



# IIS Interoperability Roundup

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President

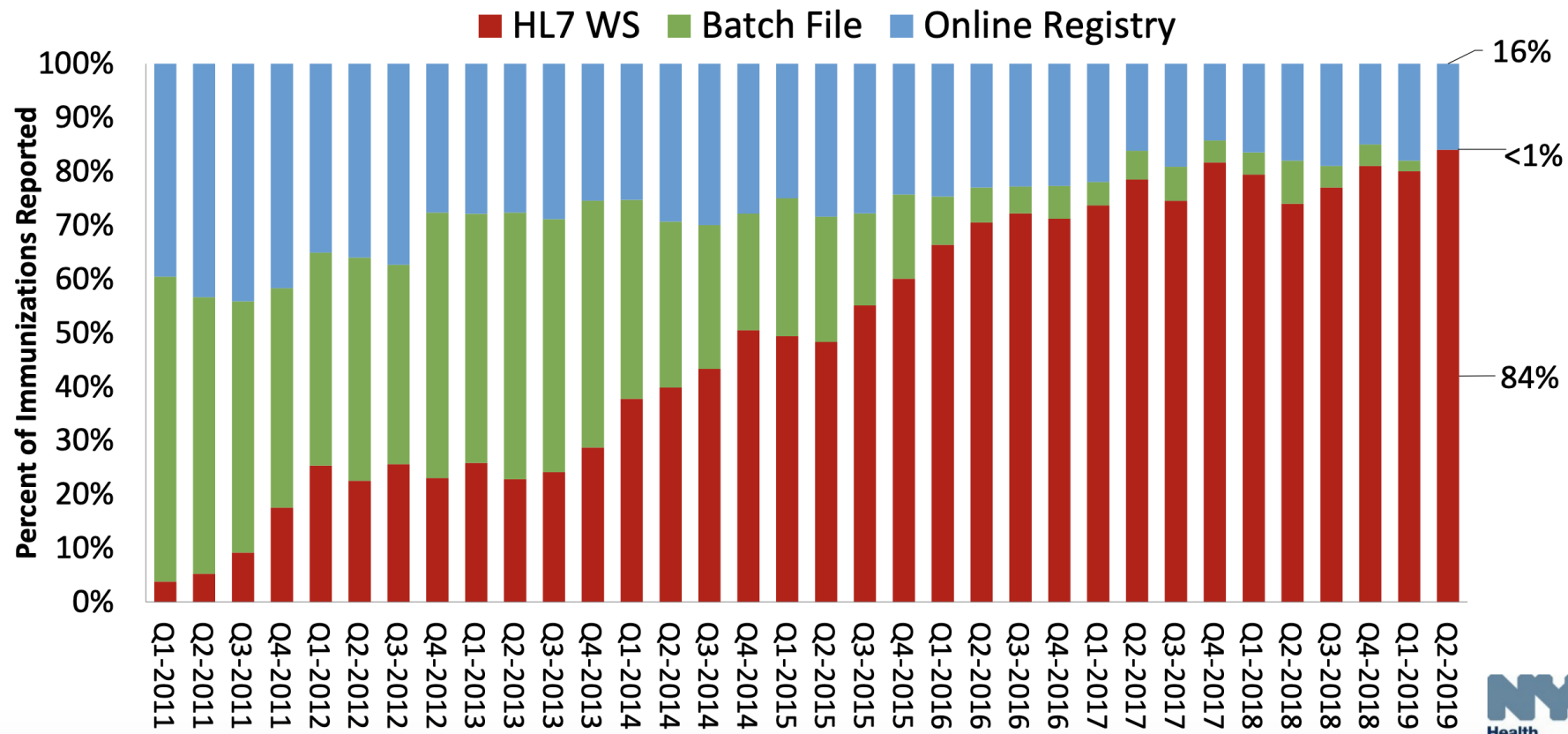
2024 AIRA National Meeting  
Orlando, FL  
May 8, 2024

