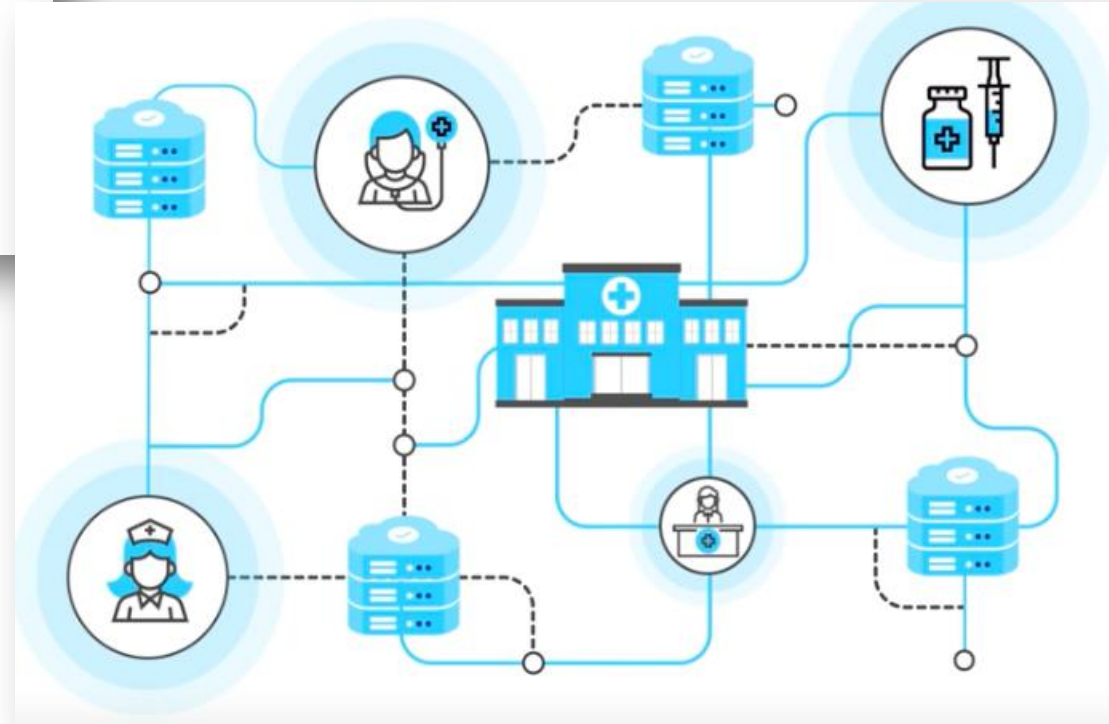# HIMSS Michigan Chapter
"Fix the DAMN Roads"

3 October 2019

Robert Dieterle, Da Vinci Program Management Office

CEO, EnableCare LLC

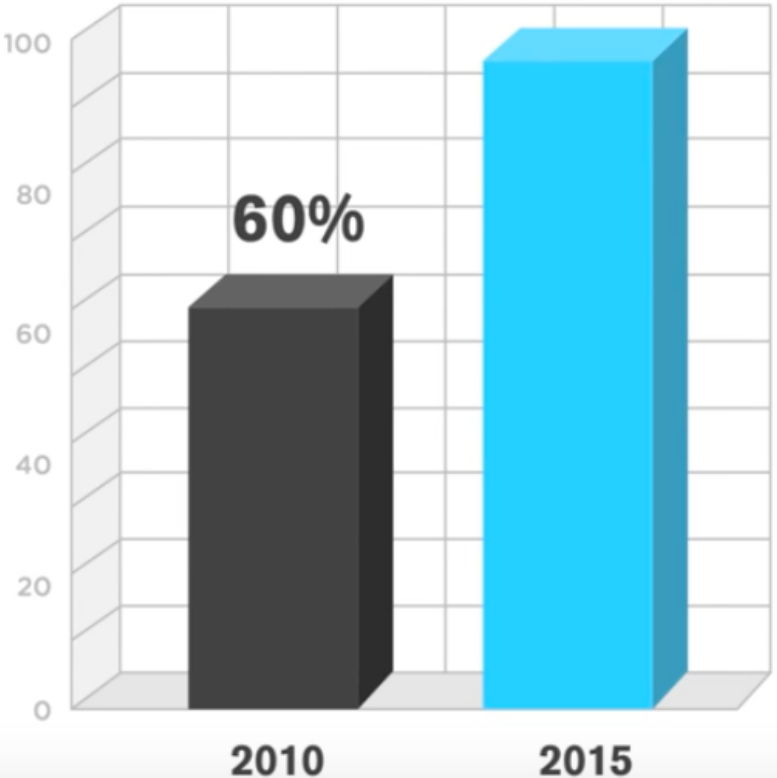Not just Data Integration but must include Workflow Integration

Hospitals 96%

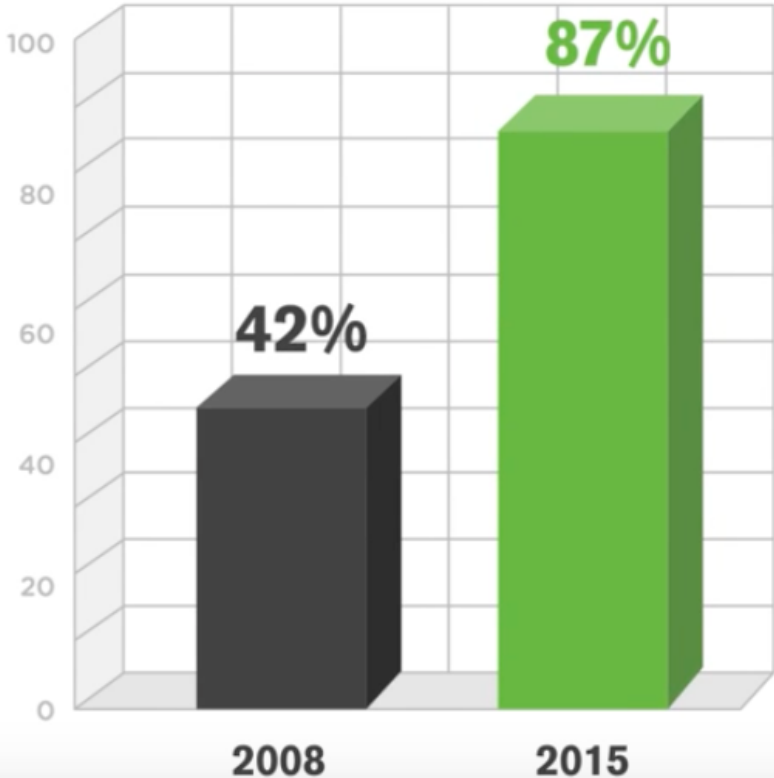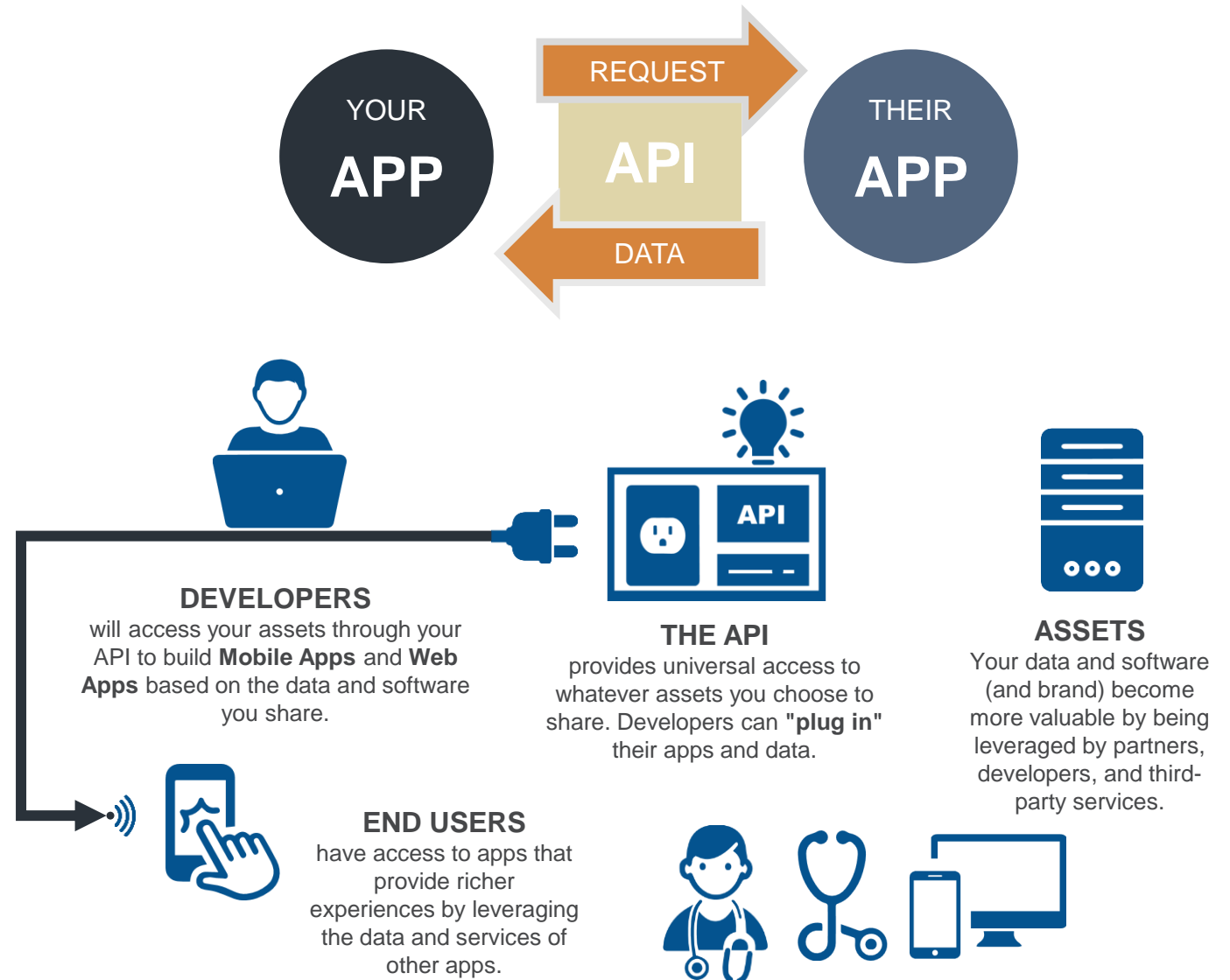## Physician Practices

