

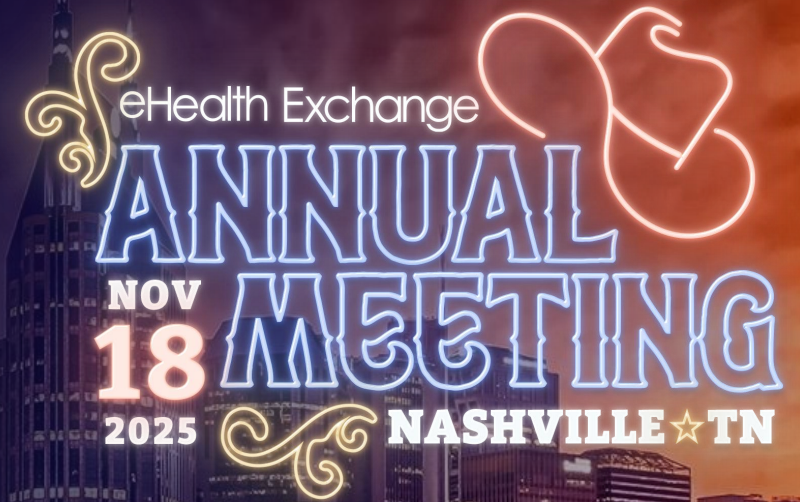
# Igniting Interoperability

Real-World FHIR Services and Use Cases

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eHealth Exchange™

# Agenda

- Overview of eHealth Exchange FHIR services
  - FHIRProxy
  - Da Vinci Clinical Data Exchange (CDex)
  - Task Based Exchange (TBE)
  - SMART on FHIR Proxy
- Related Use Cases
  - FDA BEST Adverse Event Reporting
  - Electronic Prior Authorization
  - Member Match

## FHIR Services

# FHIRProxy

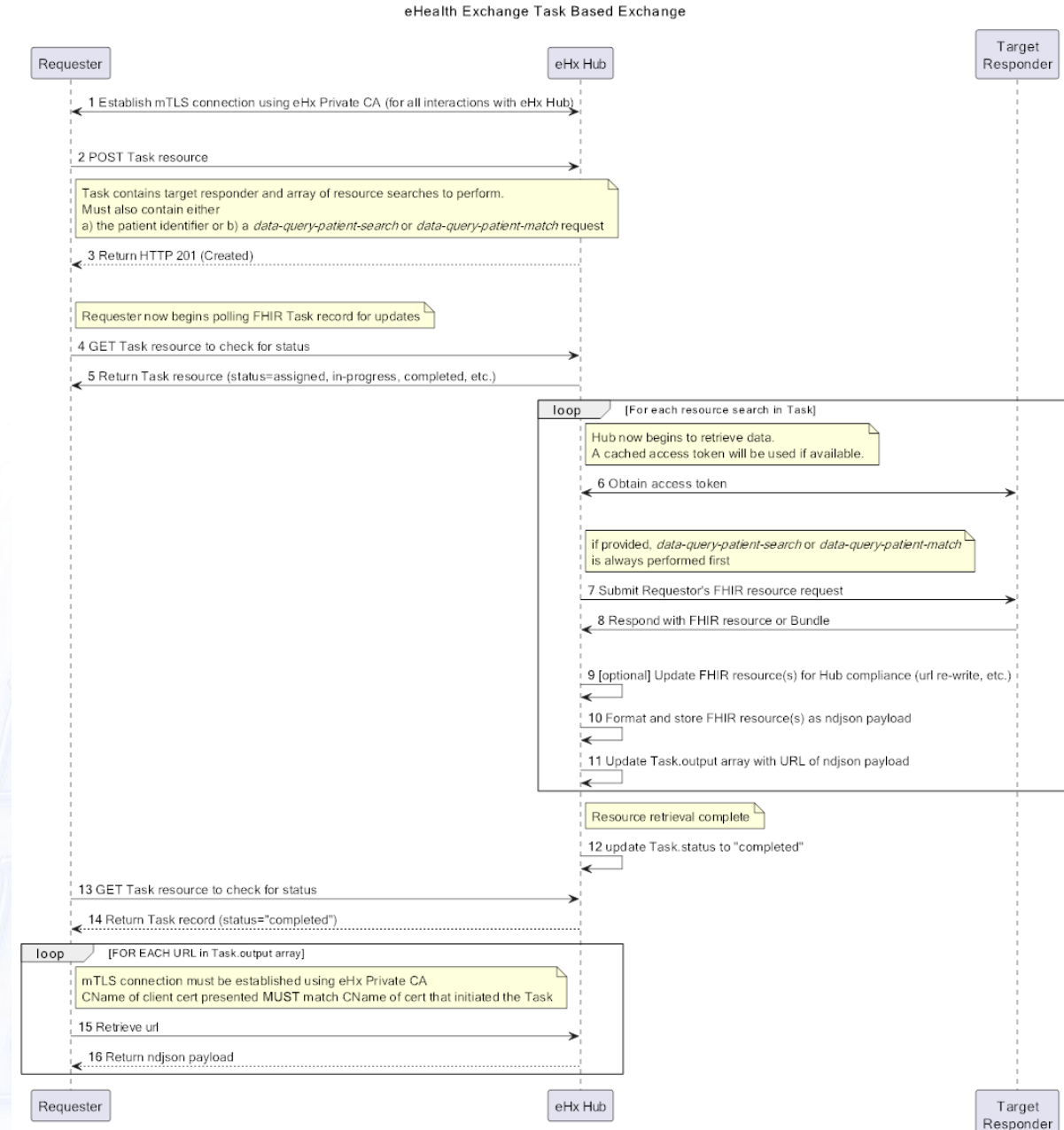
- Foundational FHIR service
- Hub as Trusted Third Party/Intermediary
- Requestor only needs one connection to Hub to access many target responder FHIR resource repositories
- Routing MUST be provided on request
- Purpose of Use MUST be provided on request
- Hub handles backend security authorization with target responder (typically OAuth 2.0)
- Optional URL rewriting is available