# Immunization Information Systems

- “Confidential, population-based, computerized databases that record all immunization doses administered by participating providers to persons residing within a given geopolitical area.”
- Exist in every US state and territory
- Governed by STLT law and policy
- Largely funded (at least now) by CDC
- Various vendor and jurisdiction-developed products in use, most at the end of their lifecycle
- American Immunization Registry Association (AIRA) works very closely with CDC, jurisdictions, industry partners and other associations to further IIS objectives
- Reporting IZs to an IIS is required in some, but not all, jurisdictions and is a part of CMS Meaningful Use/PI

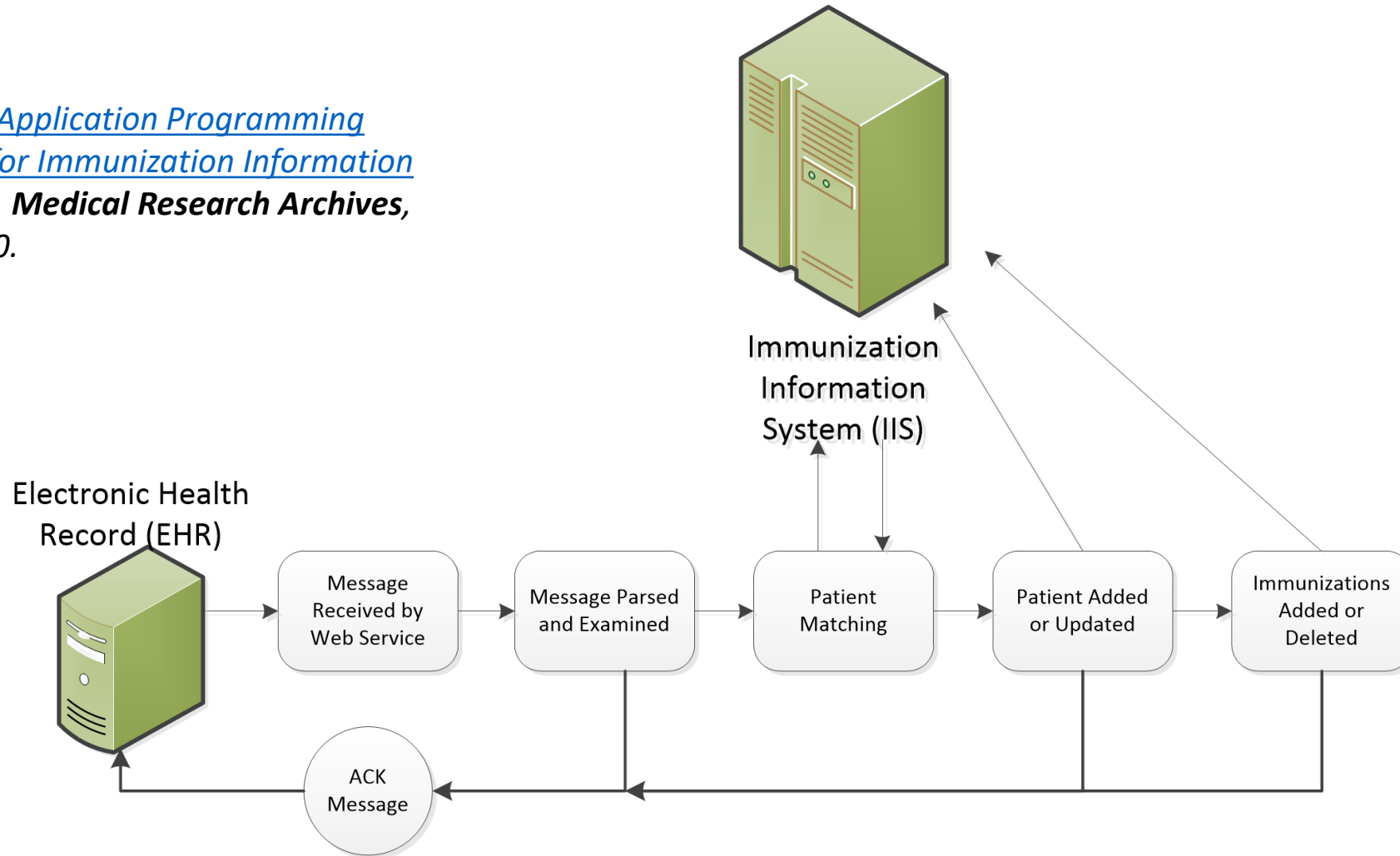
# Background: From Paper to Electronic Reporting