60%

96%

2010 2015

42%

87%

2008 2015

*https://dashboard.healthit.gov/evaluations/data-briefs/non-federal-acute-care-hospital-ehr-adoption-2008-2015.php
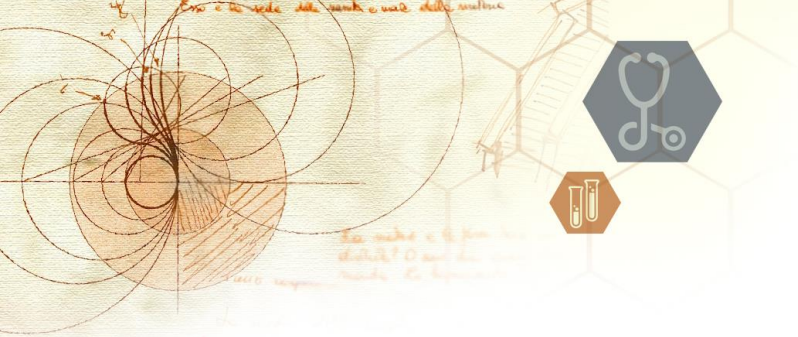https://dashboard.healthit.gov/quickstats/quickstats.php

APIs…

- **A**n API is a software intermediary which allows applications to talk to each other
- **APIs** allow the capabilities or data of one computer program to be used by another
    - Lego blocks of data
    - Doesn't matter what the underlying computer or technology is
- **APIs** are a foundational technology that drives modern computing and the API economy (Amazon, Netflix, Google, Facebook, EBay, YouTube, Twitter, & etc.)
- **APIs** enable innovation in an unprecedented manner
- **APIs** are not new… simplified, easy to use versions of them are

REQUEST

YOUR
APP

API

THEIR
APP

DATA

DEVELOPERS
will access your assets through your API to build **Mobile Apps** and **Web Apps** based on the data and software you share.

THE API
provides universal access to whatever assets you choose to share. Developers can **"plug in"** their apps and data.

ASSETS
Your data and software (and brand) become more valuable by being leveraged by partners, developers, and third-party services.

END USERS
have access to apps that provide richer experiences by leveraging the data and services of other apps.

FHIR® — Fast Healthcare Interoperability Resources

- An HL7 next generation standard
- Helps two computer systems talk to each other

FHIR "resources" are standardized & reusable

- Patient, practitioner, organization, deviceRequest

FHIR supports common exchange methods

- REST*, messaging, documents and services

FHIR supports the spectrum of integration

- Mobile phone apps, EHR-based data sharing, institutional solutions

FHIR helps with existing use cases & provides for future innovation

*Representational State Transfer (REST) defines a set of constraints used for creating web services

Payers

Provider

Healthcare Directory

CDS

HL7® FHIR®

Patient Medical Record

Services (eg, DME, Imaging)

Public Health

Research

Referral/ Consult
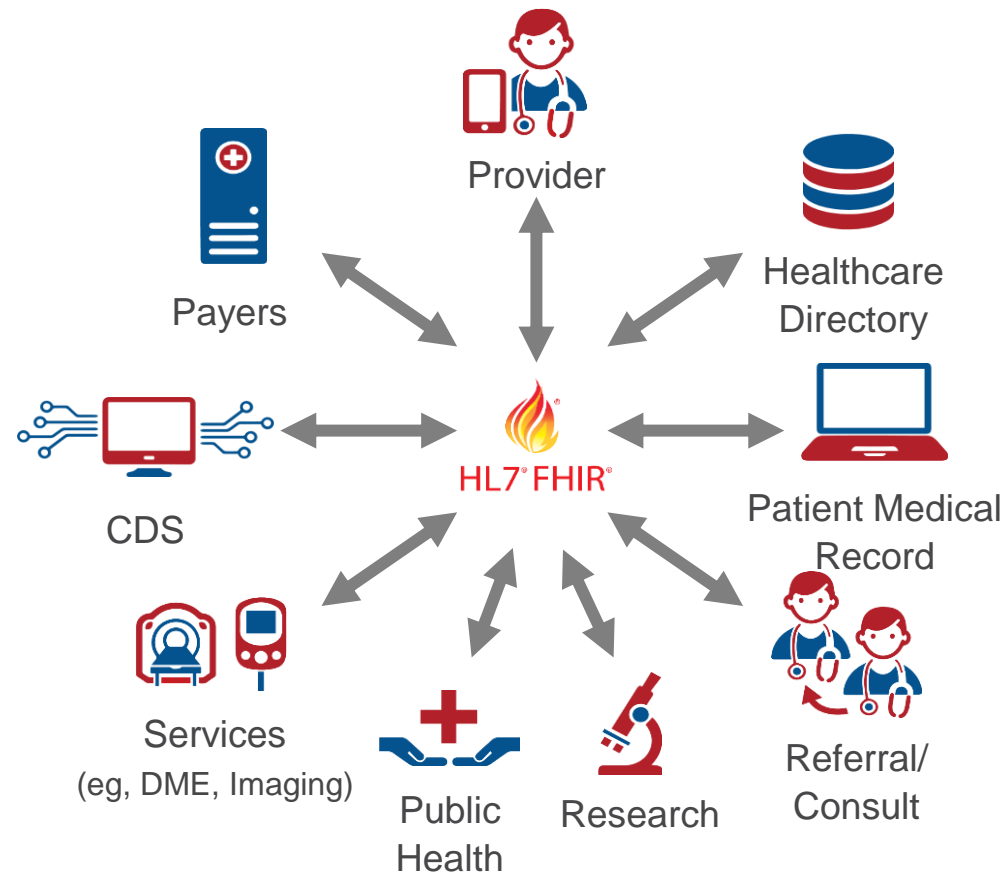
Data available in-workflow supports value-based care and population health management

Supporting Technologies

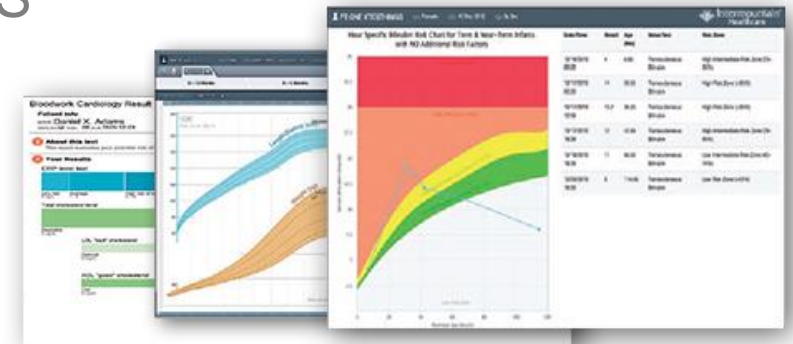Practice Management EMRs
Partial List

Epic   athenahealth
Cerner   Allscripts

CDS HOOKS

SMART®

CARDS

Information

Suggestion

HL7 V3

CDA

HL7® FHIR®
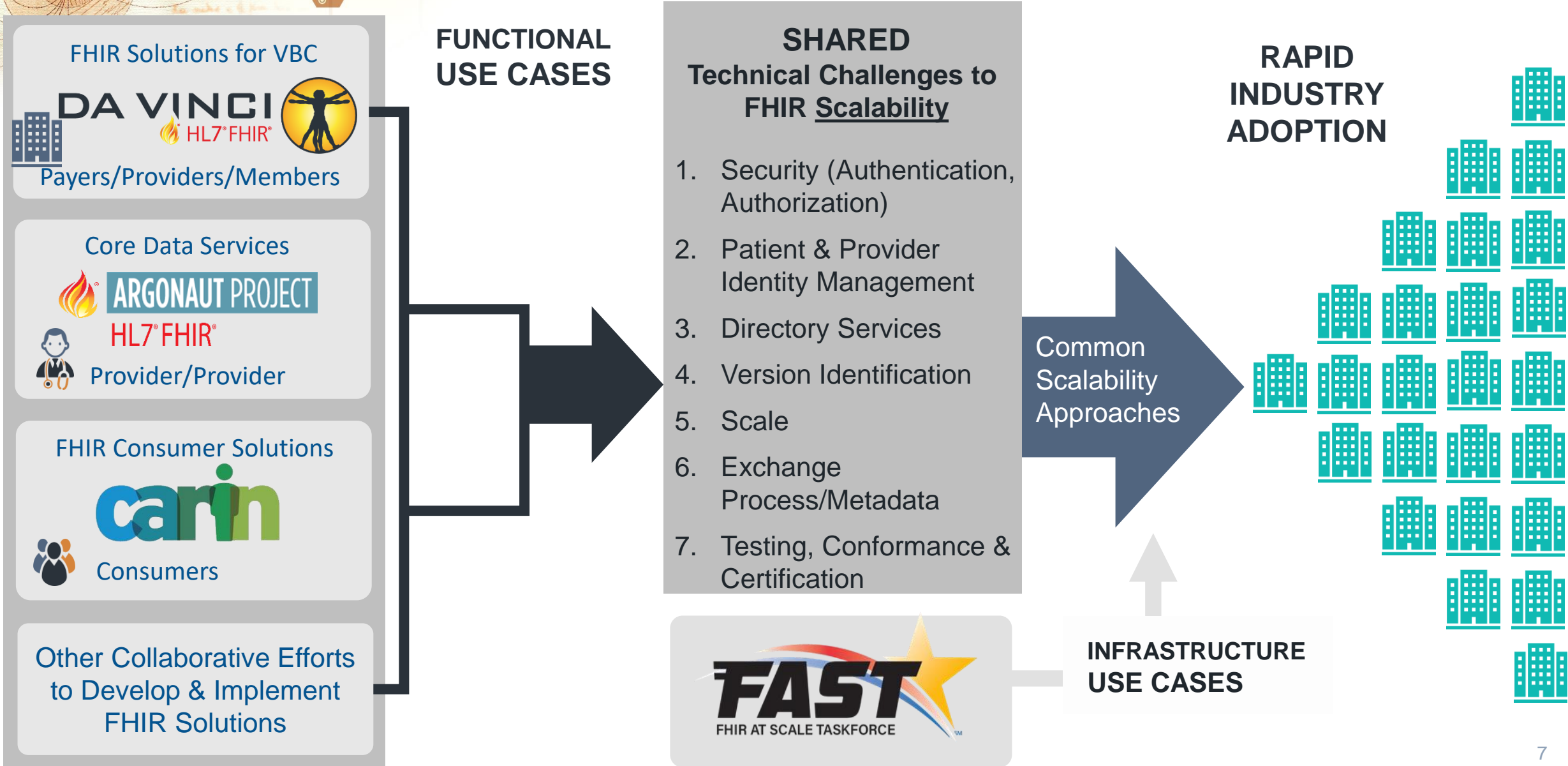
Healthcare specific Profile
— OpenID (identity)
— OAUth2 (authorization)
— Patient Context

