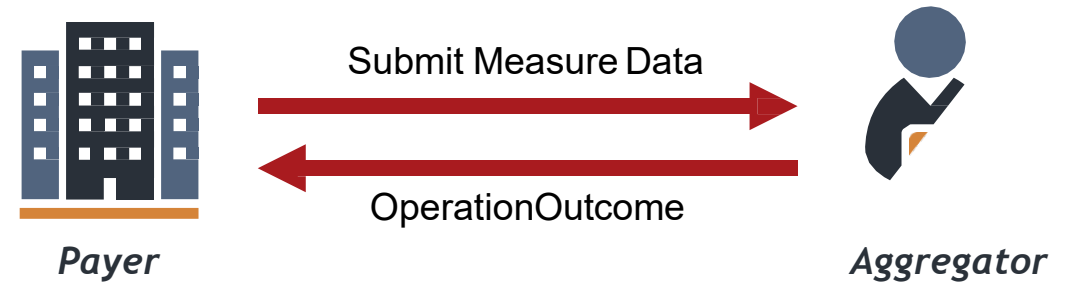
Use case creates a common framework for quality data exchange

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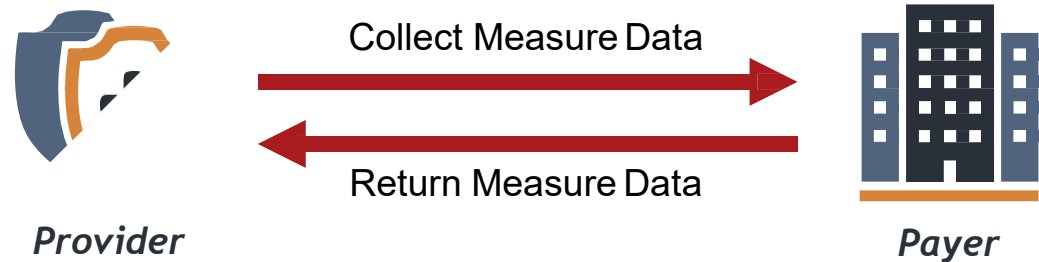
Timely exchange of key data is critical to evaluate and capture quality

Additional Scenarios underway to expand measure patterns in framework

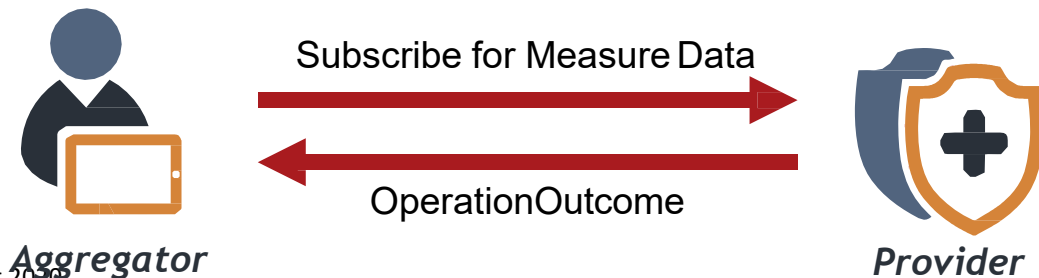
## 1. Submit



## 2. Collect



## 3. Subscribe



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## Emerging DEQM Patterns

Measure	Pattern	Status
30 Day Medication Reconciliation	Process	STU1 – Ballot Reconciliation
Colorectal Cancer Screening	Screening	
Venous Thromboembolism Prophylaxis	Process	
Controlling Blood Pressure	Outcome	Discovery

Initial example of how Da Vinci funding expandable framework

Multiple groups providing resources to build out measures beyond Da Vinci

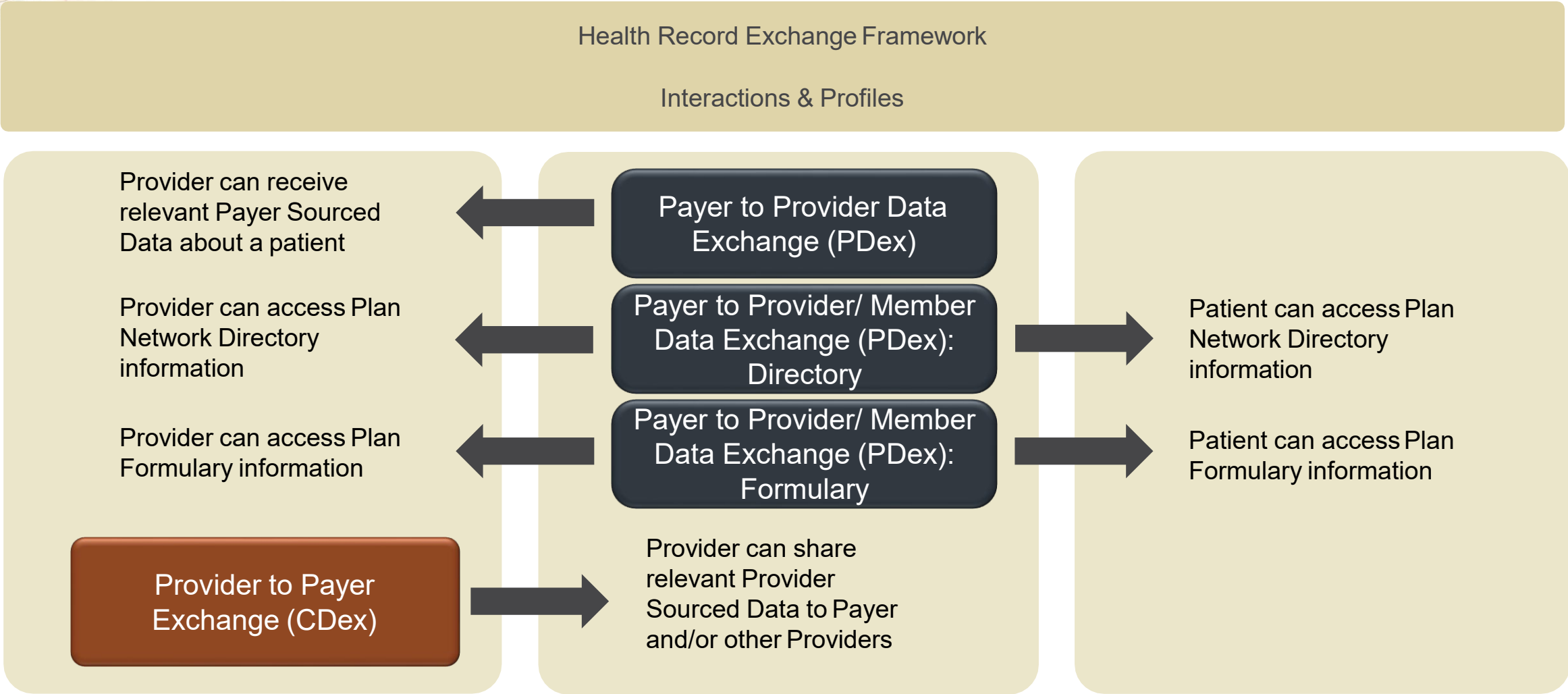
Evaluating missing components to expand types of measures that could leverage framework i.e., public health



# Clinical Data Exchange/Member Access



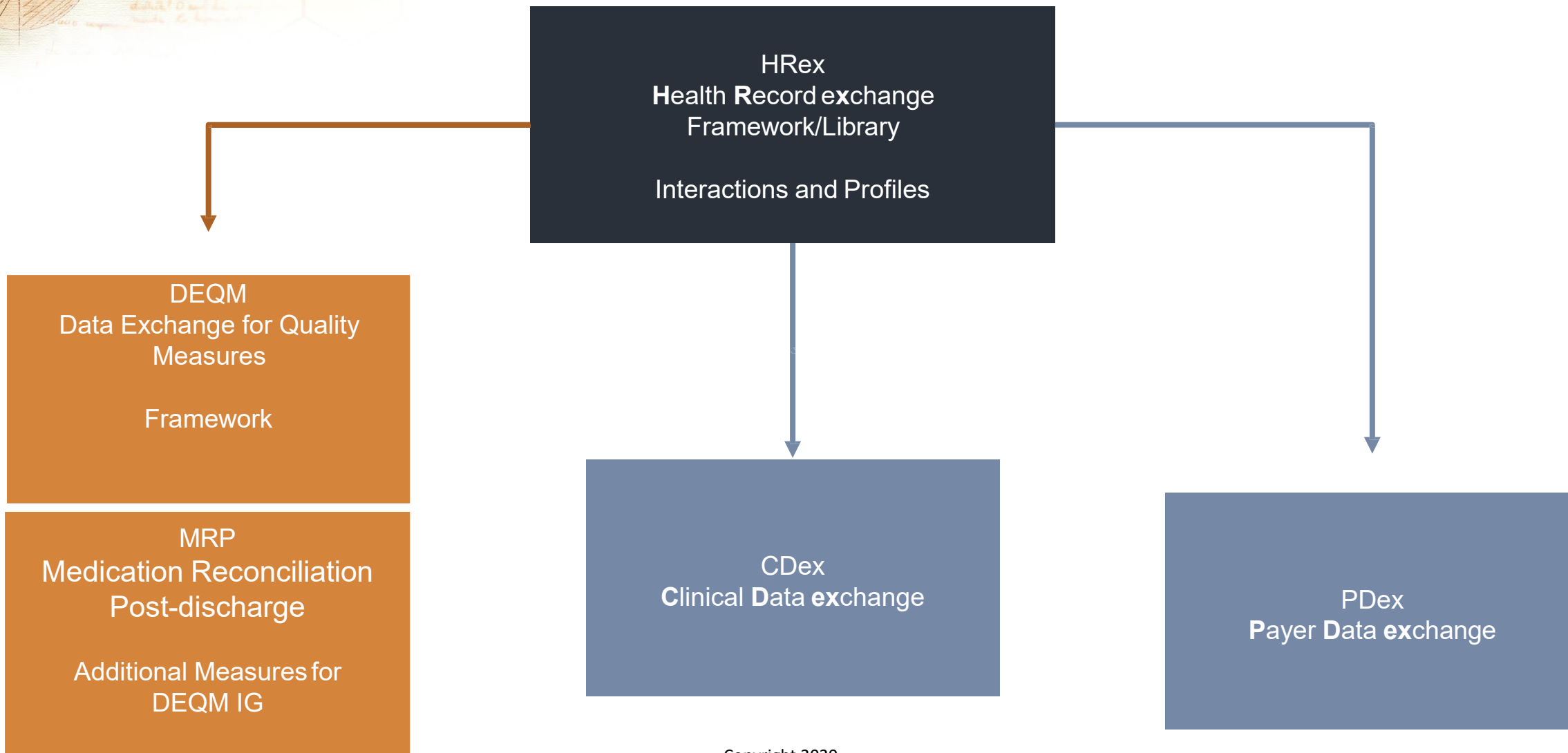
# Health Record Exchange Simplified







# Health Record Exchange



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# Health Record Exchange: Health Record Exchange Framework/Library

## SUMMARY

The Da Vinci Payer Health Record Exchange (HReX) Framework/Library specifies the FHIR elements used in multiple Da Vinci implementation guides. This includes FHIR profiles, functions, operations, and constraints on other specifications such as CDS-Hooks and other aspects of Da Vinci Use Cases that are common across more than a single use case.