## Methods for Reporting Immunizations to the CIR



# IIS Data Submission: HL7 v2 VXU

Source: N Arzt, [Application Programming Interface \(API\) for Immunization Information Interoperability](#), *Medical Research Archives*, 8(11), Dec. 2020.



# IIS Query: HL7 v2 QBP/RSP



Electronic Health Record (EHR)



Message Received by Web Service

Message Parsed and Examined

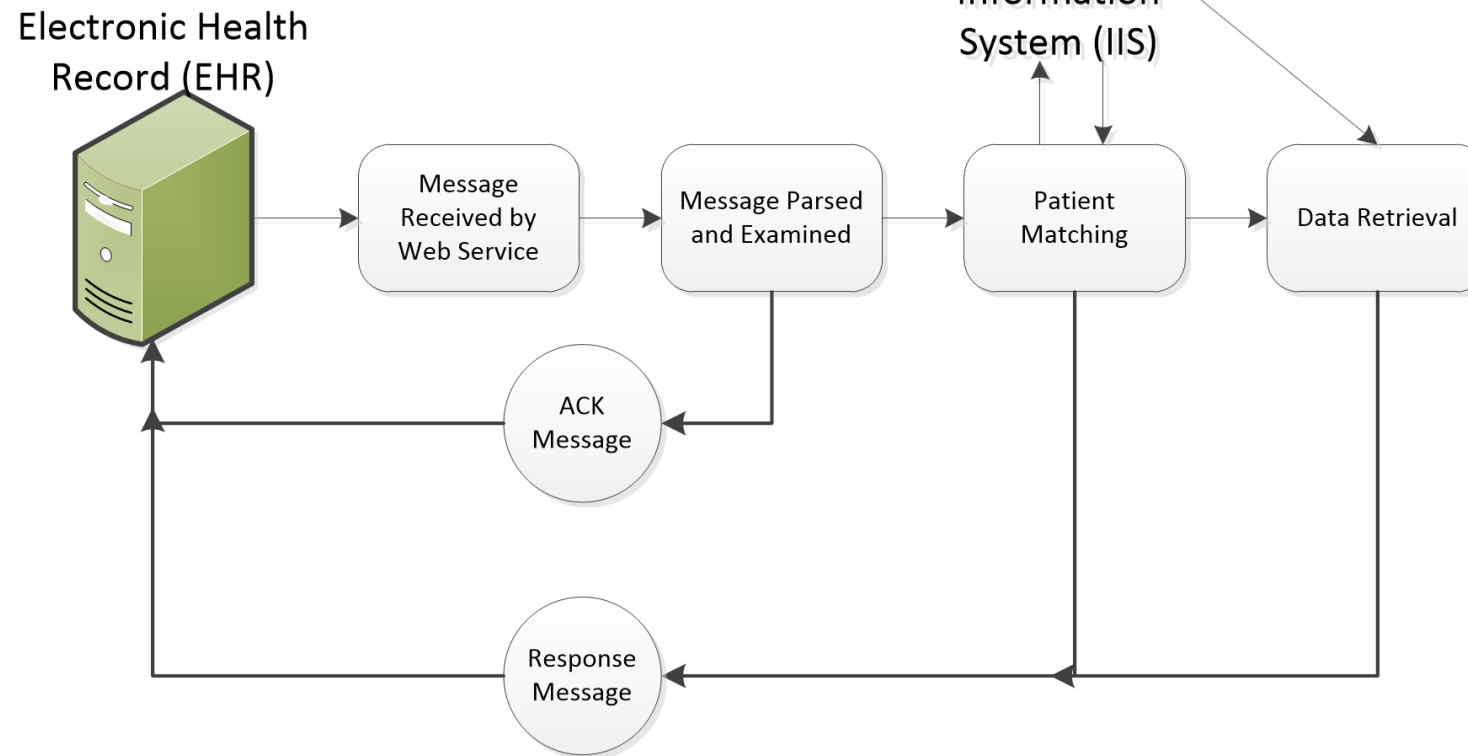
Patient Matching

Data Retrieval

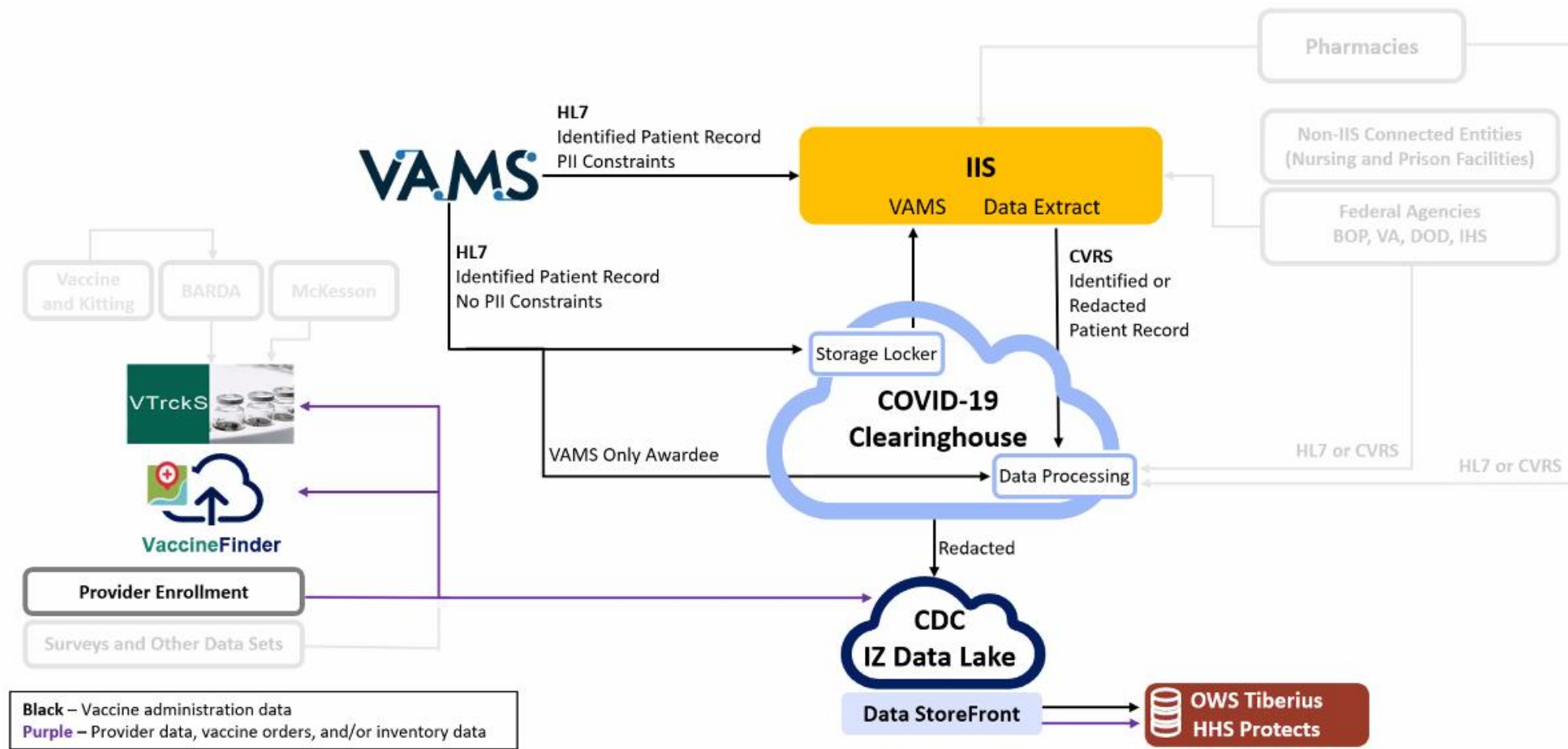
Immunization Information System (IIS)