Standards Efforts Towards FHIR Adoption

FHIR Solutions for VBC

DA VINCI · HL7® FHIR

Payers/Providers/Members

Core Data Services

ARGONAUT PROJECT
HL7® FHIR

Provider/Provider

FHIR Consumer Solutions

carin

Consumers

Other Collaborative Efforts to Develop & Implement FHIR Solutions

FUNCTIONAL USE CASES

SHARED
Technical Challenges to FHIR Scalability

1. Security (Authentication, Authorization)
2. Patient & Provider Identity Management
3. Directory Services
4. Version Identification
5. Scale
6. Exchange Process/Metadata
7. Testing, Conformance & Certification

Common Scalability Approaches

RAPID INDUSTRY ADOPTION

FAST
FHIR AT SCALE TASKFORCE

INFRASTRUCTURE USE CASES

7

HL7 Da Vinci Project: An Overview

To ensure the success of the industry's **shift to Value Based Care**, Da Vinci established a *rapid multi-stakeholder* process to identify, exercise and implement initial use cases between payers and provider organizations.

The objective is **to minimize** the development and deployment of **unique solutions** with focus on reference architectures that will promote adoption of industry wide standards.

Providers (11)

ATI Physical Therapy, Cedar-Sinai, MultiCare, Connected Care, OHSU, Rush Medical, Providence St. Joseph Health, Sutter Health, Texas Health Resources, Weill Cornell Medicine

Payers (14)

Anthem, Blue Cross Blue Shield Alabama, Blue Cross Blue Shield Association, BCBS Tennessee, Blue Cross Blue Shield of Michigan, Blue Cross of Idaho, Cigna, Cambia Health Solutions, Centers for Medicare and Medicaid Services, GuideWell, Health Care Service Corporation, Humana, Independence Blue Cross, UnitedHealthcare

Technology Suppliers (15)

Allscripts, Cerner, Casenet, Cognosante, Edifecs, Epic, Healow Insights, HealthLX, Infor, InterSystems, Juxly, Optum, Surescripts, Virence Health, ZeOmega

Partners (2)

HIMSS, NCQA

Use Case Focus Areas

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
- Payer Data Exchange: Formulary
- Payer Data Exchange: Directory
- Payer Coverage Decision Exchange
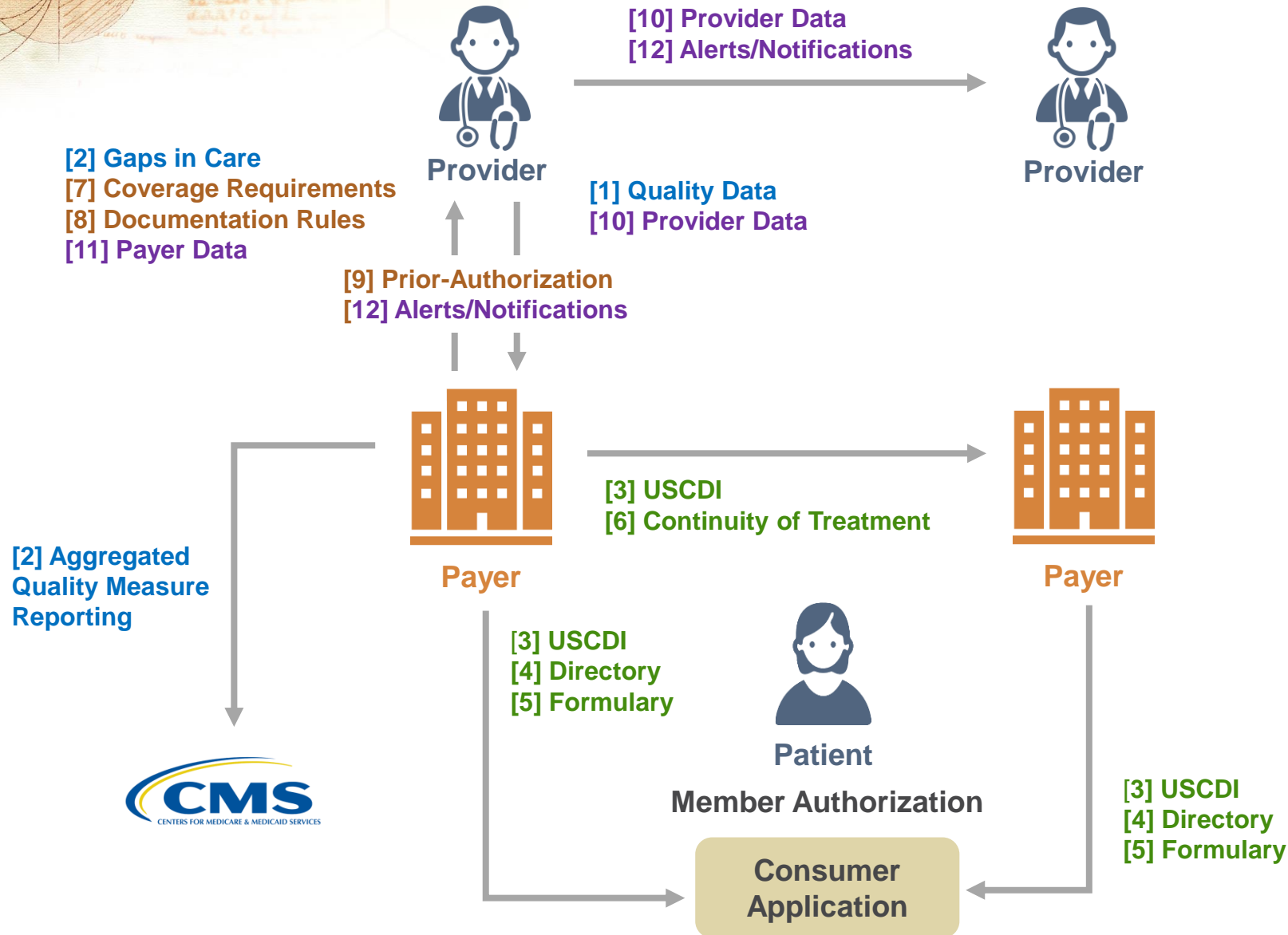- Patient Cost Transparency

Process Improvement
- Risk Based Contract Member Identification
- Chronic Illness Documentation for Risk Adjustment

Clinical Data Exchange
- Payer Data Exchange
- Clinical Data Exchange
- Alerts / Notifications
- Patient Data Exchange
- Performing Laboratory Reporting

Use Case Status
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- Currently targeted for early or regular January 2020 ballot
- Use cases in discovery (some may be balloted in January 2020)

9

Information Exchanges Supported by Da Vinci IGs

Provider → **Provider**
[10] Provider Data
[12] Alerts/Notifications

[2] Gaps in Care
[7] Coverage Requirements
[8] Documentation Rules
[11] Payer Data

[1] Quality Data
[10] Provider Data

[9] Prior-Authorization
[12] Alerts/Notifications

[2] Aggregated Quality Measure Reporting

[3] USCDI
[6] Continuity of Treatment

Payer → **Payer**

[3] USCDI
[4] Directory
[5] Formulary

Patient
Member Authorization

[3] USCDI
[4] Directory
[5] Formulary

Consumer Application

Quality Measures and Gaps
[1] Data Exchange for Quality Measures
[2] Gaps in Care and Information

Member Directed Exchange (CMS NPRM)
[3] Payer Data Exchange
[4] Payer Data Exchange: Directory
[5] Payer Data Exchange: Formulary
[6] Payer Coverage Decisions (Treatment)

Coverage/Documentation Requirements
[7] Coverage Requirements Discovery
[8] Documentation Templates and Rule
[9] Prior-Authorization Support