Da Vinci HReX Implementation Guide (IG) will make use of US Core profiles that are based on the FHIR R4 specification wherever practical. The HReX IG will use the HL7 FHIR Release 4/US Core STU3 specification as its base.

The HReX profiles documented in this IG will be used to exchange data between providers systems (e.g. EHRs) and other providers, payers, and third-party applications where appropriate. In addition, exchanges from payer systems to providers, other payers, and third-party applications are supported by the HReX profiles and operations.

HReX may define new extensions, profiles, value sets, constraints/extension to other specification (e.g. specific CDS-Hooks) that are specific Da Vinci requirements. Where appropriate these Da Vinci specific artifacts will be promoted for incorporation into the future versions of existing standards (e.g. R4 US Core profiles) and deprecated in this guide on publication in the updated standard.

## STATUS

Stage	Early September STU Ballot Reconciliation
Implementation Guide	<a href="#">Da Vinci Health Record Exchange (v0.1.0: STU 1 Ballot 1) based on FHIR R4</a>
Reference Implementation	N/A
Confluence Artifacts	<a href="#">Health Record Exchange Framework (HReX)</a>





# Health Record Exchange: Clinical Data Exchange (CDex)

## SUMMARY

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. Currently, no FHIR implementation guides exist to standardize the method of exchange (push, pull, triggers, subscription, etc.) and the formal representation (e.g. Documents, Bundles, Profiles and Vocabulary) for the range of exchanges between providers and providers or providers and payers of current and emerging interest to the involved parties. The focus is on the exchange of provider and payer originated information to improve patient care and reduce provider and payer burden.

This use case will define combinations of exchange methods (push, pull, subscribe, CDS Hooks, ...), specific payloads (Documents, Bundles, and Individual Resources), search criteria, conformance, provenance, and other relevant requirements to support specific exchanges of clinical information between: 1) providers, 2) a provider and a payer, 3) a payer and providers, and/or a provider and any third party involved in value based care (e.g. a quality management organization).

This project will reference, where possible, the prior work from Argonaut, US Core and QI Core effort for FHIR DSTU2, STU3,

## STATUS

Stage	Early September STU Ballot Reconciliation
Implementation Guide	<a href="#">Da Vinci CDex (v0.1.0: STU 1 Ballot 1) based on FHIR R4</a>
Reference Implementation	<a href="#">CDex Communication Response App</a> <a href="#">CDex Communication Request App</a>
Confluence Artifacts	<a href="#">Clinical Data Exchange (CDex)</a>





# Health Record Exchange: Payer Data Exchange (PDex)

## SUMMARY

Providers need access to payer information regarding current and prior healthcare services received by the patient/member to more effectively manage the patients care.

It is important to standardize the method of exchange (push, pull, triggers, subscription, etc.) or the formal representation (e.g. Bundles, Profiles and Vocabulary) for specific elements of payer information of interest to providers. The value is to provide a standard for adoption by both payers and providers for the exchange of payer information.

Where possible the 'standards' defined by the electronic Health Record exchange (eHRx) Framework Implementation Guide which in turn will utilize prior work from Argonaut, US Core and QI Core effort for FHIR DSTU2, STU3, and R4. The goal is to support the exchange of payer data on specific patients/members for better patient care with providers using technology that support FHIR DSTU2, STU3, and R4 releases of the FHIR standard.

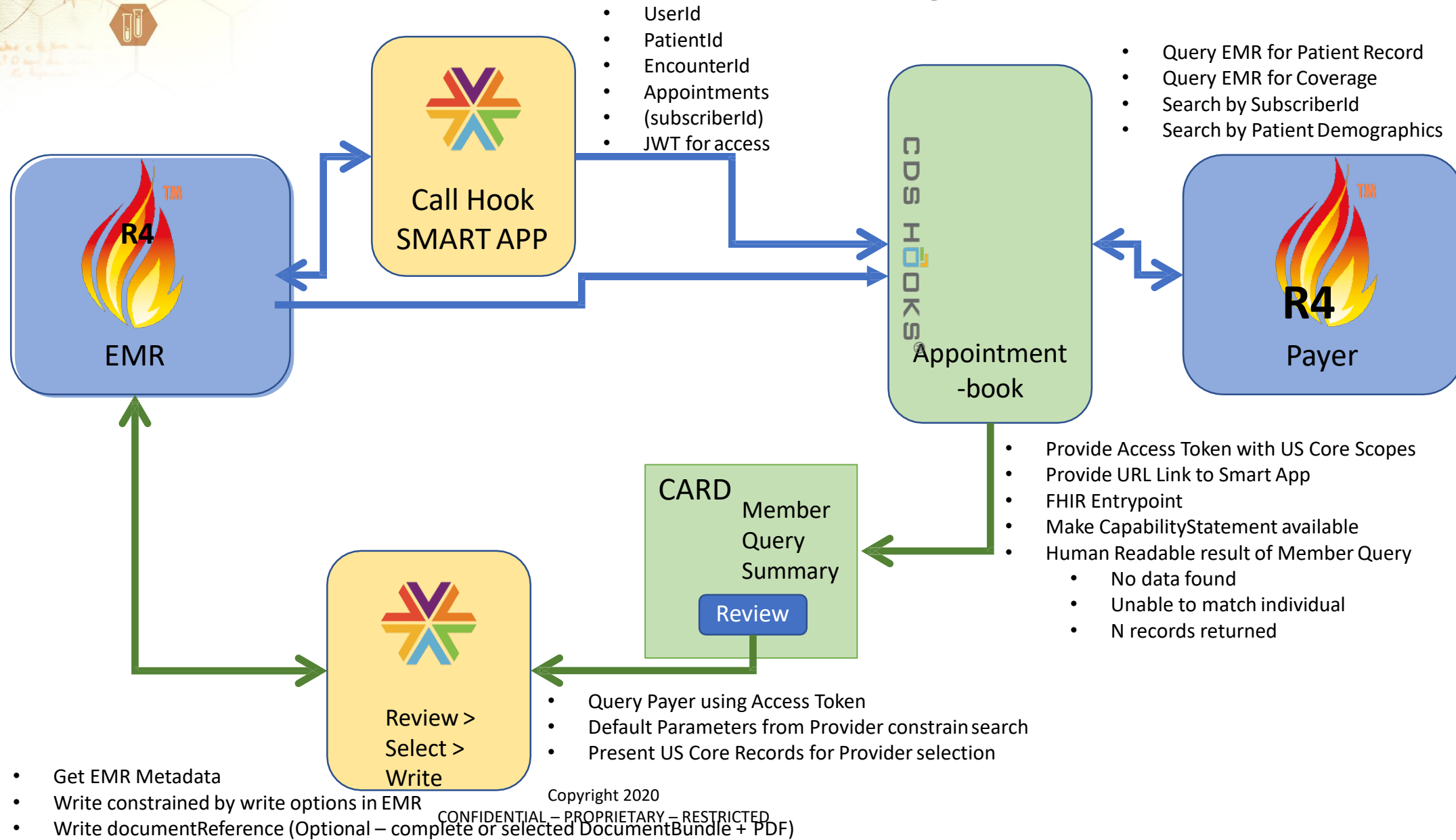
Will support the use of other interoperability 'standards' (e.g. CDS Hooks and SMART on FHIR) to effectively exchange payer information regarding the current or previous care, including the provenance of the data, of one or more specific patients/members with a provider responsible for evaluating/specifying/ordering/delivering care for the patient.

## STATUS

Stage	Early September STU Ballot Reconciliation
Implementation Guide	<a href="#">Da Vinci PDex (v0.1.0 STU 1 Ballot 1) based on FHIR R4</a>
Reference Implementation	<a href="#">PDex GitHub Repository</a>
Confluence Artifacts	<a href="#">Payer Data Exchange (PDex)</a>

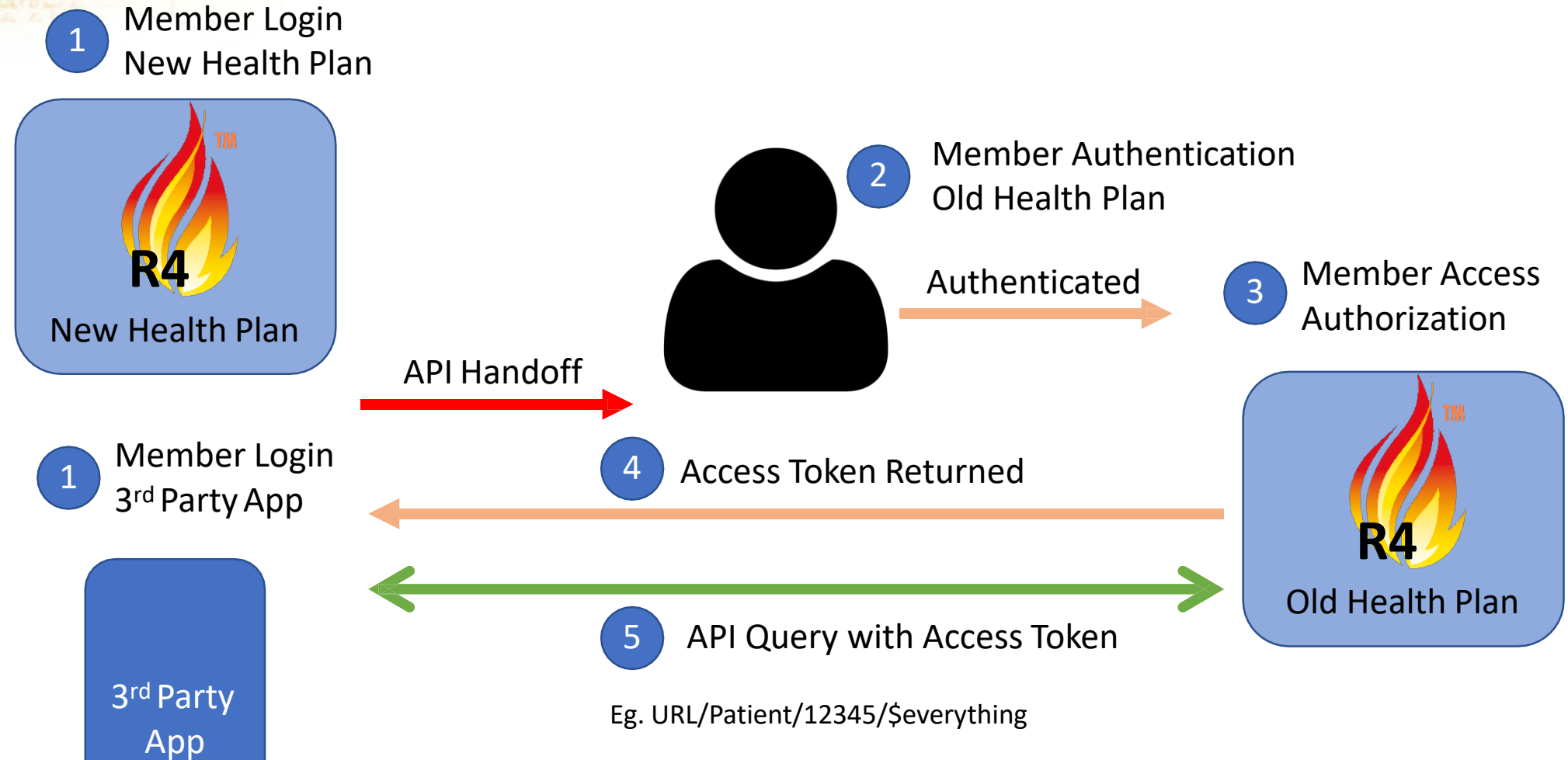


# PDex: Provider-Health Plan Exchange via CDS-Hook/SMART-on-FHIR





# PDex: Member-Authorized Health Plan Exchange (OAuth2.0)





# See Progress, Test, Implement

## VIEW

- Live Demos
- Member Panels
- End to End Clinical Scenario

View Full Schedule  
[hl7.me/davincinews](https://hl7.me/davincinews)