ACK Message

Response Message



# COVID Data Architecture

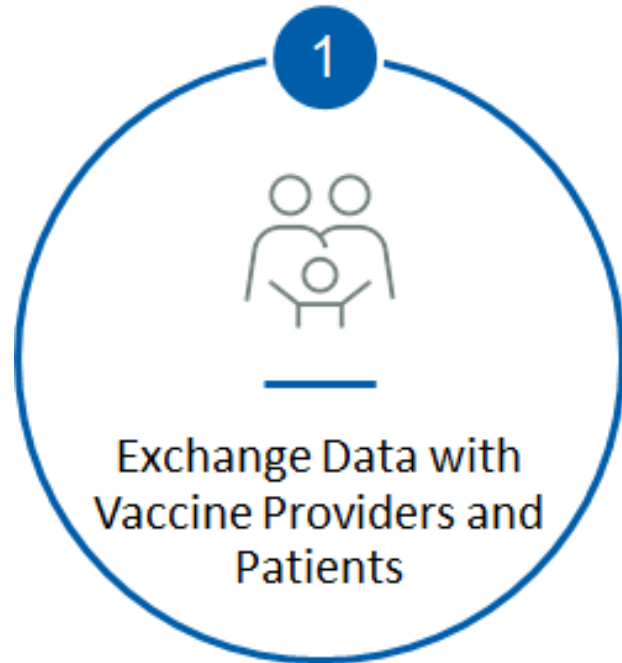


# Examples: Intra-agency Interoperability

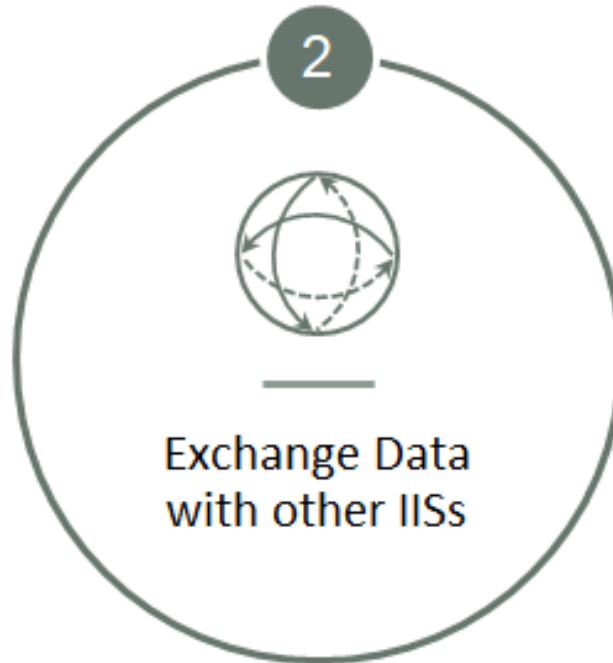
- Vital records systems
- Disease surveillance systems (*e.g.*, Maven)
- Data warehouses/data lakes
- Consumer access solutions
- Other programs: (*e.g.*, lead screening, newborn screening)

Often these interfaces are not standards-based, may be “push” or “pull”