Patient Data Exchange
[10] Clinical Data Exchange (Provider Data)
[11] Payer Data Exchange (Payer Data)
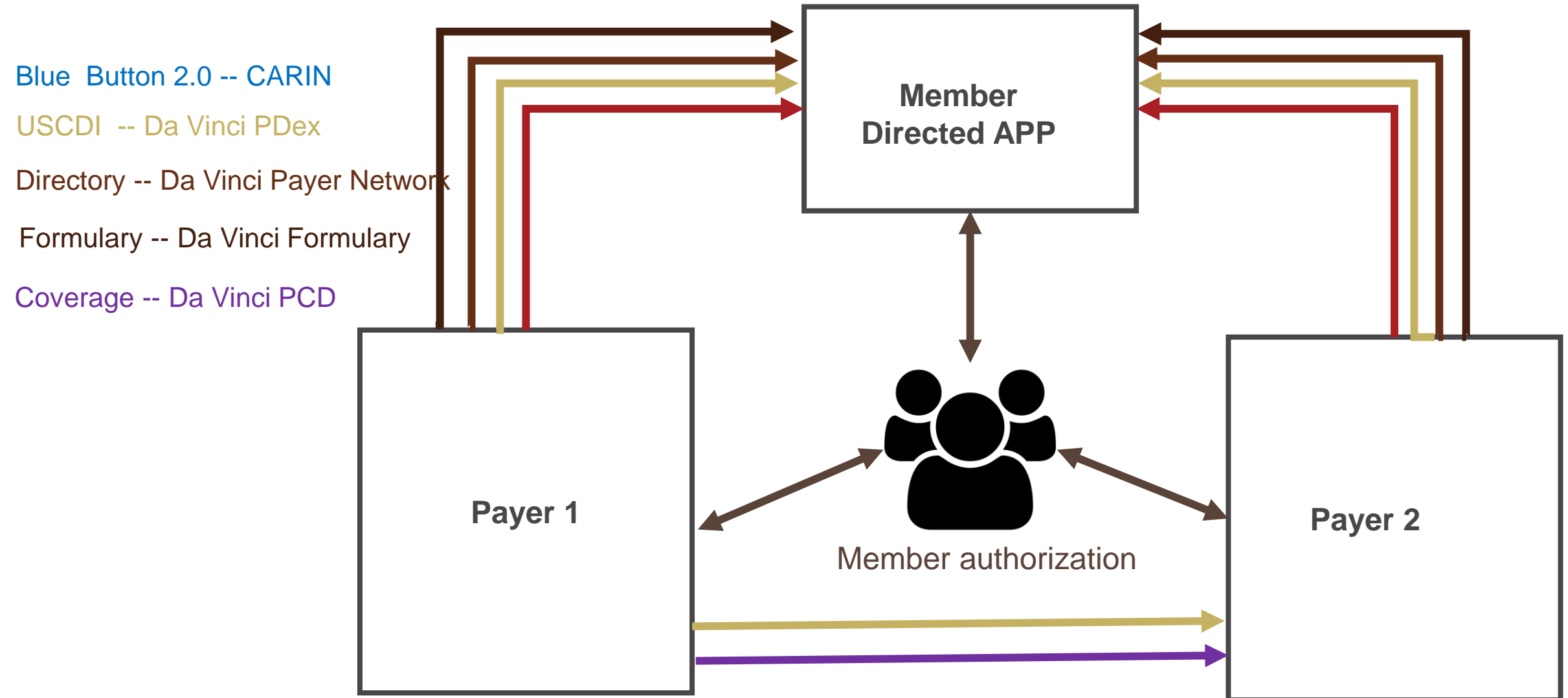[12] Alerts/Notification

Patient Cost Transparency (in discovery)

CMS NPRM and Da Vinci Solutions
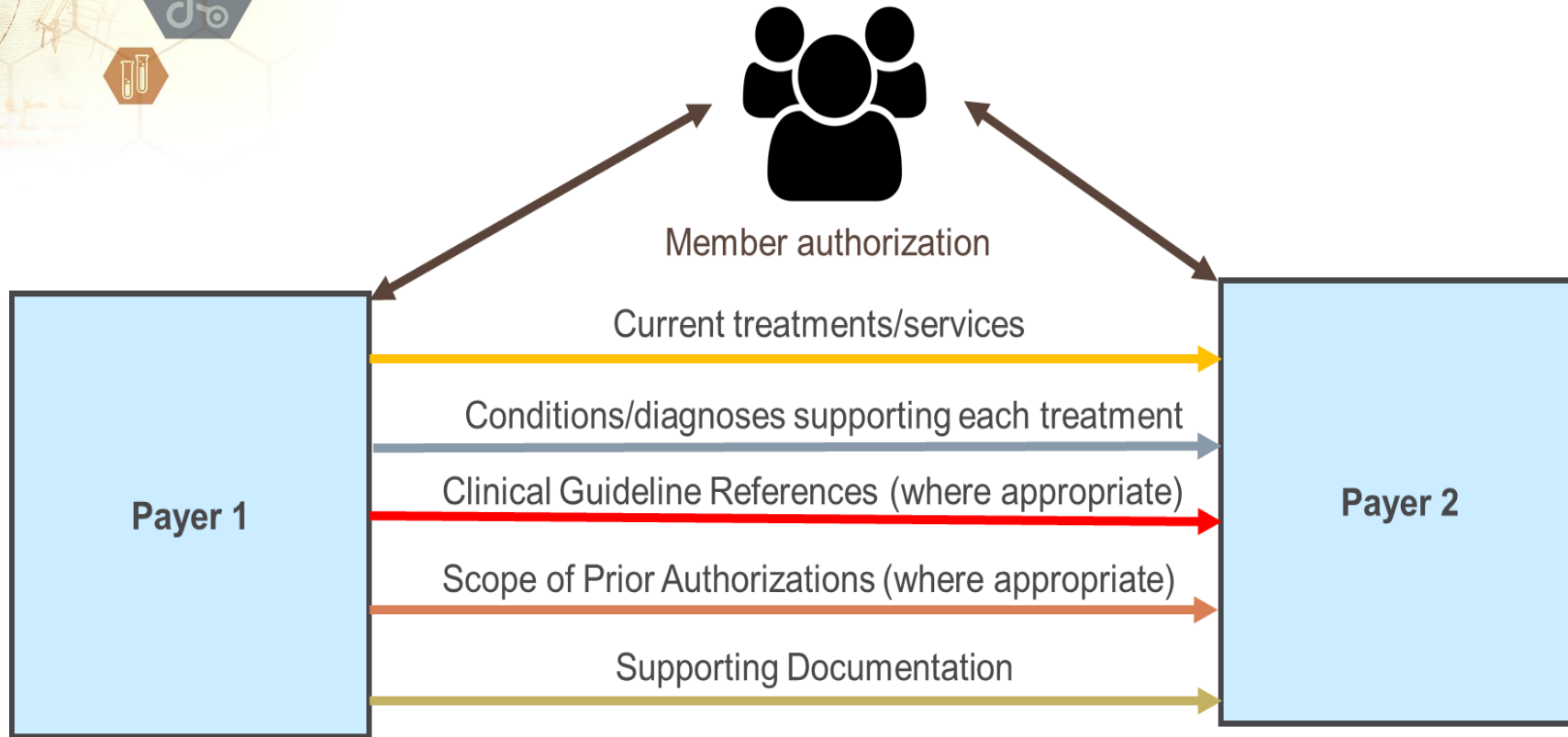
Work Breakdown to Support CMS NPRM

WORK BREAKDOWN TO SUPPORT CMS NPRM				PAYER TO:		
DATA	**SUB TYPE**	**RESOURCE / PROFILE**	**BUILD**	MEMBER	PROVIDER	PAYER
Claims Data	Financial	EOB	CARIN	CARIN		
	Clinical	USCDI / US Core / Da Vinci	Da Vinci	DV for CARIN	Da Vinci	Da Vinci
Clinical Data	All	USCDI / US Core / Da Vinci	Da Vinci	DV for CARIN	Da Vinci	Da Vinci
Payer Decisions	Treatment	USCDI / US Core / Da Vinci	Da Vinci			Da Vinci
Pharma Data	RTBC	RTBP / FHIR R4	CARIN NCPDP	CARIN NCPDP	CARIN NCPDP	
	Medications	USCDI / US Core	Da Vinci	DV for CARIN	Da Vinci	Da Vinci
	Formulary	Da Vinci (new Profile)	Da Vinci	DV for CARIN	Da Vinci	Da Vinci
Directory Data	Payer & Pharma Network	US Core / VHDS / Da Vinci	Da Vinci	DV for CARIN	Da Vinci	

CMS NPRM Requirements for Covered Payers

Blue Button 2.0 -- CARIN

USCDI -- Da Vinci PDex

Directory -- Da Vinci Payer Network

Formulary -- Da Vinci Formulary

Coverage -- Da Vinci PCD

Member Directed APP

Payer 1

Payer 2

Member authorization

13

Payer Coverage Decision Exchange

Member authorization

Current treatments/services

Conditions/diagnoses supporting each treatment

Clinical Guideline References (where appropriate)

Scope of Prior Authorizations (where appropriate)