## FIND

- Listserv Sign Up
- Background collateral
- Active Use Case content
- Implementation Guides
- Reference Implementations
- Calendar of Activities & Updates

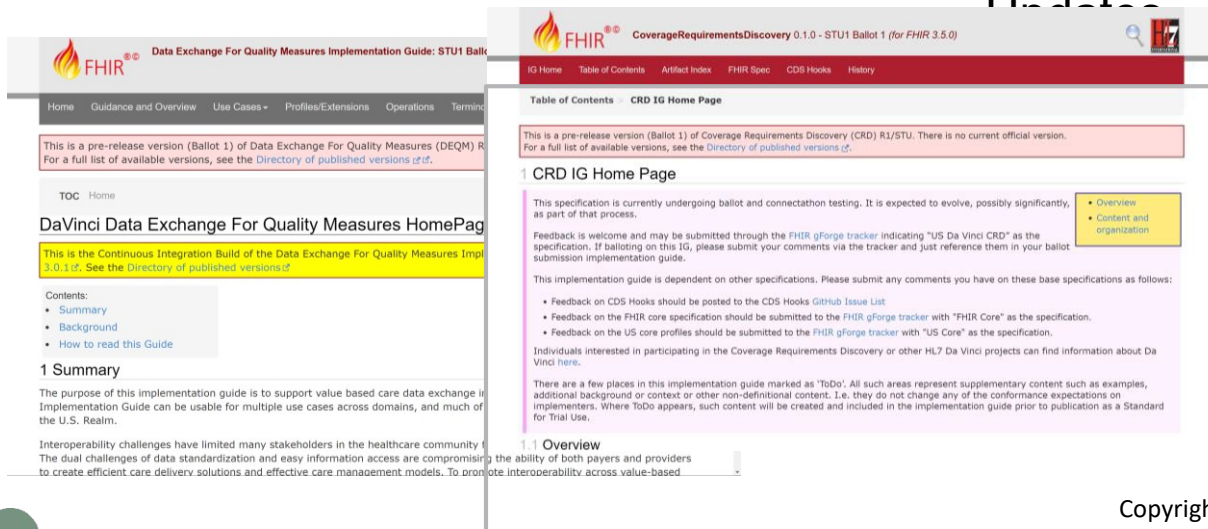
## KEY RESOURCES

HL7 Confluence Site -  
<https://confluence.hl7.org/display/DVP/>

Where to find Da Vinci in Industry -  
<https://confluence.hl7.org/display/DVP/Da+Vinci+2020+Calendar>

Use Case Summary and Links to Call In & Artifacts -  
<https://confluence.hl7.org/display/DVP/Da+Vinci+Use+Cases>

Reference Implementation Code Repository - <https://github.com/HL7-DaVinci>



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# HL7 Da Vinci Project: Confluence

HL7

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HL7.org

HL7 Work Groups & Projects

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How-to articles

HL7 Affiliates

HL7 Leadership Announcements

Test

Dashboard

Welcome to the Confluence Pages of Health Level 7 (HL7) International

Created by Anonymous, last modified by Joshua Prociou on Dec 05, 2019

Help Configuring Confluence for Mobile Devices.

Request an Account

Latest CTO Update on Confluence/Jira

HL7 Leadership Announcements

Help & Documentation

About

The primary public website of HL7 International is [HL7.org](#).

To access HL7's Jira Instance use [jira.hl7.org](#).

Health Level Seven International (HL7) is a not-for-profit, ANSI-accredited standards developing organization dedicated to providing a comprehensive framework and related standards for the exchange, integration, sharing, and retrieval of electronic health information that supports clinical practice and the management, delivery and evaluation of health services. HL7 is supported by more than 1,600 members from over 50 countries, including 500+ corporate members representing healthcare providers, government stakeholders, payers, pharmaceutical companies, vendors/suppliers, and consulting firms. HL7 Work Groups, Committees, and Collaborators use this Atlassian tool during the development and maintenance of Healthcare Interoperability Standards, Electronic Health Record functional models and profiles, and other standards products. For more information about the roll-out of

Work Groups

Administrative Steering Division	Electronic Health Records
	Financial Management
	Imaging Integration
	Orders & Observations
	Patient Administration
	Patient Empowerment
	Payer/Provider Information Exchange
	Anesthesia
	Biomedical Research and Regulation
	Clinical Decision Support

Product Families

CDA
FHIR
V2

Projects & Initiatives

CARIN Alliance
Consortium for Global e-Health Interoperability
Clinical Information Modeling Initiative
CodeX
Da Vinci
Dental Interop
Devices On FHIR
FHIR Accelerator
Gravity Project

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Da Vinci - Da Vinci - Confluence

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Dashboard

15,229 view(s)

Da Vinci

Created by Joshua Prociou, last modified by Jocelyn Keegan on Mar 30, 2020

Objective

Da Vinci is a private sector initiative that addresses the needs of the Value Based Care Community by leveraging the HL7 FHIR Data Interchange Store.

New! Join us for the monthly public Community Roundtable.

Fourth Wednesday of the month from 4 - 5:30 p.m. EST

No pre-registration is required to attend. To join the meeting visit: <https://global.gotomeeting.com/join/280227357> or call: +1 (445) 749-3112 Access Code: 280-227-357

March 25 Community Roundtable: A deep dive into the Prior Auth Support (PAS) and Clinical Data Exchange (CDex) use cases, presented by:

- Henry Meyne, Product Line Architect, Availity
- Dave Degandi, Senior Interoperability Strategist, Cambia Health Solutions
- David G. González, Marketing Solutions Manager, Physician Experience & Interoperability, Meditech

Informational Flyers

Da Vinci Progress Update March 2020 flyer including use case maturity

HIMSS20 Da Vinci in Action with clinical scenario and member use case table

Videos

<https://tinyurl.com/HL7DaVinciVideos>

Please tag, link your video content to YouTube Channel

Press Releases

Clinical Advisory Council Press Release

HL7 FHIR Accelerator Press Release

Member Announcement Press Release

Casenet Press Release

Blog Posts

<http://blog.hl7.org/leading-healthcare-stakeholders-commit-to-real-world-testing-of-hl7-fhir-bulk-data-implementation-guide-0>

<http://guidewell.com/blog/guidewell-host-%E2%80%98connectathon%E2%80%99-foster-standard-interoperability-across-health-care-industry>

<https://veradigmhealth.com/veradigm-news/leverage-davinci-to-achieve-efficient-interoperability/>

<https://blog.aegis.net/fhir-testing-helps-healthcare-projects-accelerate-adoption/>

<https://humananews.com/2018/10/31/31/>

Edit

Save for later

Watching

3

Share

...

Quick Links

Presentations & Status

2020 March Da Vinci Update Slides

2020 Da Vinci HIMSS20 Overview Presentation

20191203 Da Vinci Overview Quarterly Update.pptx

Project Update - March 2020

HL7 Da Vinci Deep Dive

ONC FHIR Heat Map

Project Resources

Use Case Summary

Calendar - Meetings and Events

Team

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Alexandra Goss

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Da Vinci Steering Committee Members

Da Vinci Operating Committee Members

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Select “watch”, on each page of interest, to receive email when updates occur.

De-select “watching” to stop email updates.

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Da Vinci Use Cases

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Da Vinci Welcome

Created by Dana Marcelonis, last modified on Apr 03, 2020

Welcome to the Da Vinci Project. We are a community of payer and provider technical, clinical and business leaders working to enable value-based care and solve interoperability challenges.

Join Da Vinci Listserv

Self-register for Da Vinci's Public Listserv on Welcome page.

New! Join us for the monthly public Community Roundtable.

Fourth Wednesday of the month from 4 - 5:30 p.m. EST

Registration link coming soon!

April 22nd Community Roundtable: A deep dive into Payer Coverage Decision Exchange (PCDE) and Alerts/Notifications Use Cases, presented by:

Guidewell

Edifecs

Did you miss Da Vinci's HIMSS20 virtual programming?

Access the panels, demonstrations and deep dive sessions on the Da Vinci 2020 Calendar.

The Da Vinci Experience

Learn how Da Vinci members and early adopters are already using HL7 FHIR by catching a panel presentation, View the Da Vinci calendar.

View the full list of member organizations.

Get Involved. Learn More. Join the Community. HL7.me/davincinews

What is HL7 Da Vinci Project?

HL7 Da Vinci Project is a private sector initiative comprised of more than 45 industry-leading providers, payers and technology vendors who are working together to accelerate the adoption of HL7 Fast Healthcare Interoperability Resources (HL7® FHIR®) as the standard to support and integrate value-based care (VBC) data exchange across communities.

The Project is bringing together the right subject matter experts from across stakeholder groups to define business problems, identify the corresponding data exchange requirements and use that information to create draft standards, which are in the form of implementation guides and sample software code.

The goal of the Da Vinci Project is to help payers and providers to positively impact clinical, quality, cost and care management outcomes.

2020 DA VINCI MEMBERSHIP

PROVIDERS

EHRs

PAYERS

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Da Vinci Use Cases - Da Vinci - C x

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Coverage Requirements Discovery (CRD)

Data Exchange for Quality Measures (DEQM)

Documentation Templates and Payer Rules

Gaps In Care & Information

Health Record Exchange Framework (HREx)

Notifications (formerly known as Alerts)

Payer Coverage Decision Exchange

Payer Data Exchange (PDEx)

Prior Authorization Support

Risk Based Contract Member Identification

Da Vinci Conference Call Sign Up Instructions

Da Vinci Implementation Guide Credits

Use Case Technical Artifacts

HL7 Workgroup Participation Team

Da Vinci Use Case Project Management

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Da Vinci Use Cases

Created by Dana Marcelonis, last modified on Mar 17, 2020

Active Use Cases

Clinical Data Exchange (CDEx)

Coverage Requirements Discovery (CRD)

Data Exchange for Quality Measures (DEQM)

Documentation Templates and Payer Rules (DTR)

Gaps In Care & Information

Health Record Exchange Framework (HREx)

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Da Vinci Use Case Project Management

Planned Use Cases

Performing Laboratory Reporting

Chronic Illness Documentation for Risk Adjustment

Patient Cost Transparency

Health Record Exchange: Patient Data Exchange

Da Vinci use cases are interrelated, currently with five categories that have emerged: Quality Improvement, Coverage/Burden Reduction, Member Access, Process Improvement, and Clinical Data Exchange. Early use cases create building blocks and a framework upon which incremental improvements and additional content can be added over time.