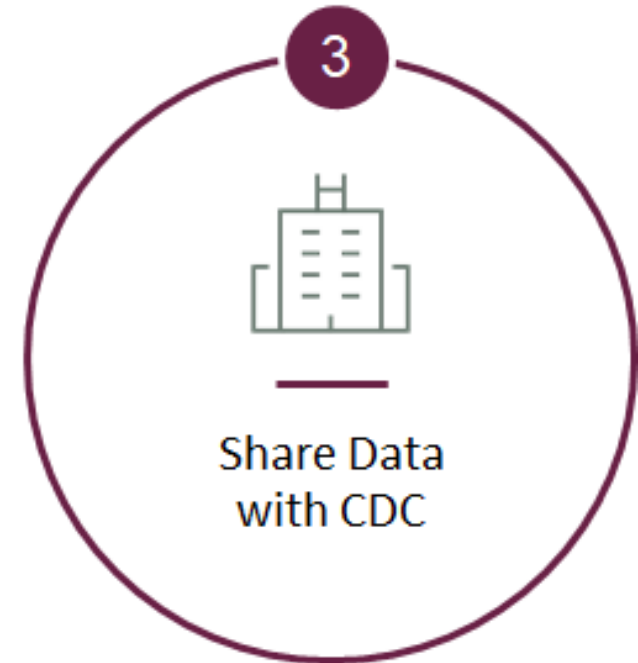
# Immunization Gateway Uses



Federal Agency or  
Multi-jurisdictional Vaccine  
Provider ↔ IIS  
IIS → Patient App  
or Patient Portal