Supporting Documentation

Payer 1

Payer 2

Goal: To address the portability of care/treatment as a member moves from one covered plan to another
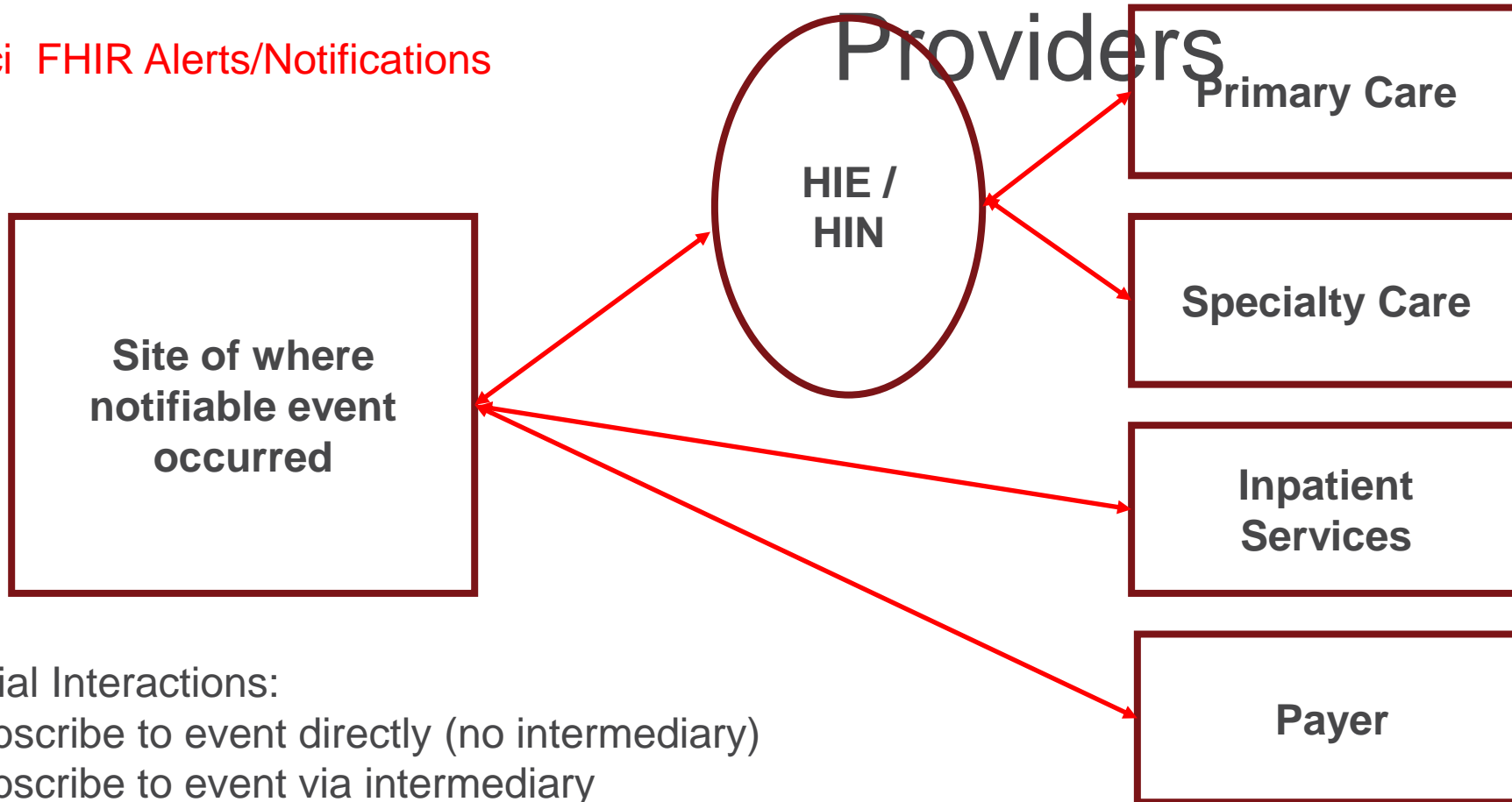
Regulatory: CMS NPRM for member directed payer to payer exchange of USCDI data

Immediate Requirement: Support for information regarding ongoing treatment
   a)   Relevant diagnoses
   b)   Current treatments (including start date, end date (if any), …)
   c)   Guidelines for prior-authorization (e.g. specific Milliman guideline)
   d)   **Current prior-authorizations (service, duration, remaining)**
   e)   Clinical information that went into the decision for treatment coverage

CMS NPRM Requirements for Condition of Participation Hospitals and Specialty Providers

Da Vinci FHIR Alerts/Notifications

HIE / HIN

Primary Care

Specialty Care

Inpatient Services

Payer

Site of where notifiable event occurred

Any care team member can be connected directly or via an intermediary (e.g. HIE)

Potential Interactions:
1) Subscribe to event directly (no intermediary)
2) Subscribe to event via intermediary
3) Push to "registered" member (perhaps via payer care team information)
4) Push to intermediary

Prior Authorization Support

Fax

PA Request

Telephone

Payers

Portals
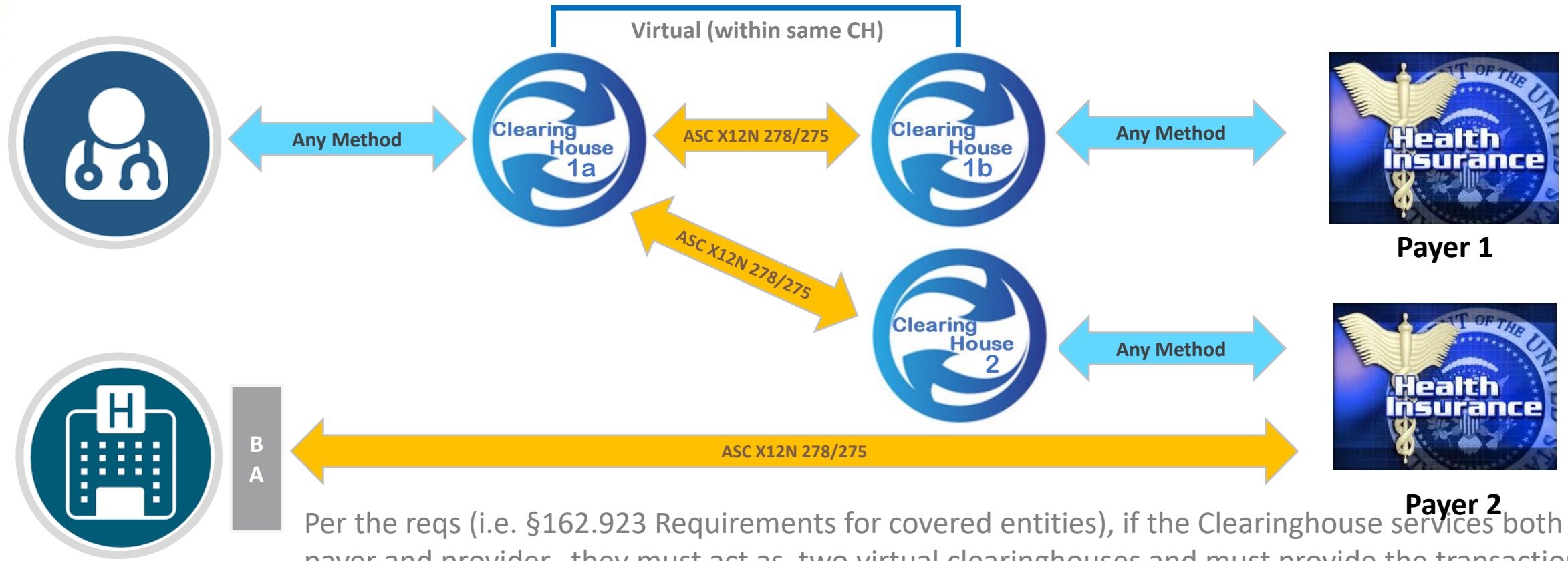
Providers

Medical Records
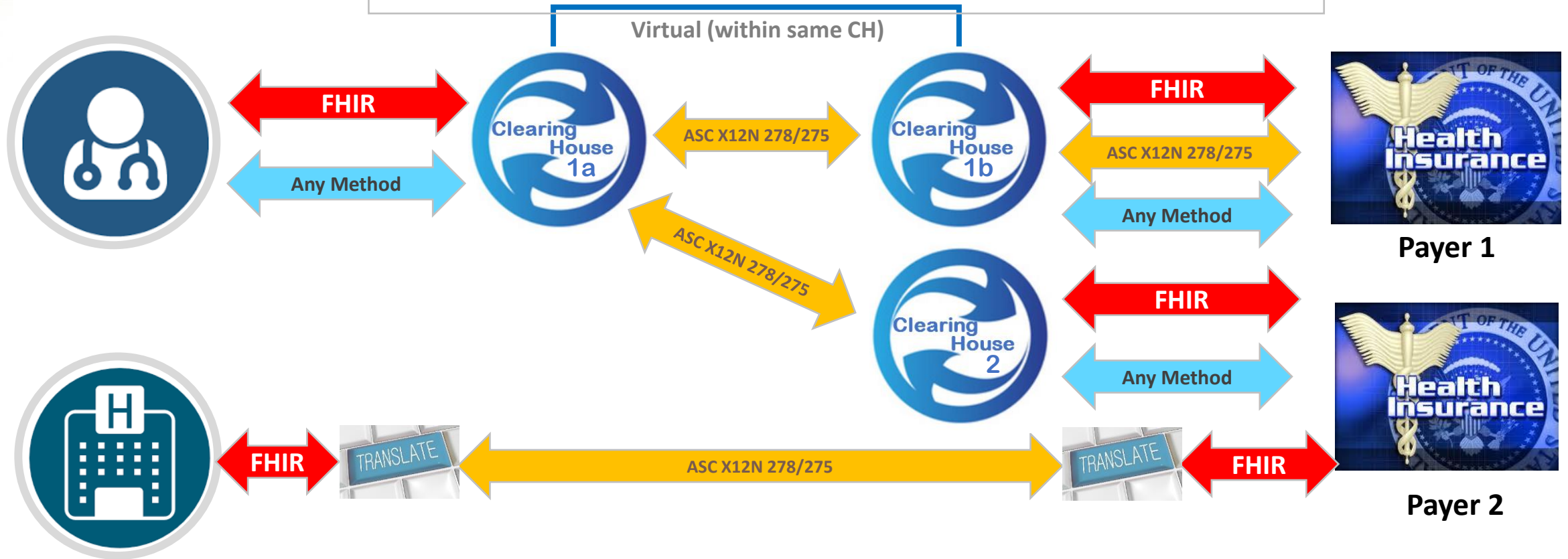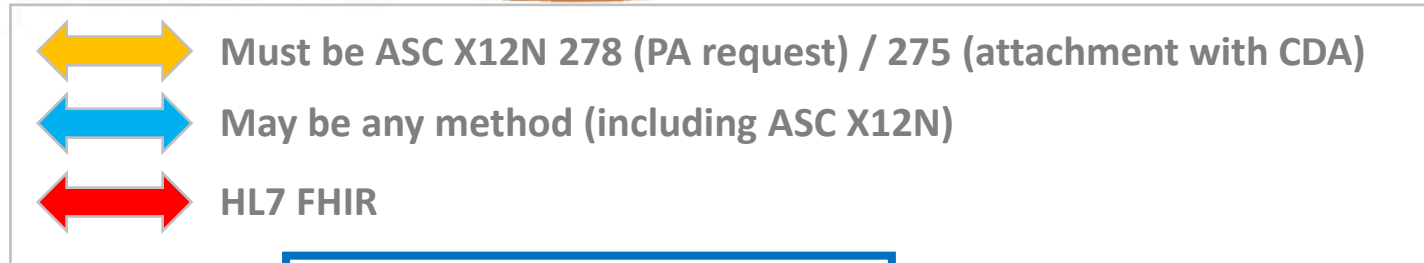