Da Vinci adopts existing and emerging standards with broad support to create viable solutions, such as FHIR as the core, NCQA HEDIS, CDS Hooks, and SMART on FHIR (layering in OAuth security). Existing profiles are adopted where possible (e.g., Argonaut, US-Core, QI-Core)

Weekly Meeting Schedule

Conference Call Sign Up

HL7 Conference Call Center

Da Vinci Conference Call Sign Up Instructions

Use Case scope / overview slide deck.

Da Vinci Implementation Guide Dashboard

Use Case Overviews

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Da Vinci Project: Use Case Focus Areas

Data Exchange for Quality Measures

Gaps in Care & Information

Coverage Requirements Discovery

Documentation Templates and Rules

Prior-Authorization Support

Quality Improvement

Coverage / Burden Reduction

Clinical Data Exchange

Payer Data Exchange

Payer Data Exchange: Formulary

Payer Data Exchange: Directory

Payer Coverage Decision Exchange

Risk Based Contract Member Identification

Chronic Illness Documentation for Risk Adjustment

Member Access

Process Improvement

Payer Data Exchange

Clinical Data Exchange

Alerts / Notifications

Patient Data Exchange

Performing Laboratory Reporting

Clinical Data Exchange

In Ballot Reconciliation

Early February or February 2020 Ballot

In Build

In Discovery

Use Case Status

Summary of use case call schedule and meeting details.(scroll down on Confluence page)

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Da Vinci Use Cases - Da Vinci - C

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CDex Meetings

CDex Supporting Materials

Coverage Requirements Discovery (CRD)

Data Exchange for Quality Measures (DEQM)

Documentation Templates and Payer Rules

Gaps In Care & Information

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Weekly Meeting Schedule

[Conference Call Sign Up](#)

[HL7 Conference Call Center](#)

[Da Vinci Conference Call Sign Up Instructions](#)

Each use case has its own landing page with overview details.

Subpages are broken into meeting documentation and supporting materials.

Da Vinci Implementation Guide Dashboard

Use Case Overviews

Weekly Meeting Schedule

Da Vinci Project: Use Case Focus Areas

Quality Improvement

Coverage / Burden Reduction

Member Access

Process Improvement

Clinical Data Exchange

Data Exchange for Quality Measures

Gaps In Care & Information

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Clinical Data Exchange

Alerts / Notifications

Patient Data Exchange

Performing Laboratory Reporting

In Ballot Reconciliation

Early February or February 2020 Ballot

In Build

In Discovery

Use Case Status

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Add calls to your calendar manually or through HL7's Conference Call Center.

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The background features a light-colored hexagonal grid. Overlaid on this grid are several medical and scientific icons: a syringe, a virus particle, two test tubes, a pill, a plus sign, a mortar and pestle with 'Rx', a stethoscope, a first aid kit, and a heart with an ECG line. To the left, there are faint, handwritten-style sketches of a globe and a complex network of lines. At the bottom left, there is a logo for the Interoperability Institute, which includes a stylized cloud and the text 'INTEROPERABILITY INSTITUTE'.

# Questions?



The background features a collage of Leonardo da Vinci's sketches, including anatomical drawings of the human body, mechanical designs of flying machines and war machines, and various scientific diagrams. Overlaid on these sketches are several hexagonal icons: a stethoscope, a test tube, a heart with a pulse line, a first aid cross, and a pharmacy 'R' symbol.

**Robert Dieterle CEO, EnableCare LLC**  
**Senior Advisor for Vinci Program**

**[rdieterle@enablecare.us](mailto:rdieterle@enablecare.us)**

**816-853-7164**



# The Gravity Project: Consensus-driven Standards on Social Determinants of Health



MiHIN InterOpathon

Lisa Nelson, Gravity Technical Director

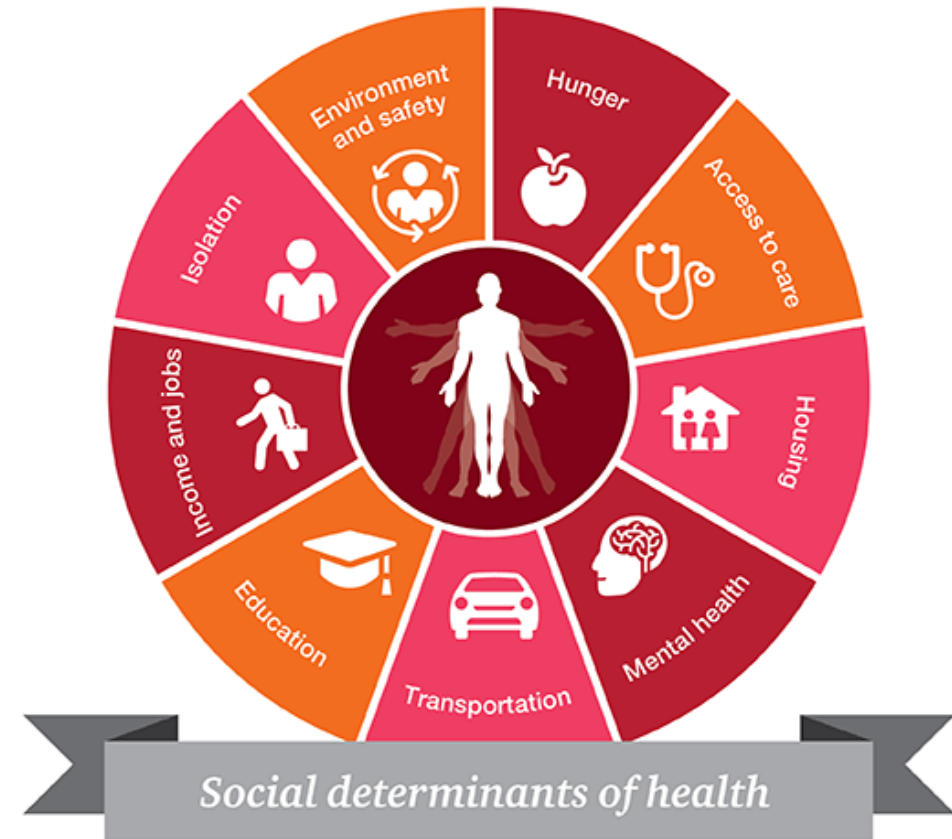
May 7, 2020





# Gravity Project Goal

Develop consensus-driven data standards to support use and exchange of social determinants of health (SDOH) data within the health care sectors and between the health care sector and other sectors.



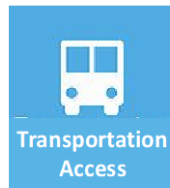
Graphic from: <https://hitconsultant.net/2019/03/18/social-determinants-of-health-sdoh-collection/#.XoQWNHJ7ncs>



# Business Drivers

There is broad consensus that SDOH information improves whole person care and lowers cost. Unmet social needs negatively impact health outcomes.

- **Food insecurity** correlates to higher levels of diabetes, hypertension, and heart failure.
- **Housing instability** factors into lower treatment adherence.
- **Transportation barriers** result in missed appointments, delayed care, and lower medication compliance



One of the biggest barriers to addressing social risk and social needs in clinical settings is the limited standards available to represent the data. We need standards to promote the:

- Collection and use of the data;
- Facilitate the sharing of the data across clinical and non-clinical organizations; and
- Facilitate payment for social risk data collection and intervention activities

**Key Learning:** Despite increased interest around identifying and addressing SDOH in context of US health care settings, existing medical coding vocabularies and health information exchange standards are poorly equipped to capture related activities.



# Project Scope & Deliverables

**Call to Action:** In May 2019, the [Gravity Project](#) was launched as a multi-stakeholder public collaborative with the goal to develop, test, and validate standardized SDOH data for use in patient care, care coordination between health and human services sectors, population health management, public health, value-based payment, and clinical research.

**Gravity Project Scope:** Develop data standards to represent patient level SDOH data documented across four clinical activities: screening, assessment/diagnosis, goal setting, and treatment/interventions.

The Gravity Project was initiated by the Social Interventions Research and Evaluation Network (SIREN) with funding from the Robert Wood Johnson Foundation and in partnership with EMI Advisors LLC.

## Deliverables:

- [Use Cases](#) (includes Personas and Patient Story) →
- Common data elements and associated concept domains ([Food Insecurity](#), [Housing Instability](#), and Transportation Access)
- Coded data element capture and grouping recommendations
- [HL7® FHIR® Implementation Guide\(s\)](#)
- Reference Implementation(s) and Pilots

## USE CASES

1. Document SDOH data in conjunction with the Patient encounter.
2. Document and track SDOH related interventions to completion.
3. Gather and aggregate SDOH data for uses beyond the point of care (e.g. population health, quality reporting, risk adjustment)\*

\* Use Case 3 out of scope for Sept 2020 FHIR IG ballot



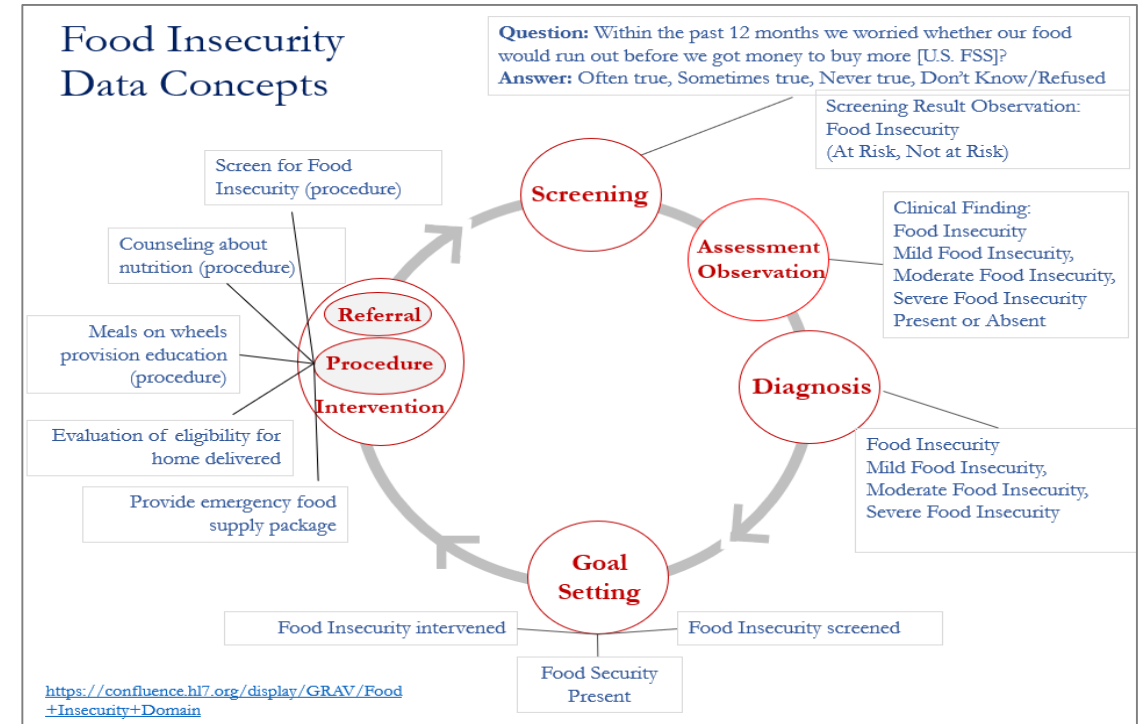
# SDOH Interoperability Glide Path

**HL7 FHIR Accelerator:** In August 2019, Gravity officially joined the HL7 FHIR Accelerator Program and is on target to ballot an HL7 SDOH FHIR Implementation Guide for Sept. 2020.