IIS ↔ IIS

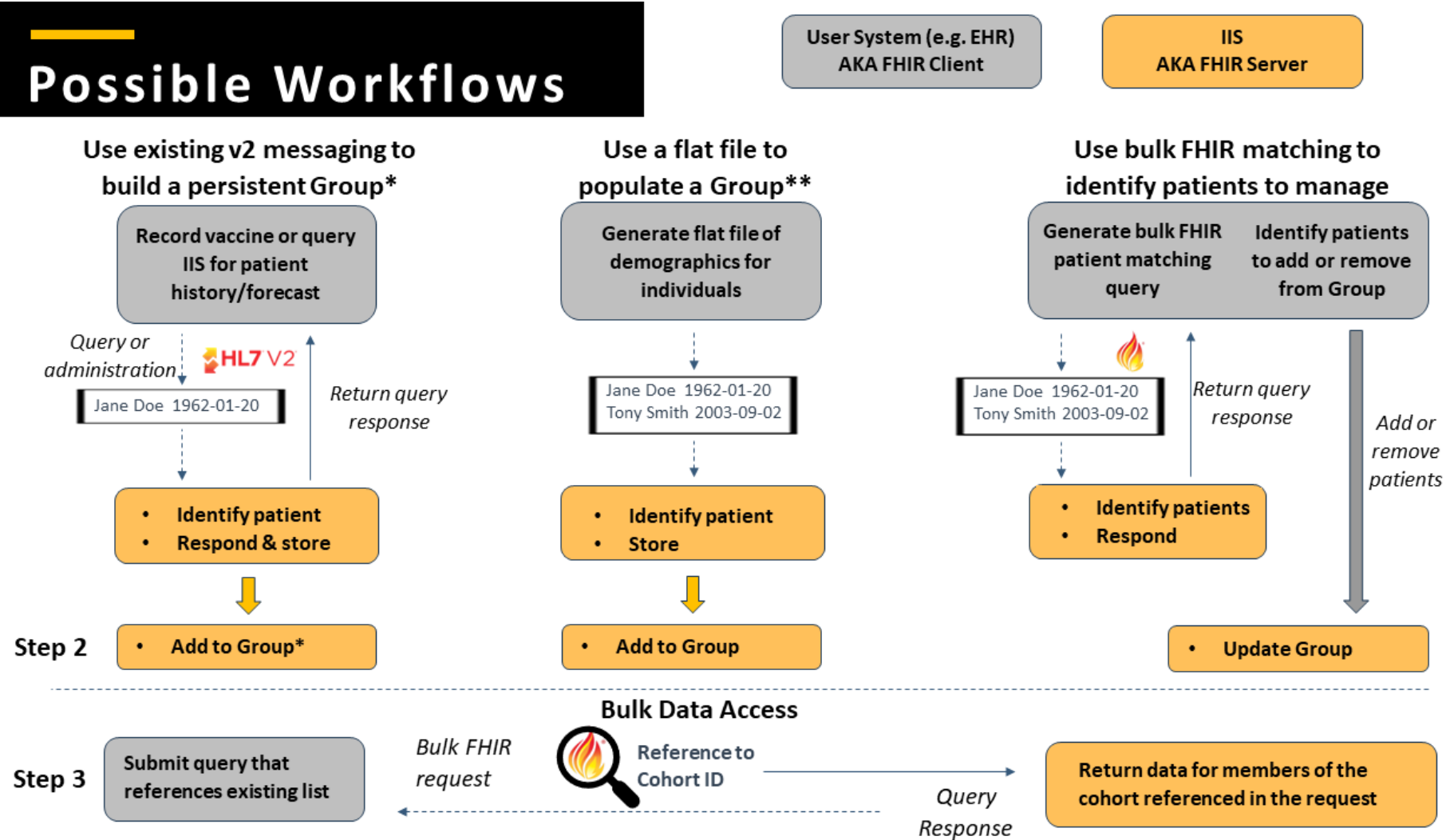


IIS → CDC

A message router for immunization messages deployed on the APHL AIMS platform. Currently no message transformation, but a new service is being developed.

# Helios: Immunization FHIR Bulk Query

## Possible Workflows



Source: HL7 Helios Project, April 2024

# TEFCA: Background



ONC  
TEFCA  
RECOGNIZED  
COORDINATING  
ENTITY

- Two separate but related things
  - TEF: [Trusted Exchange Framework](#)
  - CA: [Common Agreement](#)
- Outgrowth of [HITECH Act](#) and [21st Century Cures Act](#)
- Developed and launched by [ONC](#); managed by Recognized Coordinating Entity ([RCE](#)), The Sequoia Project (Sept 2019)
- Initially released for comment in January 2018 (see [post](#)) and again in April 2019 (see [post](#))
- “Version 1” release in January 2022, “Version 2” released April 2024 (see [post](#))

# “Network of Networks”

- Interconnection between local, regional, and national networks (HIEs)
- Limited number of nodes, or Qualified Health Information Networks (QHINs): currently 7
- Technical framework centers around existing Integrating the Healthcare Enterprise ([IHE](#)) adopted standards and profiles
- Standard Operating Procedures for each “Exchange Purpose” (including public health)
- Widely deployed by existing national networks ([eHealth Exchange](#), [Carequality](#), and the [Commonwell Health Alliance](#))
- Plan for integrating HL7 Fast Health Information Resources ([FHIR](#)) for later implementation