Electronic Transactions

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)

Virtual (within same CH)

Clearing House 1a

Clearing House 1b

Clearing House 2

Any Method

ASC X12N 278/275

Any Method

ASC X12N 278/275

Any Method

Payer 1

B A

ASC X12N 278/275

Payer 2

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

18

Must be ASC X12N 278 (PA request) / 275 (attachment with CDA)

May be any method (including ASC X12N)

HL7 FHIR

Virtual (within same CH)

FHIR

Any Method

Clearing House 1a

ASC X12N 278/275

Clearing House 1b

ASC X12N 278/275

FHIR

ASC X12N 278/275

Any Method

Payer 1

Clearing House 2

FHIR

Any Method

Payer 2

FHIR

TRANSLATE

ASC X12N 278/275

TRANSLATE

FHIR

Use Case Focus Areas

Quality Improvement

- Data Exchange for Quality Measures
- Gaps in Care & Information

Coverage / Burden Reduction

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- Risk Based Contract Member Identification
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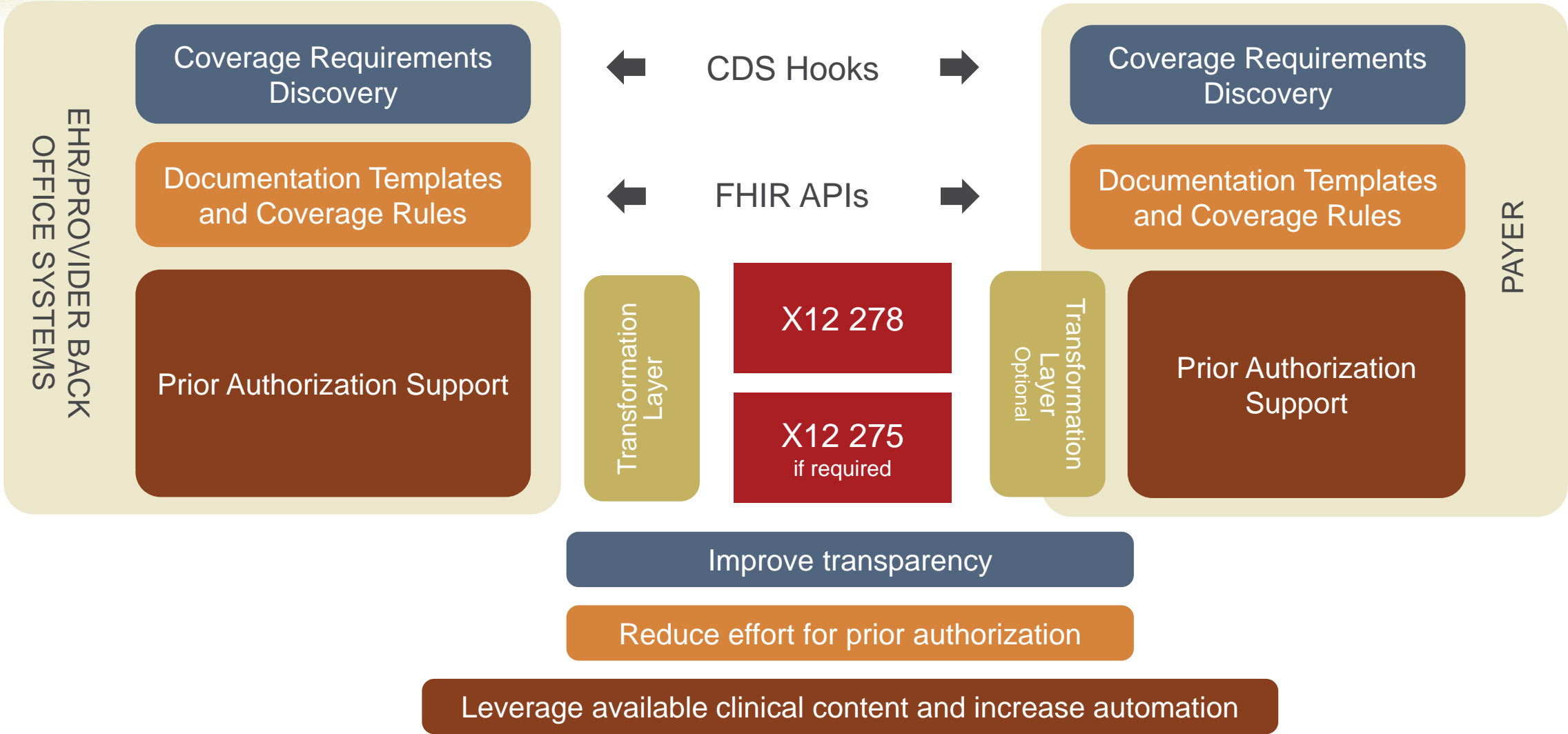## Clinical Data Exchange

- Payer Data Exchange
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- Patient Data Exchange
- Performing Laboratory Reporting

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20

Power to Reduce, Inform and Delegate Prior Authorization Support

EHR/PROVIDER BACK OFFICE SYSTEMS

- Coverage Requirements Discovery
- Documentation Templates and Coverage Rules
- Prior Authorization Support

CDS Hooks

FHIR APIs

Transformation Layer

X12 278

X12 275
if required

Transformation Layer
Optional

PAYER

- Coverage Requirements Discovery
- Documentation Templates and Coverage Rules
- Prior Authorization Support

Improve transparency

Reduce effort for prior authorization

Leverage available clinical content and increase automation

By using new technologies (HL7© FHIR© , CDS Hooks™, SMART on FHIR©, CQL©) it is possible to integrate 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
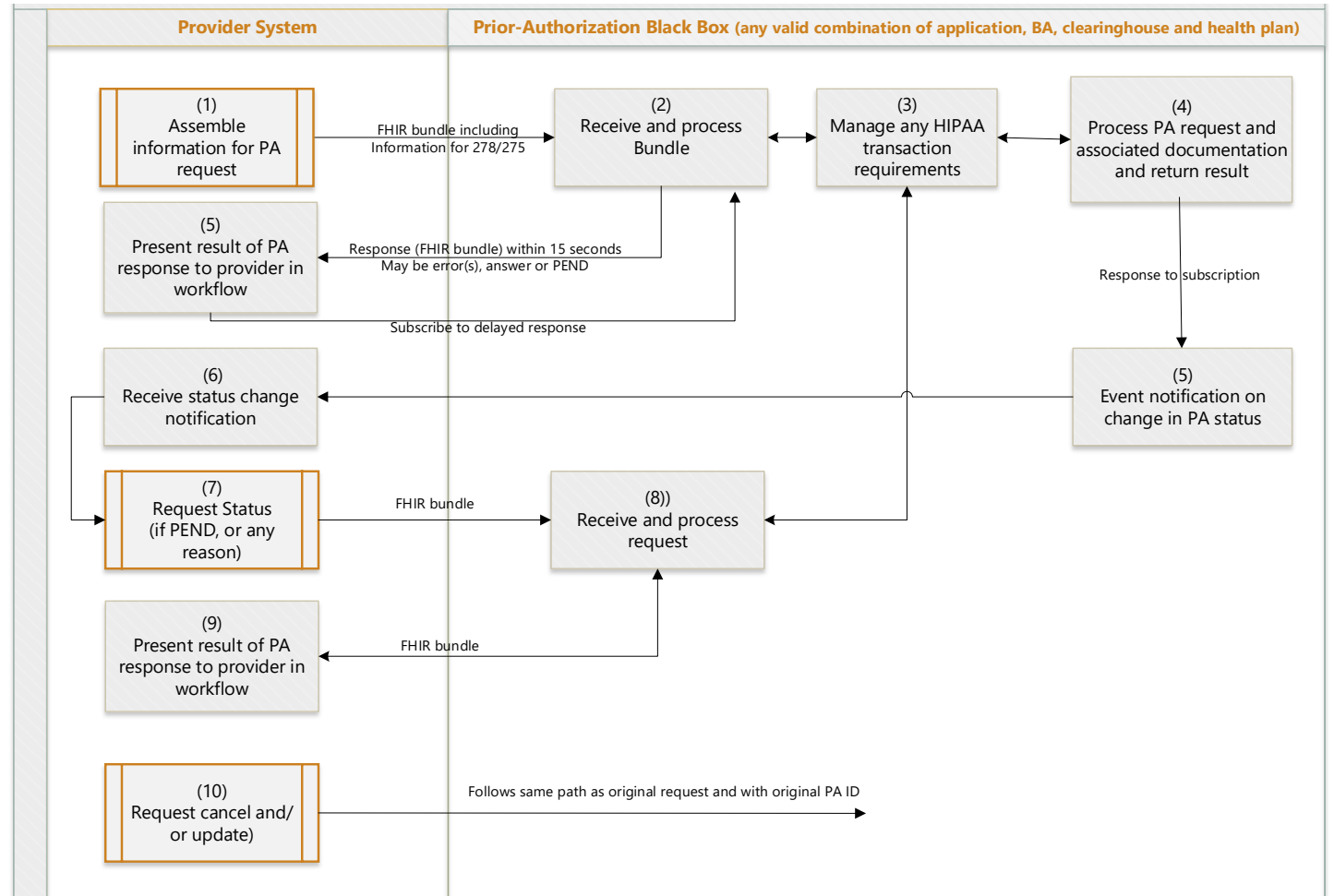3. Minimize rework by "getting it right the first time"