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## FHIR Services

## CDex

- The requestor submits a FHIR Task resource to the CDex service that specifies details of the request
  - Identifies a responding organization
  - Identifies the FHIR resources to retrieve
- The CDex service responds immediately (synchronously), and begins to process the request and retrieve data in an asynchronous manner
- Requester can poll the Task, and when Task status is “completed” they can begin to retrieve related ndjson payload
- eHealth Exchange retains the ndjson FHIR resource data for 2 hours from the completion of the Task processing.
  - Polling interval for data retrieval is expected to be 1 hour or less.





## FHIR Services

# Task Based Exchange (TBE)

All functionality of the CDex service, but with additional functionality

Pagination

Dynamic Patient  
\$match or  
Patient search

Patient search  
fan-out  
(FHIR and HRR)

Bundle Profiles

Dynamic  
Querysting  
Modifiers

Reference  
chasing

Conditional  
updates &  
conditional  
references

Member  
Attribution Check  
(Pre-process  
validation)

## FHIR Services

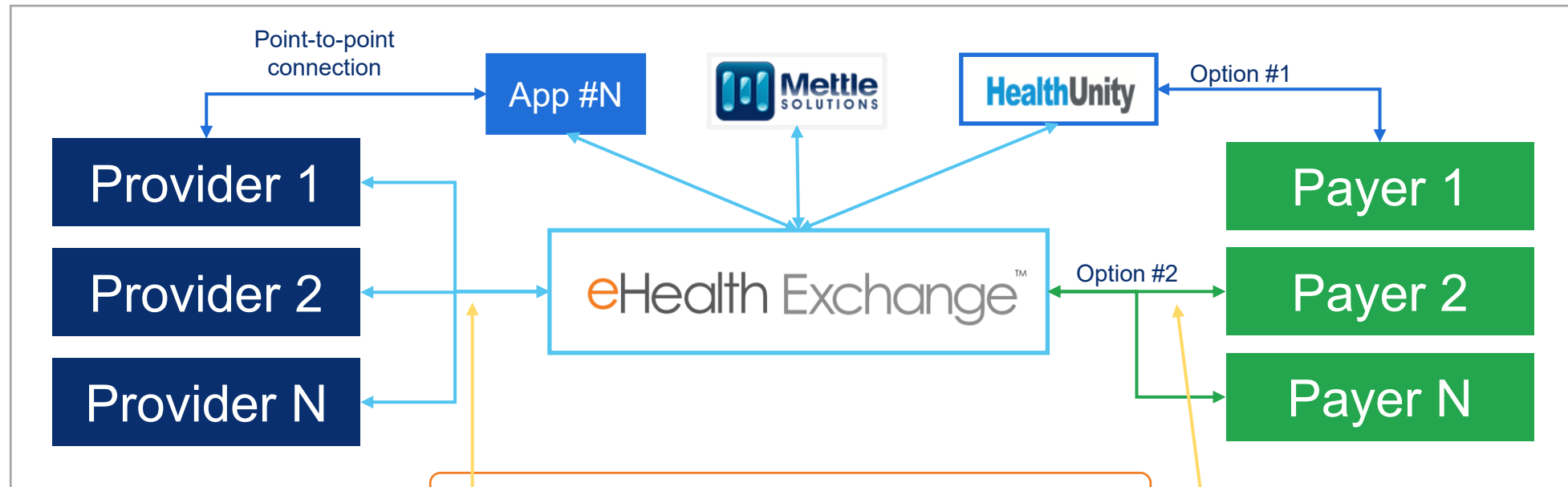
# SMART on FHIR Proxy

- Enable a SMART app on the eHealth Exchange network
- For ePrior Authorization apps:
  - A single app connects to all payers on the network
  - Eliminate provider onboarding processes for your app
  - Simplified legal/contracting terms via the DURSA
- Relies on the SMART standard for connectivity

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## FHIR Services

# SMART on FHIR Proxy Capabilities



Obtain  
connectivity  
without  
implementation  
overhead

The eHealth Exchange establishes a single connection to each participant on our network, and enables connectivity to that participant to everyone else on the network

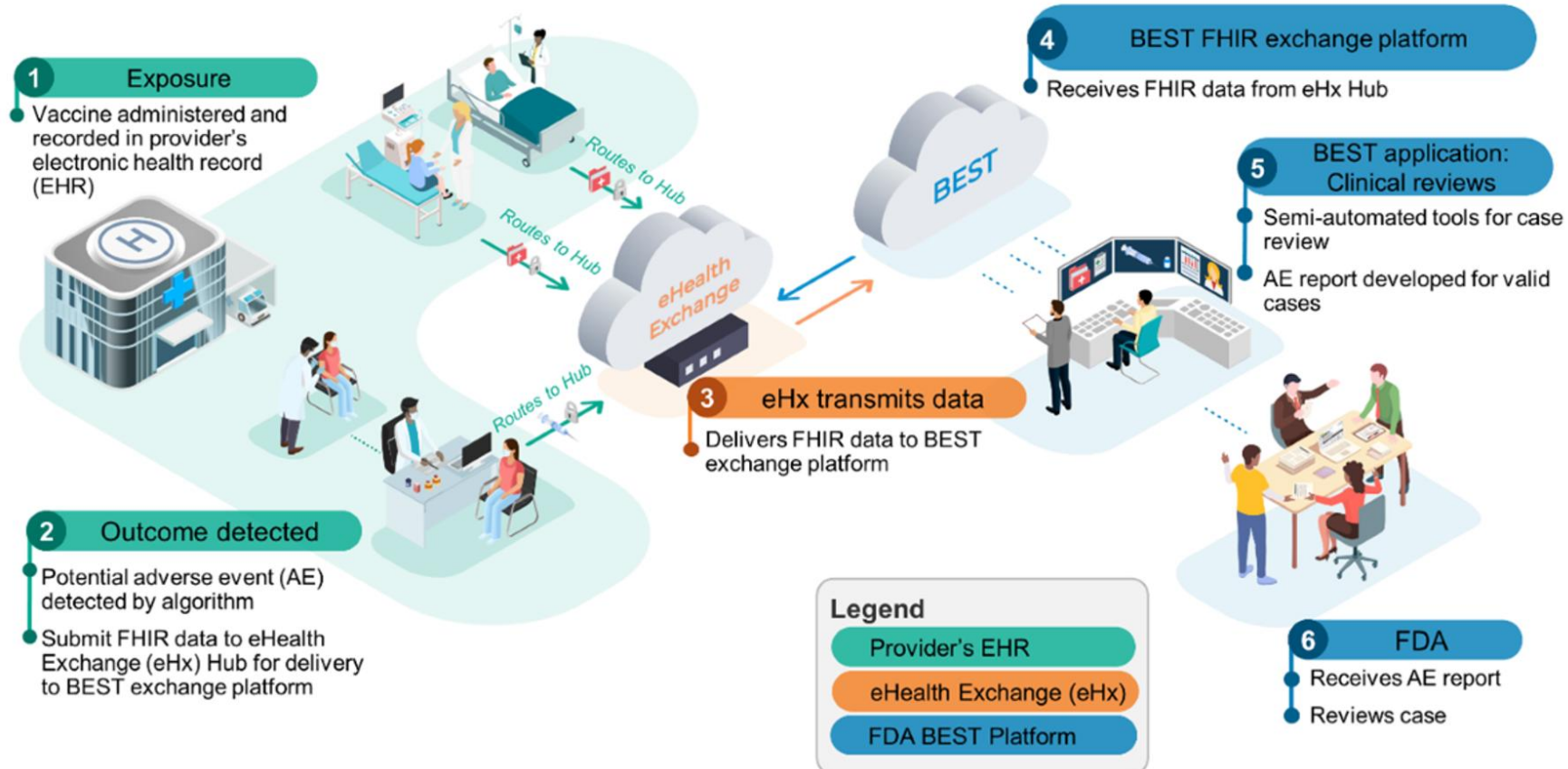
Instead of sending and receiving HTTP traffic point-to-point, traffic can be routed through the eHealth Exchange.