**Public Collaboration:** Gravity has convened over **1000** participants from across the health and human services ecosystem from clinical provider groups, community-based organizations, standards development organizations, federal and state government, payers, and technology vendors.

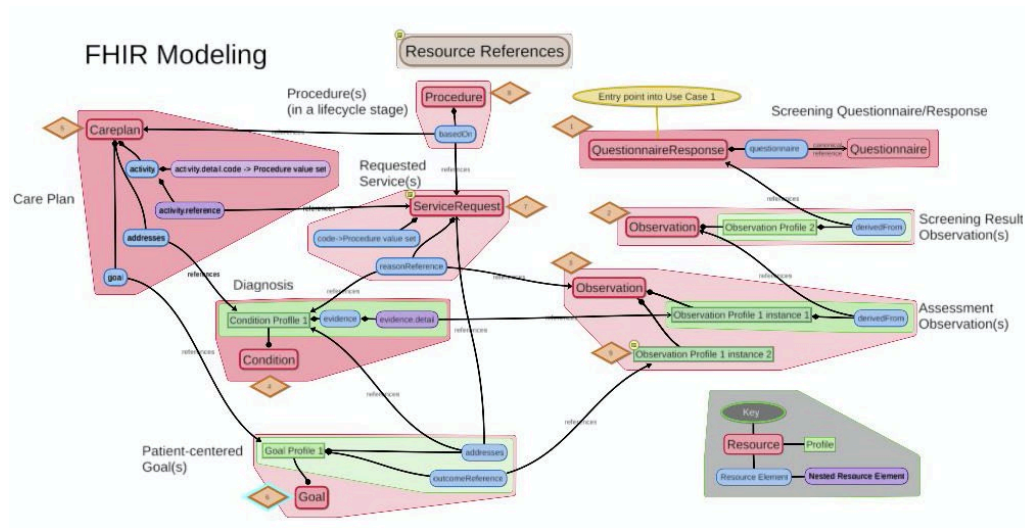
## Industry Considerations:

- **Regulatory Trends.** Incorporation of Gravity data sets into VSAC, ONC ISA, USCDI.
- **Payment Reform.** CMS, MA, and MCO payments for medically or home delivered meals, housing, and transportation services.
- **Tech Innovations.** Growth of community referral systems, community information exchanges, and SDOH data analytics platforms.





# Accelerating Adoption: Reuse & Innovation



SDOH Clinical Care Implementation Guide CI Build

Home Table of Contents Profiles & Extensions Terminology Capability Statements Other Downloads

- 1 1G Home Page
- 2 Table of Contents
  - 2.1 Practical Guidance for All Audiences
  - 2.2 Gravity Project Background
  - 2.3 Gravity Project Personas and Patient Stories
    - 2.3.1 Patient Story 1 Personas
    - 2.3.2 Patient Story 1
  - 2.4 Gravity Project SDOH Coded Content
  - 2.5 Gravity Project Use Cases
    - 2.5.1 Use Case 1
    - 2.5.2 Use Case 2
    - 2.5.3 Use Case 3
  - 2.6 Overview of Data Sharing Methods
  - 2.7 Security and Consent Considerations
  - 2.8 Additional Conformance Considerations
  - 2.9 Overview of Capability Statements
  - 2.10 Naming Conventions for Implementation Guide Artifacts
  - 2.11 About SDOH-CC Master List, Temporary Code System, and Temporary Codes
  - 2.12 About SDOH-CC Temporary Identifier System
- 3 Artifacts Summary

## Reuse

- US Core; Structured Data Capture (SDC); Da Vinci Clinical Data Exchange (CDex); Bidirectional Service Request (BSeR); C-CDA on FHIR

## New FHIR R4 Profiles for SDOH Content

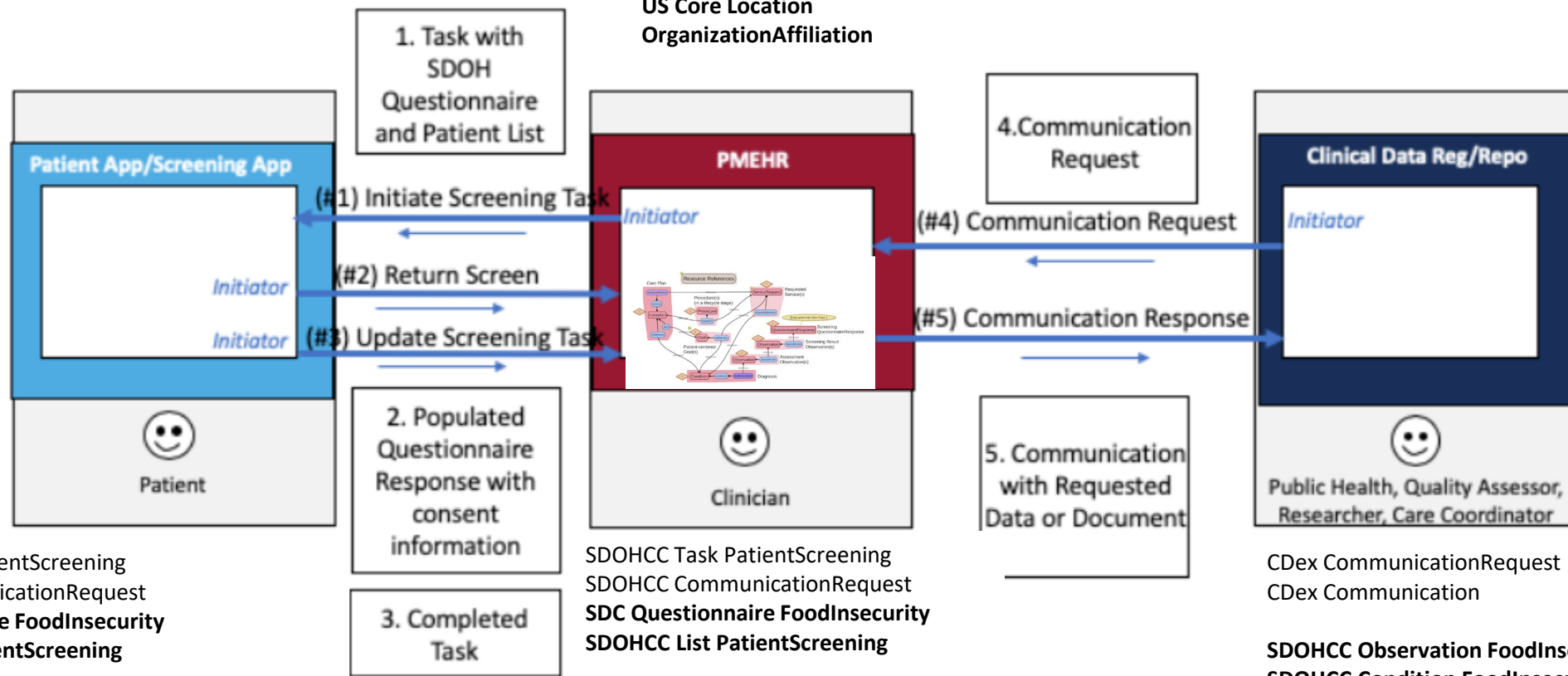
- Screening Data: SDC Questionnaire, SDC QuestionnaireResponse, SDOHCC Consent, SDOHCC List
- Encounter Data: SDOHCC Observation, SDOHCC Condition, SDOHCC Goal, SDOHCC Procedure
- Referral Data: SDOHCC ServiceRequest



# Use Case 1

US Core Patient  
US Core Practitioner  
US Core Organization  
US Core PractitionerRole  
US Core Location  
OrganizationAffiliation

CCDAF Composition  
CCDAF DocumentReference



SDOHCC Task PatientScreening  
SDOHCC CommunicationRequest  
SDC Questionnaire FoodInsecurity  
SDOHCC List PatientScreening

SDOHCC Communication  
SDC QuestionnaireResponse FoodInsecurity  
SDOHCC Consent FoodInsecurity

SDOHCC Task PatientScreening  
SDOHCC CommunicationRequest  
SDC Questionnaire FoodInsecurity  
SDOHCC List PatientScreening

SDOHCC Communication  
SDC QuestionnaireResponse  
SDOHCC Consent

SDOHCC Observation FoodInsecurity  
SDOHCC Condition FoodInsecurity  
SDOHCC Goal FoodInsecurity  
SDOHCC Procedure FoodInsecurity  
SDOHCC ServiceRequest FoodInsecurity  
BSer Task PatientReferral

CDex CommunicationRequest  
CDex Communication

SDOHCC Observation FoodInsecurity  
SDOHCC Condition FoodInsecurity  
SDOHCC Goal FoodInsecurity  
SDOHCC Procedure FoodInsecurity



# Key Resources

- Location of the IG
  - <http://build.fhir.org/ig/HL7/sdoh-cc/>
- Location of the Zulip Channel
  - <https://chat.fhir.org/#narrow/stream/233957-Gravity-sdoh-cc>
- Prep Session Recordings from HL7 Connectathon
  - <https://confluence.hl7.org/display/GRAV/Gravity+SDOH+FHIR+Connectathon+Participant+Meetings>
- Gravity Confluence site
  - <https://confluence.hl7.org/display/GRAV/The+Gravity+Project>



# Questions?

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Twitter: @egallego

Linkedin: [linkedin.com/in/egallego](https://www.linkedin.com/in/egallego)

Lisa Nelson

[lnelson@max.md](mailto:lnelson@max.md)

Twitter: @PHRLisa

Linkedin: [linkedin.com/in/lisa-nelson-987b577](https://www.linkedin.com/in/lisa-nelson-987b577)



# MaxMD



# CARIN Blue Button Framework and Common Payer Consumer Data Set

EMPOWERING CONSUMERS WITH THEIR HEALTH PLAN DATA

Amol Vyas

Chief Architect – Interoperability

Cambia Health Solutions

Email: [amol.vyas@cambiahealth.com](mailto:amol.vyas@cambiahealth.com)