The most critical impact of improving the prior-authorization workflow is the improvement on patient care and experience.
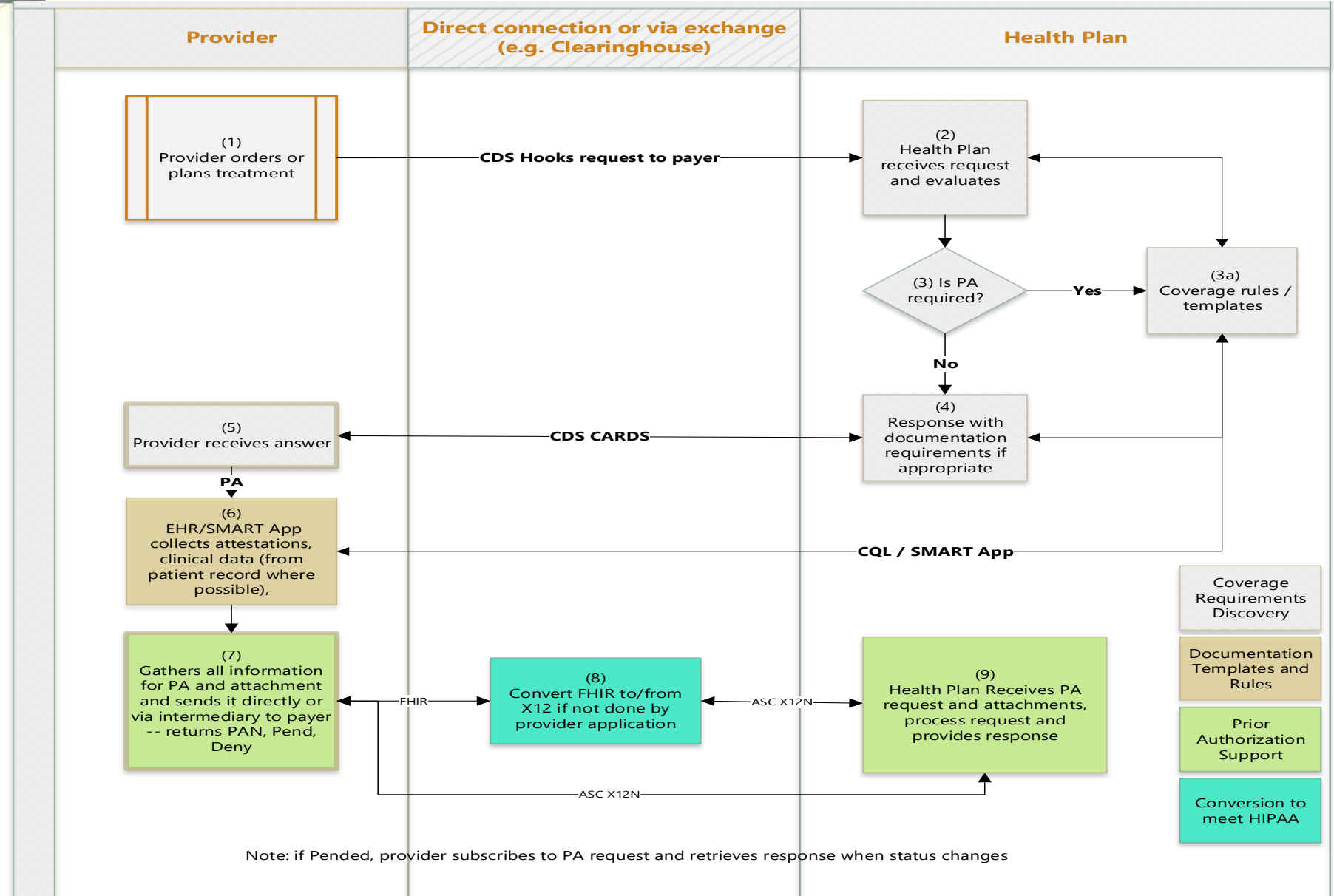
FHIR Prior Authorization Endpoint Interactions

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

Provider System	Prior-Authorization Black Box (any valid combination of application, BA, clearinghouse and health plan)

(1) Assemble information for PA request
— FHIR bundle including Information for 278/275 →
(2) Receive and process Bundle
(3) Manage any HIPAA transaction requirements
(4) Process PA request and associated documentation and return result

(5) Present result of PA response to provider in workflow
← Response (FHIR bundle) within 15 seconds / May be error(s), answer or PEND

Subscribe to delayed response

Response to subscription

(6) Receive status change notification
(5) Event notification on change in PA status

(7) Request Status (if PEND, or any reason)
— FHIR bundle →
(8)) Receive and process request

(9) Present result of PA response to provider in workflow
← FHIR bundle —

(10) Request cancel and/ or update)
Follows same path as original request and with original PA ID →

FHIR Prior Authorization Components

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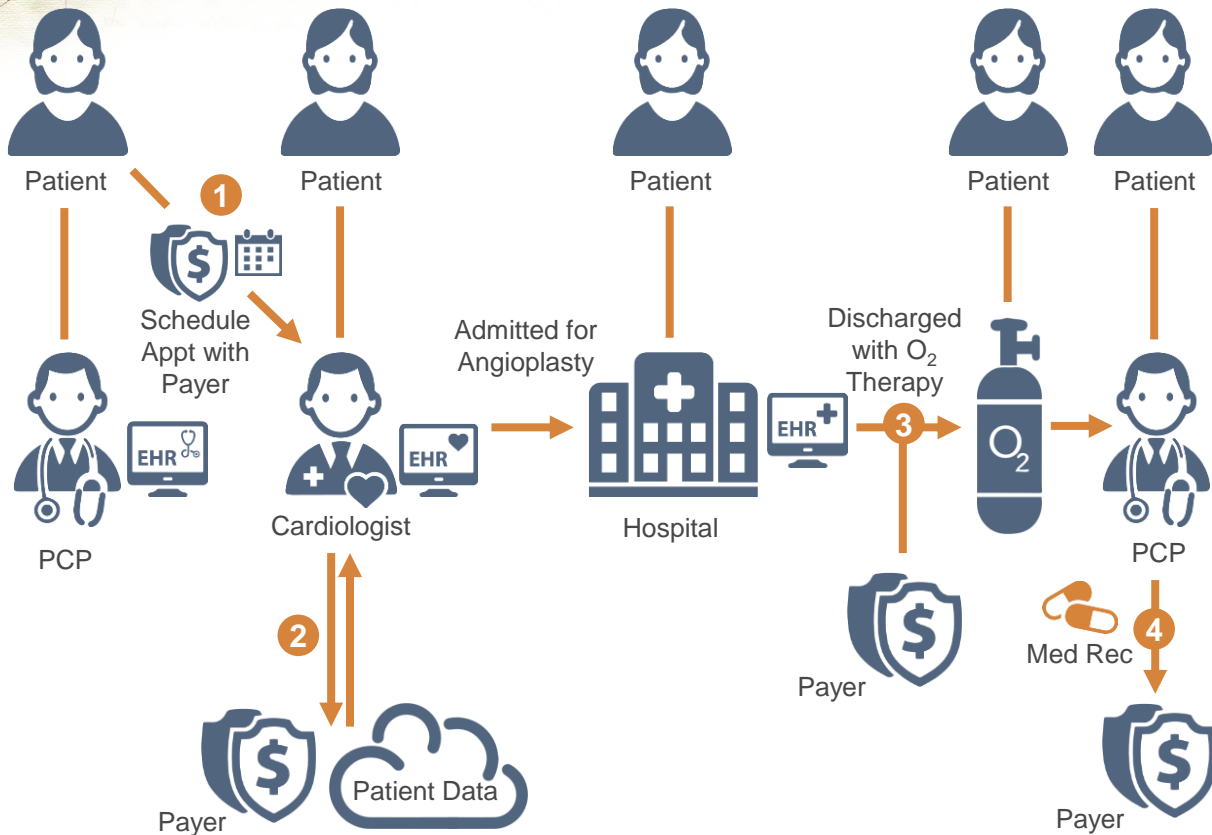1) Initiates process using CDS hooks
2) As if PA is required

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

Provider	Direct connection or via exchange (e.g. Clearinghouse)	Health Plan

(1) Provider orders or plans treatment

CDS Hooks request to payer

(2) Health Plan receives request and evaluates

(3) Is PA required? — Yes → (3a) Coverage rules / templates

No

(4) Response with documentation requirements if appropriate

(5) Provider receives answer ← CDS CARDS

PA

(6) EHR/SMART App collects attestations, clinical data (from patient record where possible), ← CQL / SMART App

(7) Gathers all information for PA and attachment and sends it directly or via intermediary to payer -- returns PAN, Pend, Deny

(8) Convert FHIR to/from X12 if not done by provider application

FHIR   ASC X12N

(9) Health Plan Receives PA request and attachments, process request and provides response

ASC X12N

Coverage Requirements Discovery

Documentation Templates and Rules

Prior Authorization Support

Conversion to meet HIPAA

Note: if Pended, provider subscribes to PA request and retrieves response when status changes

DA VINCI HL7 FHIR

The visual describes the interactions demonstrated at HIMSS Interoperability Showcase, direction of each exchange, the FHIR standards used, the setting where the interaction is occurring and the participants.