This saves on implementation and contracting costs for all parties, and makes the process significantly faster

## FHIR Use Cases

# FDA BEST Adverse Event Reporting

## Postvaccination AE Detection and Validation



Source: <https://www.jmir.org/2024/1/e54597>



## FHIR Use Cases

# FDA BEST Adverse Event Reporting

Solution Redesign: The FDA has migrated the solution to their HIVE environment<sup>1</sup>



## **New security requirement !!!**

All connections between FDA and the eHealth Exchange must be initiated by the FDA



The recently deployed CDex Task-based Approach solution, along with enhancements developed as part of Task Based Exchange service, aligns well with this new requirement




## **Three additional use cases now live**

1. Expanded list of biologics being reported in addition to COVID-19, via unsolicited submission
2. Reporting of medication-based adverse events reported by patients via the MedWatch<sup>2</sup> system  
(FHIR Bundle contains Patient, Observation, Medication, MedicationAdministration, MedicationStatement, Practitioner, AdverseEvent)
3. Targeted “Pull” whereby FDA submits a request targeting a specific organization, versus the original geospatial fan-out

<sup>1</sup> High-performance Integrated Virtual Environment (HIVE)

<sup>2</sup> <https://www.fda.gov/safety/medwatch-fda-safety-information-and-adverse-event-reporting-program>