Twitter: @mister\_pdx



**LEAVITT**  
PARTNERS

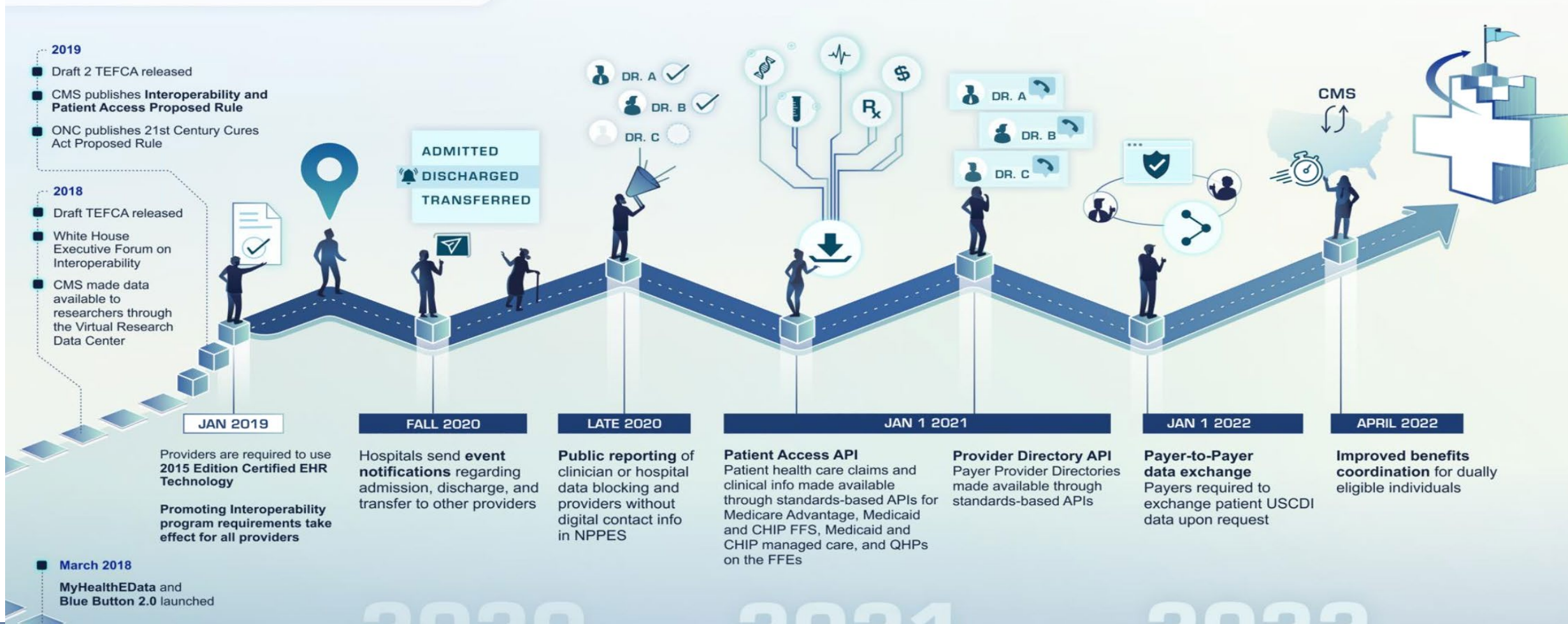


# Final CMS Rule

## CMS INTEROPERABILITY & PATIENT ACCESS FINAL RULE

my  
health  
data

**CMS**  
CENTERS FOR MEDICARE & MEDICAID SERVICES





# Our Template : The Argonaut Project

## Background:

The **Argonaut Project** was formed in December 2014 as an implementation community comprising leading technology vendors and provider organizations to accelerate the use of FHIR and OAuth in health care information exchange.

The Argonaut project is private-sector initiated and funded and works collaboratively with other FHIR initiatives to create open industry Implementation Guides in high priority use cases of importance to patients, providers and the industry as a whole.

## Deliverables:

Focused on the ONC's 2015 Edition Common Clinical Data Set (CCDS) to co-develop the SMART App Application Guide using the OAuth 2.0 profile for authorizing apps to access FHIR data and the Argonaut Data Query Implementation Guide (FHIR DSTU2).

## Timeline:

IG Publication – Mid 2016 (1 ½ years)  
Full Implementation – 2016 to 2019 (3 years)

## As of October 2018:

82% of all Hospitals using FHIR DSTU2  
64% of all Physicians using FHIR DSTU2



- Leverage the Argonaut Project as a best practice approach
- Common Payer Consumer Data Set (CPCDS)
  - Includes key health data that should be accessible and available for exchange.
  - Data must conform with specified vocabulary standards and code sets.
  - CPCDS data elements can be stored and queried as profiled FHIR resources.
- Data Query Profiles
  - Based on CPCDS, define the minimum mandatory elements, extensions and terminology requirements that must be present in the FHIR resource.
- Data Query Implementation Guide
  - Collection of security specifications, profile definitions and supporting documentation.
  - The guide satisfies use cases for member access to health plan data, ensuring the CPCDS elements are included and modeled in a standard format.
- Mapping From CPCDS To FHIR Resource Profiles
- Intermediate Extract-Transform-Load (ETL) Extract Format Specification Representing CPCDS Data Elements (TBD)



# Argonaut Project & CARIN Blue Button Framework

	Argonaut Project	CARIN Blue Button Framework
Logical Data Specification	Common Clinical Data Set (CCDS)	Common Payer Consumer Data Set (CPCDS)
Physical Data Specification Using FHIR (Data Query)	FHIR Resource Profiles Representing CCDS Data Elements	FHIR Resource Profiles Representing CPCDS Data Elements
Physical Data Specification Using Flat Files (ETL)	None	Intermediate ETL Extract Format Specification Representing CPCDS Data Elements (TBD)
Document Query	DocumentReference Profile Exposing Patient's Existing Clinical Document	None
Logical Data Specification to FHIR Translation	Mapping From CCDS To FHIR Resource Profiles	Mapping From CPCDS To FHIR Resource Profiles
Authorization	SMART on FHIR/OAuth2/OpenID Connect	SMART on FHIR/OAuth2/OpenID Connect