Each step represents a provider – payer exchange using FHIR IG

Activities by the Numbers	Stats
Total practice runs	3
Total public runs	23
Filming runs	1
Total variations	14
Total roles	96
Total role system issues	7
Role availability	92.7%
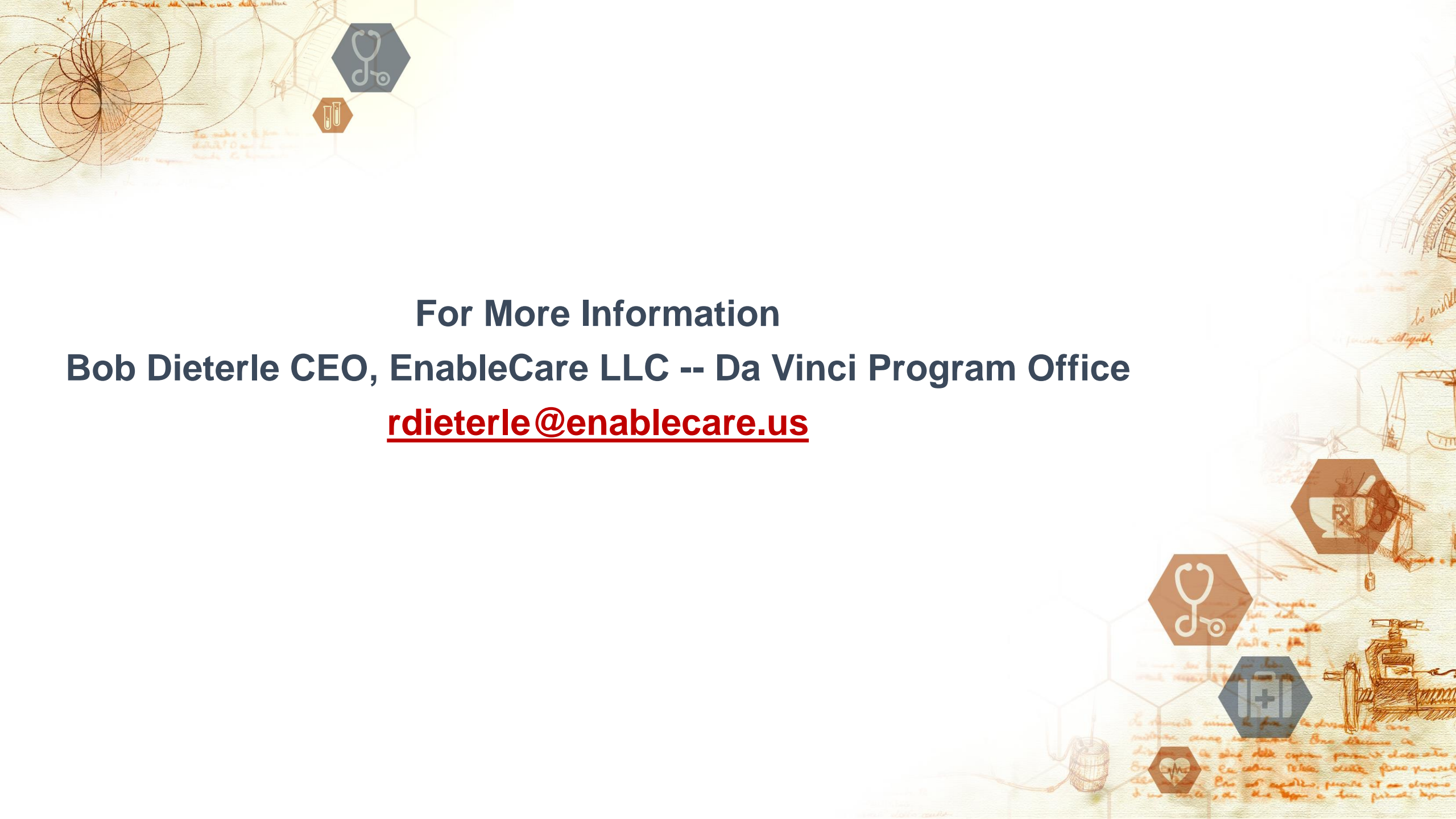
Activities by the Numbers	Stats
AEGIS Touchstone available	100%
Total MCs	6
Total EHRs	2
Total Payer/Partner	4
Total Payer only	5
Total Sponsors	16
Number of visitors (approx.)	500
Percent that left during vignette	< 10 %

CLINICAL SUMMARY

Da Vinci is demonstrating the ability to exchange information between payers and providers using HL7® FHIR® and CDS Hooks® as part of the Interoperability Showcase.

The vignette describes a clinical encounter for 78-year-old Asian women named Dara that starts with her primary care physician, proceeds to a cardiologist who admits Dara to the hospital for an angiogram and observation where it is determined that her chronic obstructive pulmonary disease has progressed to the point that she needs supplemental oxygen.

As Dara returns to her primary care physician, her previous medications are reconciled with those prescribed at discharge, the PCP reports the medication reconciliation, in support of a quality measure the Medicare Advantage program is following for its members.

For More Information

Bob Dieterle CEO, EnableCare LLC -- Da Vinci Program Office

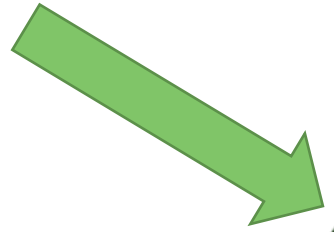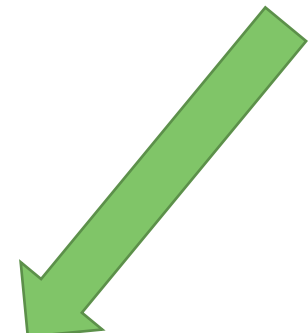**rdieterle@enablecare.us**

MiHIN + Interoperability Institute

Matt Englehart
Director of Research and Development

Part of the MiHIN Family of Organizations

Non-profit 501c#

Non-profit LLC

Public Benefit Corporation

Interoperability Institute, LLC

Mission

The Interoperability Institute develops solutions and the next generation workforce required to enable organizations and communities to harness the benefits of interoperability at scale.

Vision

To serve as a focal point for creating communities and environments that accelerate the adoption of interoperability in ways that result in greater health and more impactful delivery of human services.

Interoperability Institute provides a neutral space where:

- Organizations can collectively demonstrate the interoperability of software as a service (SaaS) solutions

- People can learn modern technologies or standards like FHIR

- Novel innovations can safely encounter complex synthetic real-world scenarios before being deployed or adopted in production

Interoperability Institute Pillars

Interoperability Land®	Interoperability Hackathons & Training	Interoperability Workforce Program

Introducing Interoperability Land™

A collaboration platform designed to power the future of multi-organization development, integration, acceptance, and testing of innovative technologies and open standards.

Interoperability Land

Build and test multi-organizational interoperable systems	Create and share meaningful visualizations and models	Create and host events to focus on a problem, service, API or topic
Create highly realistic test scenarios with synthetic healthcare data	Reduce the cost of creating and managing a developer API sandbox	Harness the power of the community to solve interoperability problems
Exercise full control over intellectual property and data	Showcase applications, services and community contributions	Gain insights into how standards are being implemented in the real world

Patient Gen   **PIT**   **Ring of PITs**   **Personas**   **Open API's**

Network of Trusted "Sandboxes"

Interoperability Hackathon Events

Event Prep & Materials

Develop event scope, prepare necessary materials for event, and support technical planning. Select and/or create Personas and supporting activities.

Event Promotion

Identify target audience, define participant roles, and design activities for successful outcomes.
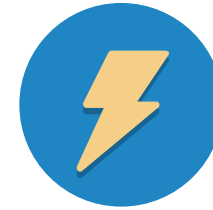
Test Environment

Provide Turnkey event environment with Test Data and Sample Code for interoperability testing and development of apps.

Event Facilitation

Support training and demonstrations for event participants. Provide skilled resources for facilitation of technical and business activities.

Follow-Up

Post-event review and feedback, collect marketing and media material, and consolidation of materials.

Interoperability Hackathon Themes

The Office of the National Coordinator for Health Information Technology

CMS — CENTERS FOR MEDICARE & MEDICAID SERVIC

NPRM's

carin — Creating Access to Real-time Information Now through Consumer-Directed Exchange

API Blue Button 2.0

Patient Centered Care

Open APIs

DA VINCI — HL7 FHIR

Value Based Care

Public Health

eConsent

Care Planning & Coordination

SMART

3rd Party App Development

Social Determinants

MiHIN — MICHIGAN HEALTH INFORMATION NETWORK SHARED SERVICES

INTEROPERABILITY INSTITUTE

Addressing the Talent Gap in Information Technology and Healthcare

- Over the next 5 years, Michigan employer demand for IT and healthcare professionals with college degrees is expected to increase by as much as 35%.
  SOURCE: *MI DTMB Bureau of Labor Market Information and Strategic Initiatives, 2019*

- Only 28% of Michigan residents ages 25 to 64 have obtained a bachelor's degree.
  SOURCE: *U.S. Bureau of Labor Statistics, 2013-2017 data*

- Approximately 60% of Michigan's college graduates move to other states. Losses are greatest among graduates in technical fields.
  SOURCE: *U.S. Department of Education*

Interoperability Workforce Program

Leverage the existing success of the MiHIN internship program to launch a broader internship training and part time employment service to meet growing future talent demands (informatics, information technology, data science, cyber security, artificial intelligence, advanced cloud services, etc.)

Thank you!

Matt Englehart
Director of Research and Development
matt.englehart@mihin.org