## FHIR Use Cases

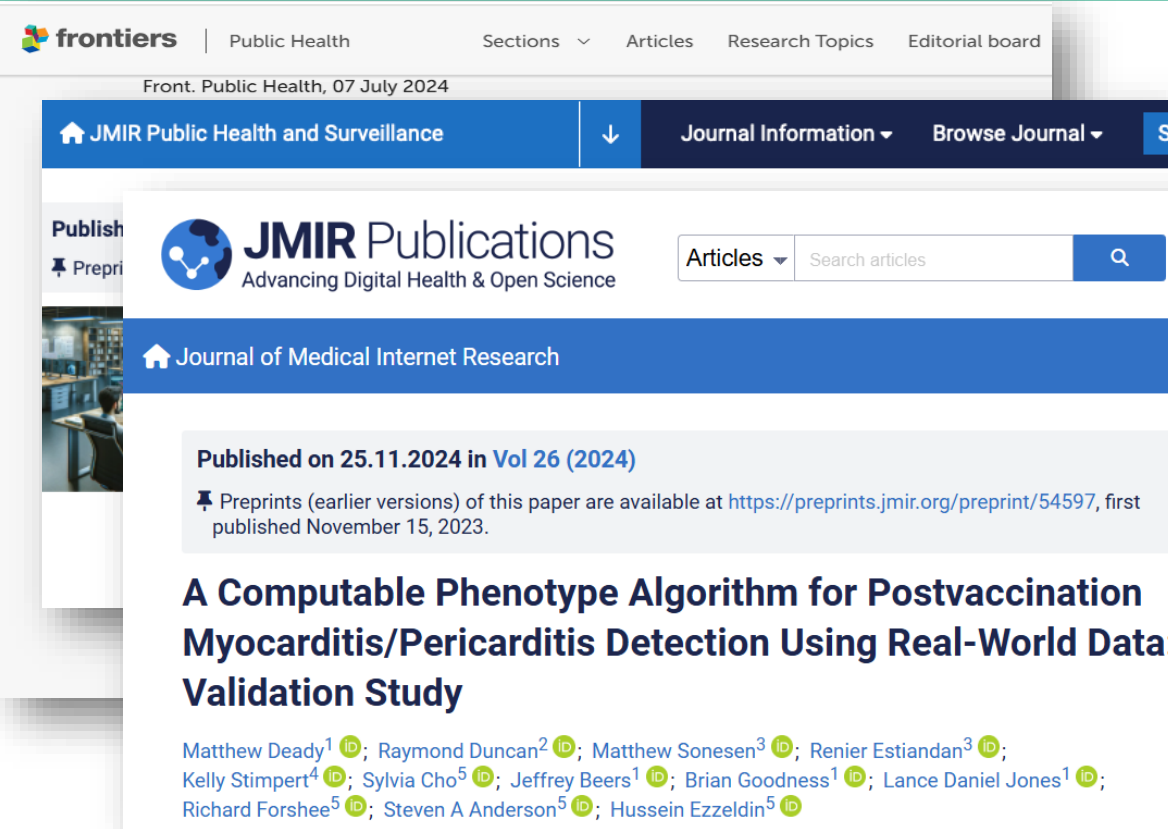


2024  
InterSystems  
IMPACT Award

# FDA BEST - Accomplishments

The first group of 11 pilot health systems demonstrated the value of using data interoperability standards for public health.

## Papers Published:



frontiers | Public Health | Sections | Articles | Research Topics | Editorial board

Front. Public Health, 07 July 2024

JMIR Public Health and Surveillance

JMIR Publications  
Advancing Digital Health & Open Science

Articles | Search articles

Journal of Medical Internet Research

Published on 25.11.2024 in Vol 26 (2024)

Preprints (earlier versions) of this paper are available at <https://preprints.jmir.org/preprint/54597>, first published November 15, 2023.

### A Computable Phenotype Algorithm for Postvaccination Myocarditis/Pericarditis Detection Using Real-World Data: Validation Study

Matthew Deady<sup>1</sup> ; Raymond Duncan<sup>2</sup> ; Matthew Sonesen<sup>3</sup> ; Renier Estiandan<sup>3</sup> ; Kelly Stimpert<sup>4</sup> ; Sylvia Cho<sup>5</sup> ; Jeffrey Beers<sup>1</sup> ; Brian Goodness<sup>1</sup> ; Lance Daniel Jones<sup>1</sup> ; Richard Forshee<sup>5</sup> ; Steven A Anderson<sup>5</sup> ; Hussein Ezzeldin<sup>5</sup>

## Award Received:

Use of FHIR® for innovative electronic exchange of clinical data for validation of adverse events.



Congratulations to



FORUM Innovation Award Winner!

See the [poster](#) describing this work.