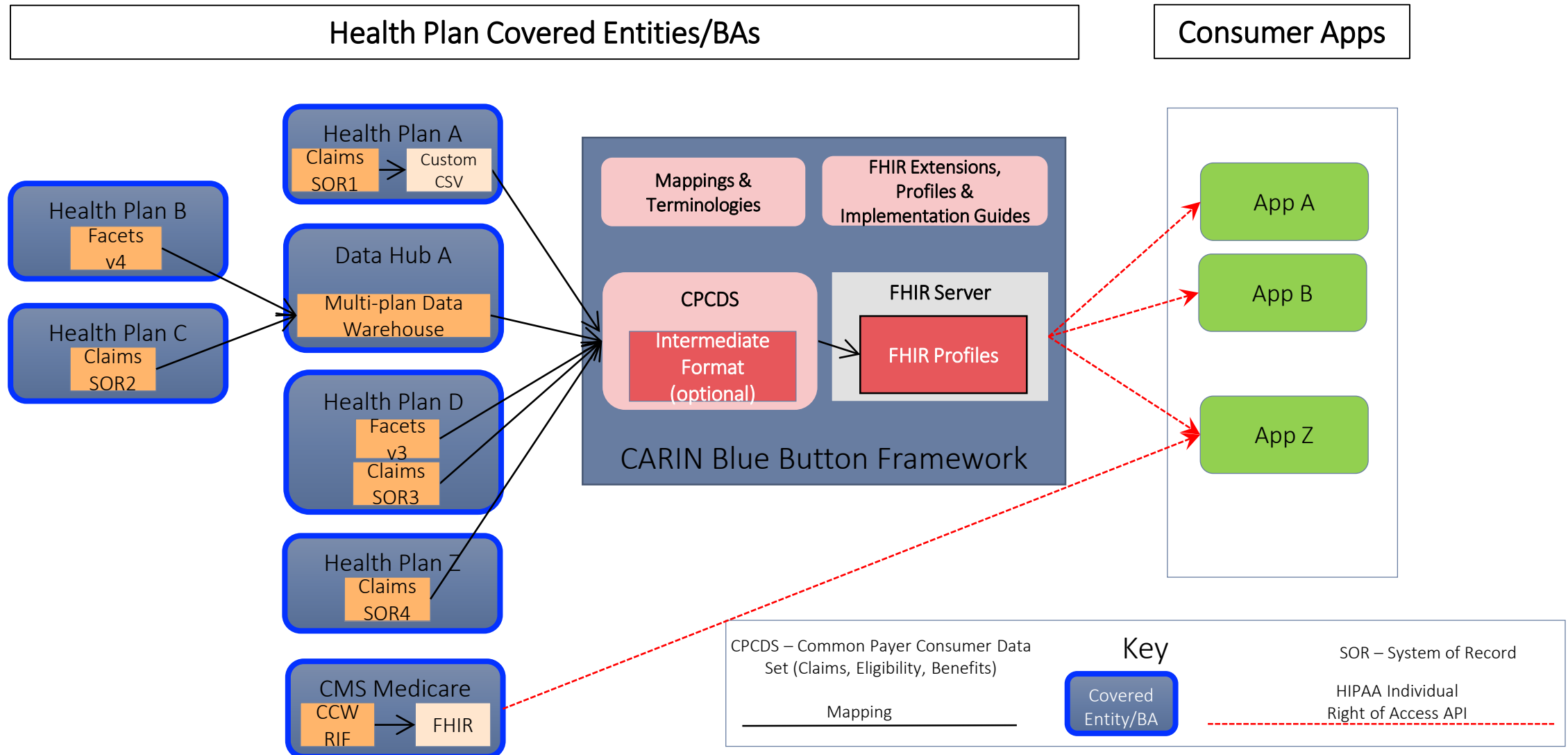


## How can Plans leverage the CARIN Blue Button Framework?

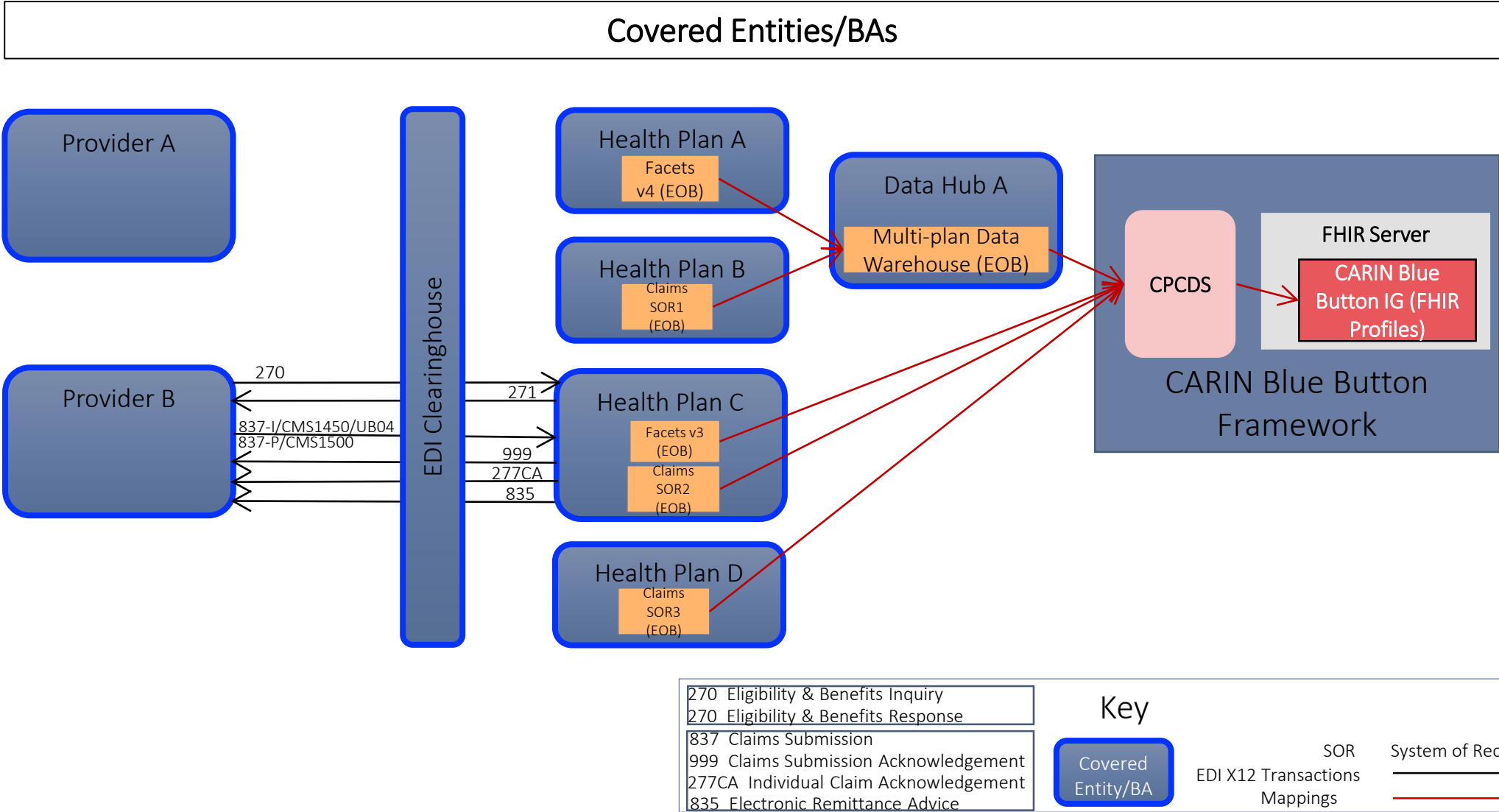
1. **Map Claims System of Record (SOR) directly to FHIR Profiles**
    - Leverage *CPCDS to FHIR Mapping* as a crosswalk to map the Claims SOR data to CARIN Blue Button Profiled Resources.
  2. **Map Claims SOR to FHIR Profiles using ETL extracts as an intermediate step**
    - Generate Flat File extracts containing CPCDS elements from the Claims SOR using existing mature enterprise-grade ETL tools and processes.
    - Leverage *CPCDS to FHIR Mapping* to map the intermediate ETL extracts to CARIN Blue Button Profiled Resources.
- Maintenance and reuse of direct mappings for some Claims SORs in option 1 may be challenging due to the varying versions, configurations or hosting implementations of the SORs.
  - The intermediate step in option 2 introduces additional process & governance. However, it can help decouple the FHIR Profiles from the one/many Claims SOR(s), and also enhance the maintainability and reusability of the FHIR mapping.



# CARIN Blue Button Framework with CPCDS

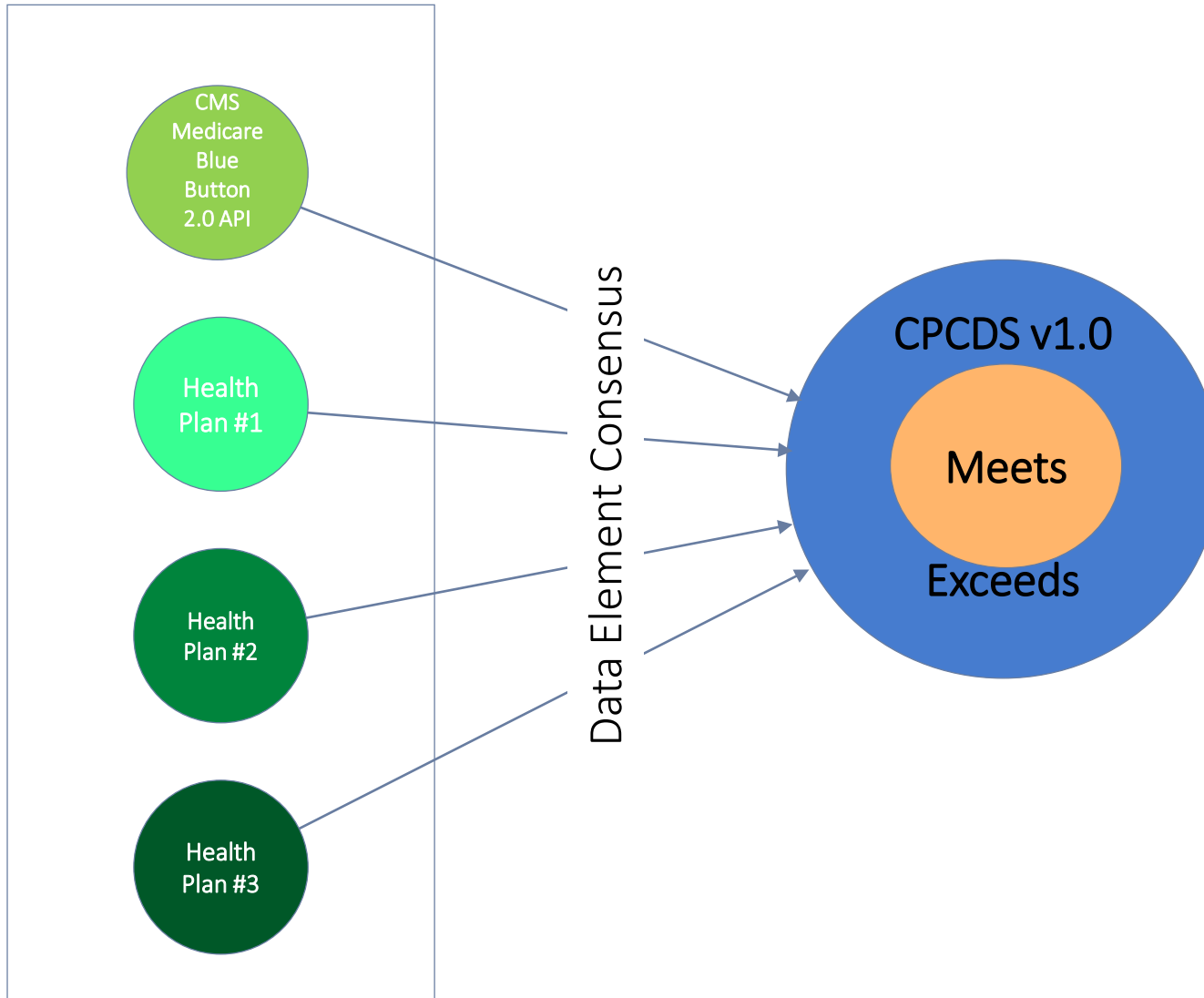








# Common Payer Consumer Data Set (CPCDS) v1.0



*In March 2018, CMS launched Blue Button 2.0, which provides secure beneficiary-directed data transport in a structured Fast Healthcare Interoperability Resources (FHIR) format that is developer-friendly. This will enable beneficiaries to connect their data to applications, services, and research programs they trust. Blue Button 2.0 uses open source code that is available for all plans at <https://bluebutton.cms.gov/developers/>.*

*In February 2019, CMS issued the Interoperability and Patient Access Proposed Rule. Under this proposal, the scope and volume of the information to be provided or made accessible through the open API would include: adjudicated claims (including cost); encounters with capitated providers; provider remittances; enrollee cost-sharing; and clinical data, including laboratory results (where available)*



# Proposed Common Payer Consumer Data Set (CPCDS) v1.0 – Draft



# Claim

#	CPCDS Element	Reference CMS Medicare BB 2.0 Element	Description
1	Claim service start date	CLM_FROM_DT	[institutional] The first day on the billing statement covering services rendered to the beneficiary (i.e. 'Statement Covers From Date'). [non-institutional] Earliest of any of the line-item level dates. It is almost always the same as Claim Service End Date except for DME claims - where some services are billed in advance.
2	Claim service end date	CLM_THRU_DT	[institutional] The last day on the billing statement covering services rendered to the beneficiary (i.e. 'Statement Covers Thru Date') [non-institutional] The latest of any of the line-item level dates

#	CPCDS Element	Reference CMS Medicare BB 2.0 Element	Description
3	Claim paid date	PD_DT	
4	Claim received date	NCH_WKLY_PROC_DT	
5	Member admission date	CLM_ADMSN_DT	[inpatient] The date corresponding with admission of the beneficiary to a facility and the onset of services. May precede the Claim Service Start Date if this claim is for a beneficiary who has been continuously under care.
6	Member discharge date	NCH_BENE_DSCHRG_DT	[inpatient] Date the beneficiary was discharged from the facility, or died. Matches the Claim Service End Date. When there is a discharge date, the Patient Discharge Status Code indicates the final disposition of the patient after discharge.
			Date EOB was created or updated. [Discuss the



#	CPCDS Element	Reference CMS Medicare BB 2.0 Element	Description
7	Patient account number		Provider submitted information that can be included on the claim
8	Medical record number		
9	Claim unique identifier	CLM_ID	
10	Claim adjusted from identifier		prior [describe mutable/immutable EOB scenarios here]
11	Claim adjusted to identifier		replaced [describe mutable/immutable EOB scenarios here]
12	Claim diagnosis related group	CLM_DRG_CD	[inpatient]
13	Claim inpatient source admission code	CLM_SRC_IP_ADMSN_CD	[inpatient] UB-04 Source of Admission code (FL-15)
14	Claim inpatient admission type code	CLM_IP_ADMSN_TYPE_CD	[inpatient] UB-04 Type of Admission/Visit (FL-14)
15	Claim bill facility type code	CLM_FAC_TYPE_CD	UB-04 Type of Bill (FL-4) structure – Type of facility
16	Claim service classification type code	CLM_SRVC_CLSFCTN_TYPE_CD	UB-04 Type of Bill (FL-4) structure – Type of care
			UB-04 Type of Bill (FL-4) structure – Sequence in