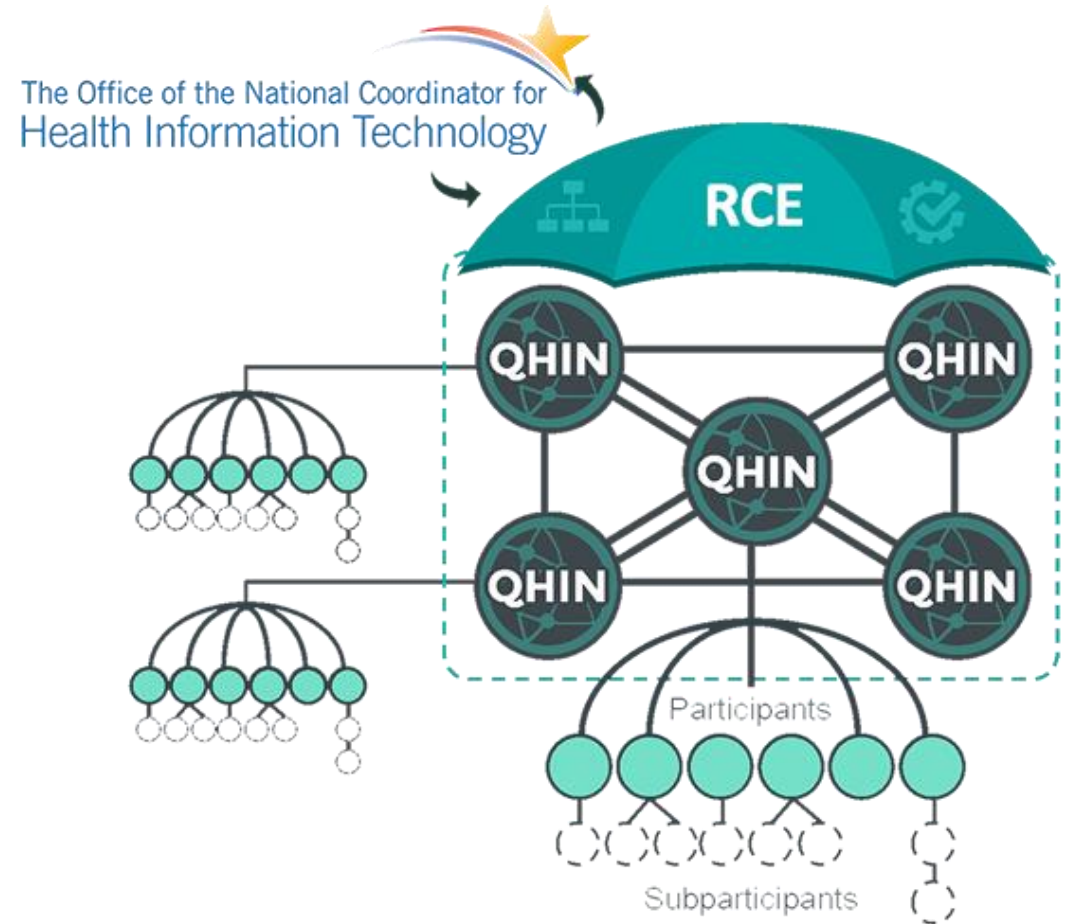


Diagram c/o The Sequoia Project

# Current TEFCA Reality

- Big push by both ONC and CDC
- Many public health agencies will participate indirectly through HIEs and other “participants”
- Public health exchange purpose “SOP” in draft form
- Current technical framework not well suited for IZ (but *is* being leveraged for electronic case reporting – low hanging fruit)
- Emerging FHIR technical architecture *may* be more interesting: consider focusing on Helios use cases as primary public health drivers for TEFCA

# Preliminary SWOT Analysis: IZ Interoperability

<b>Strengths</b> <ul style="list-style-type: none"><li>• Use case well understood and widely accepted</li><li>• Mature implementation: &gt;20 years</li><li>• Standards-based (HL7 v2)</li><li>• Collaborative community</li><li>• Structured “testing” of IIS interoperability (NIST, AIRA AART)</li><li>• Consistent use of terminology and vocabulary</li></ul>	<b>Weaknesses</b> <ul style="list-style-type: none"><li>• 50+ IIS make a complex, distributed environment</li><li>• Differences in data sharing/consent policies inhibit sharing across jurisdictional lines</li><li>• Limited involvement of HIEs, especially national networks</li><li>• IIS aging technically with limited paths for replacement</li></ul>
<b>Opportunities</b> <ul style="list-style-type: none"><li>• IZ Gateway leverages centralized resources</li><li>• Increased CDC interest in national data set may promote additional Federal investment</li><li>• Working on making interfaces more uniform and documenting them more consistently</li><li>• TEFCA may bolster emerging FHIR bulk query</li></ul>	<b>Threats</b> <ul style="list-style-type: none"><li>• IIS and data exchange partners may resist migrating to new standards like FHIR</li><li>• Victim of its own success: Throughput issues</li><li>• Current standards “stuck” in ONC CEHRT</li><li>• Targeted IIS funding losses, including COVID funding “cliff”</li></ul>

# Questions? Comments?