## FHIR Use Cases

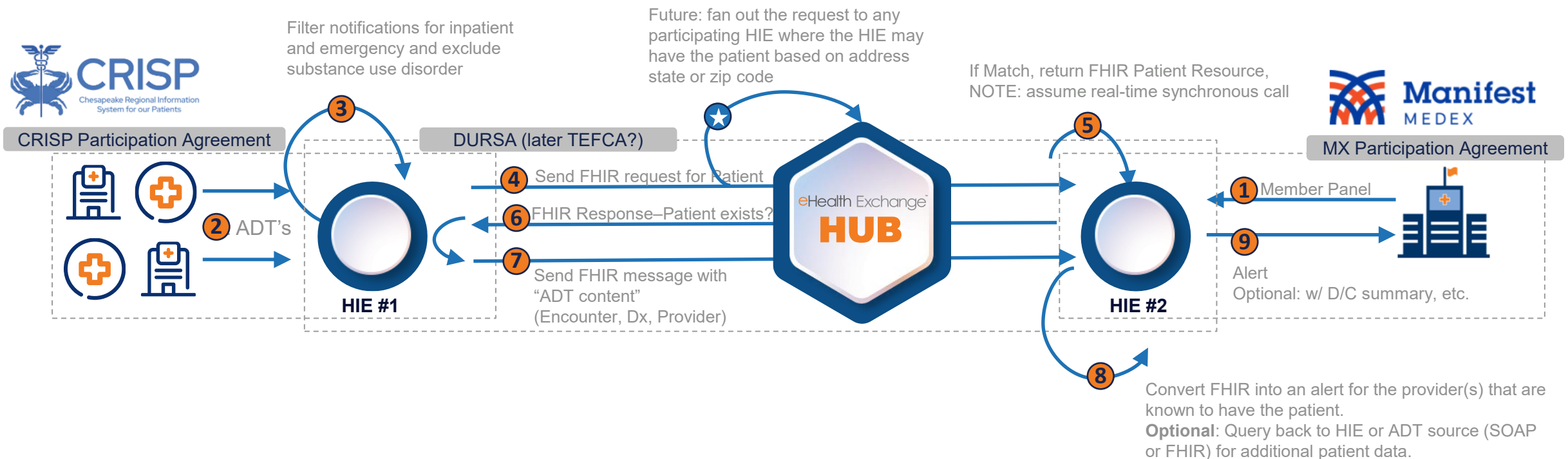
# Electronic Prior Authorization

- Enable network-wide ePA connectivity with a single stroke
  - Supports DaVinci Burden Reduction standards, latest release (and backwards compatible)
- Free value-added services such as:
  - SMART on FHIR apps
  - Payer endpoint discovery
  - Patient/person coverage discovery
- eHealth Exchange leads Da Vinci Project Trebuchet
  - Come and join the fun – start piloting today!

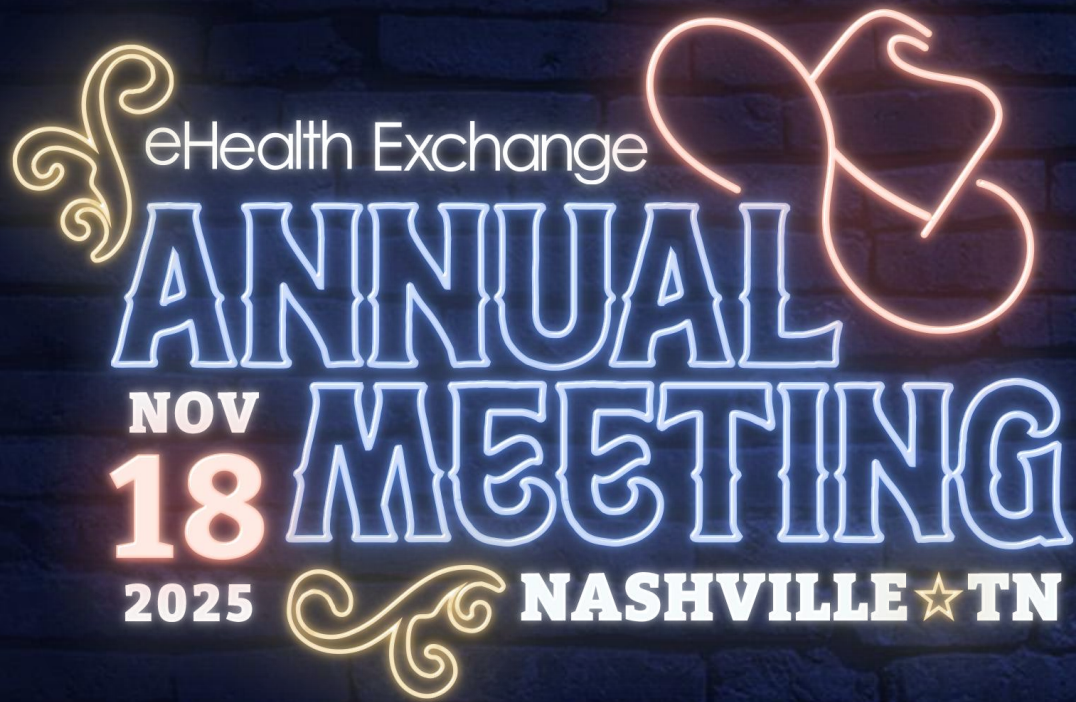
# National Member Match

## Use Case

*Payer s(or a Provider with value-based care contracts), want to be triggered about all member encounters (from anywhere in the U.S.), to then obtain episodic clinical data to update priorities for care management teams, update gaps-in-care, and update risk stratification.*







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Q&A