#	CPCDS Element	Reference CMS Medicare BB 2.0 Element	Description
18	Claim processing status code		active, cancelled
19	Claim type code	NCH_CLM_TYPE_CD	Medical, vision, oral, etc [facility] The patient's status as of the "Through" date of the billing period. UB04 (FL-17)
20	Patient discharge status code	PTNT_DSCHRG_STUS_CD	
21	Claim payment denial code	CARR_CLM_PMT_DNL_CD / CLM_MDCR_NON_PMT_RSN_CD	The code on a non-institutional claim indicating to whom payment was made or if the claim was denied / The reason that no payment is made for services on an institutional claim. (CARC/RARC, excd disallowed code)
22	Claim primary payer identifier	NCH_PRMRY_PYR_CD	
23	Claim payee type code		Recipient of benefits payable
24	Claim payee		Recipient reference
25	Claim payment status code		paid, denied, partially paid



#	CPCDS Element	Reference CMS Medicare BB 2.0 Element	Description
Drug			
1	Days supply	DAYS_SUPLY_NUM	Number of days' supply of medication dispensed by the pharmacy
2	RX service reference number	RX_SRVC_RFRNC_NUM	Assigned by the pharmacy at the time the prescription is filled
3	DAW product selection code	DAW_PROD_SLCTN_CD	Prescriber's instruction regarding substitution of generic equivalents or order to dispense the specific prescribed medication
4	Refill number	FILL_NUM	The number fill of the current dispensed supply (0, 1, 2, etc)
5	Prescription origin code	RX_ORGN_CD	Whether the prescription was transmitted as an electronic prescription, by phone, by fax, or as a written paper copy

#	CPCDS Element	Reference CMS Medicare BB 2.0 Element	Description
6	Plan reported brand-generic code	BRND_GNRC_CD	Whether the plan adjudicated the claim as a brand or generic drug
7	Pharmacy service type code	PHRMCY_SRVC_TYPE_CD	Type of pharmacy that dispensed the prescription
8	Patient residence code	PTNT_RSDNC_CD	Where the beneficiary lived when the prescription was filled



#	CPCDS Element	Reference CMS Medicare BB 2.0 Element	Description
Provider			
1	Claim billing provider NPI	CARR_CLM_BLG_NPI_NUM	
2	Claim billing provider network status		contracted   non-contracted
3	Claim attending provider NPI	AT_PHYSN_NPI	Physician who has overall responsibility for the beneficiary's care and treatment [institutional]
4	Claim attending provider network status		contracted   non-contracted
5	Claim site of service NPI	CARR_CLM_SOS_NPI_NUM, SRVC_LOC_NPI_NUM	The service location NPI will not be on the claim if it is the same as the billing provider NPI
6	Claim site of service network status		contracted   non-contracted
6	Claim referring provider NPI	CARR_CLM_RFRNG_PIN_NUM	
8	Claim referring provider network status		contracted   non-contracted
9	Claim performing provider NPI	PRF_PHYSN_NPI, OP_PHYSN_NPI, RNDRNG_PHYSN_NPI	Rendering/servicing/operating/prescribing provider/pharmacist
	Claim performing provider		contracted   non-

#	CPCDS Element	Reference CMS Medicare BB 2.0 Element	Description
11	Claim prescribing provider NPI		Prescribing provider
12	Claim prescribing provider network status		contracted   non-contracted
13	Claim PCP NPI		



#	CPCDS Element	Reference CMS Medicare BB 2.0 Element	Description
Amounts			
1	Claim total submitted amount	CLM_TOT_CHRG_AMT	Submitted charge amount
2	Claim total allowed amount	NCH_CARR_CLM_ALOWD_AMT	
3	Amount paid by patient	PTNT_PAY_AMT	Includes all copayments, coinsurance, deductible, or other patient payment amounts [pharmacy]
4	Claim amount paid to provider	CARR_CLM_PRMRY_PYR_PD_AMT	
5	Member reimbursement	NCH_CLM_BENE_PMT_AMT	
6	Claim payment amount	CLM_PMT_AMT	By Payer
7	Claim disallowed amount	NCH_IP_NCVRD_CHRG_AMT	
8	Member paid deductible	NCH_BENE_IP_DDCTBL_AMT	
9	Co-insurance liability amount	NCH_BENE_PTA_COINSRNC_LBLTY_AMT	
10	Copay amount		

#	CPCDS Element	Reference CMS Medicare BB 2.0 Element	Description
11	Member liability		E.g. Non-contracted provider
12	Claim primary payer paid amount	NCH_PRMRY_PYR_CLM_PD_AMT	



#	CPCDS Element	Reference CMS Medicare BB 2.0 Element	Description
Line Service Details			
1	Service (from) date	LINE_1ST_EXPNS_DT	Dispense/fill date (Rx)
2	Line number	LINE_NUM	
3	Service to date	LINE_LAST_EXPNS_DT	
4	Type of service	LINE_CMS_TYPE_SRVC_CD	
5	Place of service code	LINE_PLACE_OF_SRVC_CD	
6	Revenue center code	REV_CNTR	The provider-assigned revenue code for each cost center for which a separate charge is billed (type of accommodation or ancillary) UB-04 Revenue Code (FL-42), Revenue Description (FL-43)
7	Number of units	REV_CNTR_UNIT_CNT	Num of times service or procedure performed. UB-04 Units of Service (FL-46)

#	CPCDS Element	Reference CMS Medicare BB 2.0 Element	Description
8	Allowed number of units		Maximum allowed number of units
9	National drug code	LINE_NDC_CD	
10	Compound code	CMPND_CD	Whether or not the dispensed drug was compounded or mixed
11	Quantity dispensed	REV_CNTR_NDC_QTY, QTY_DSPNSD_NUM	Quantity dispensed for the drug
12	Quantity qualifier code	REV_CNTR_NDC_QTY_QLFR_CD	The unit of measurement for the drug. (gram, ml, etc)
13	Line network indicator benefit payment status		in-network, out-of-network, other
14	Line claim payment denial code		



#	CPCDS Element	Reference CMS Medicare BB 2.0 Element	Description
Line Amount Details			
1	Line disallowed charged amount	REV_CNTR_NCVRD_CHRG_AMT	Amount related to a revenue center code for services that are not covered
2	Line member reimbursement	LINE_BENE_PMT_AMT	Payment (reimbursement) made to the beneficiary related to the line item service on the non-institutional claim
3	Line amount paid by patient	REV_CNTR_PTNT_RSPNSBLTY_PMT	Amount paid by the beneficiary to the provider for the line item service (outpatient)
4	Drug cost	TOT_RX_CST_AMT	Price paid for the drug excluding mfr discounts
5	Line payment amount	LINE_NCH_PMT_AMT	Amount that Payer is responsible for reimbursing for the line item on the non-institutional claim

#	CPCDS Element	Reference CMS Medicare BB 2.0 Element	Description
6	Line amount paid to provider	LINE_PRVDR_PMT_AMT	Actual payment made by Payer to the provider for the line item service on the noninstitutional claim. Additional payments may have been made to the provider - including beneficiary deductible and coinsurance amounts and/or other primary payer amounts
7	Line patient deductible	LINE_BENE_PTB_DDCTBL_AMT	
8	Line primary payer paid amount	LINE_BENE_PRMRY_PYR_PD_AMT	
9	Line coinsurance amount	LINE_COINSRNC_AMT	
10	Line submitted amount	LINE_SBMTD_CHRG_AMT	Provider submitted charges for the line item service on the non-institutional claim



# Claim Line

#	CPCDS Element	Reference CMS Medicare BB 2.0 Element	Description
11	Line allowed amount	LINE_ALOWD_CHRG_AMT	Allowed charges for the line item service on the noninstitutional claim. This charge is used to compute pay to providers or reimbursement to beneficiaries. The amount includes both the line-item Payer and beneficiary-paid amounts (i.e. deductible and coinsurance)
12	Line member liability		E.g. Non-contracted provider
13	Line copay amount		
14	Line discounted rate		



# Diagnoses & Procedures

#	CPCDS Element	Reference CMS Medicare BB 2.0 Element	Description
Diagnosis (0-n)			
1	Diagnosis code	PRNCPAL_DGNS_CD, ICD_DGNS_CD(1-25)	
2	Diagnosis description		
3	Present on admission	CLM_POA_IND_SW(1-25)	
4	Diagnosis code type	ICD_DGNS_VRSN_CD(1-25)	ICD 9 or ICD 10 primary, secondary, discharge, etc.
5	Diagnosis type	Primary, 1-25	
6	Is E code	ICD_DGNS_E_CD1	External cause of injury code. For hospital and emergency department visits, E-codes are used in addition to the diagnostic codes. They can be used as “other diagnosis”.

#	CPCDS Element	Reference CMS Medicare BB 2.0 Element	Description
Procedure (0-n)			
1	Procedure code	ICD_PRCDR_CD(1-25)	
2	Procedure description		
3	Procedure date	PRCDR_DT(1-25)	
4	Procedure code type		CPT/HCPCS/ICD-PCS primary, secondary, discharge, etc.
5	Procedure type		
6	Modifier Code -1	HCPCS_1ST_MDFR_CD	
7	Modifier Code -2	HCPCS_2ND_MDFR_CD	
8	Modifier Code -3	HCPCS_3RD_MDFR_CD	
9	Modifier Code -4	HCPCS_4TH_MDFR_CD	



#	CPCDS Element	Reference CMS Medicare BB 2.0 Element	Description
1	Member id	BENE_ID	Unique identifier to member
2	Date of birth	DOB_DT	
3	Date of death		
4	Deceased		boolean
5	County	BENE_COUNTY_CD	
6	State	BENE_STATE_CD	
7	Country		
8	Race code	BENE_RACE_CD	
9	Ethnicity		
10	Gender code	GNDR_CD	
11	Name		
12	Zip code	BENE_MLG_CNTCT_ZIP_CD	
13	Relationship to subscriber		



#	CPCDS Element	Reference CMS Medicare BB 2.0 Element	Description
1	Subscriber id		
2	Coverage type		
3	Coverage status		
4	Start date		
5	End date		
6	Group id		
7	Group name		
8	Plan		
9	Payer		



# References



- CMS Interoperability and Patient Access Final Rule
  - <https://www.cms.gov/Regulations-and-Guidance/Guidance/Interoperability/index>
- HL7 Balloted version (STU1)
  - <http://hl7.org/fhir/us/carin-bb/2020Feb>
- HL7 Ballot Comments in Jira
  - [project = "FHIR Specification Feedback" AND Specification = "US CARIN Blue Button \(FHIR\) \[FHIR-us-carin-bb\]"](#)
- CARIN Alliance on HL7 Confluence
  - <https://confluence.hl7.org/display/CAR/CARIN+Alliance>
- CARIN Track at HL7 Virtual Connectathon (13-15 May)
  - <https://confluence.hl7.org/pages/viewpage.action?pageId=80119564>
- CARIN Track at MiHIN Virtual InterOpathon (28-29 May)
  - <https://confluence.hl7.org/pages/viewpage.action?pageId=76160714>



# Thank You



**LEAVITT**  
P A R T N E R S





**Questions?**





# Thank you!

**Please join us for next week's webinar on Interoperability Land™  
(IOL) and use case data representation!**

**Thursday, May 14<sup>th</sup> from 12-1:30 PM EST**

**<https://interoperabilityinstitute.org/virtual-interopathon/>**

**For help please contact [events@interoperabilityinstitute.org](mailto:events@interoperabilityinstitute.org)**