

Cross-Paradigm Interoperability with Immunization Registries

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What this talk is about

The great thing about standards is
there are so many to choose from

A real example of how to interoperate when systems
speak a multiplicity of standard paradigms – messages
documents, services – originating in different Standards
Development Organizations

What Providers Want

- Capture Meaningful Use revenues
- EHRs want repeatables
 - CCD
 - SOAP transport layer
 - Single protocol for reporting to public health

What Public Health Wants

- Maximize the quantity of data reported
- Maximize the quality of data reported
- Work with existing installed technology base
- Work within constrained resources

How This Translates into Technology: the Provider Side

- Maximize Revenue Capture
 - Extensive uptake of certification by EHRs
 - Adoption of certified technology in the field
- Repeatables
 - CCD
 - SOAP transport layer
 - Direct
 - Single protocol for reporting to public health
 - 2.5.1

How This Translates into Technology: The Public Health Side

- Maximize data quantity = existing and new interfaces
 - Existing multiple transport layers
 - Sockets
 - HTTPs (not SOAP)
 - SFTP
 - PHIN-MS
 - Existing interfaces
 - HL7 2.3.1

How This Translates into Technology: The Public Health Side

- Maximize data quality
 - Stage I test messages vs. registry data quality
- Work within constrained resources
 - Public health receives no Meaningful Use incentive payments
 - \$20M in grants to build 2.5.1 interfaces to registries
 - Many registries still not 2.5.1-capable

MU Stage I and Stage II

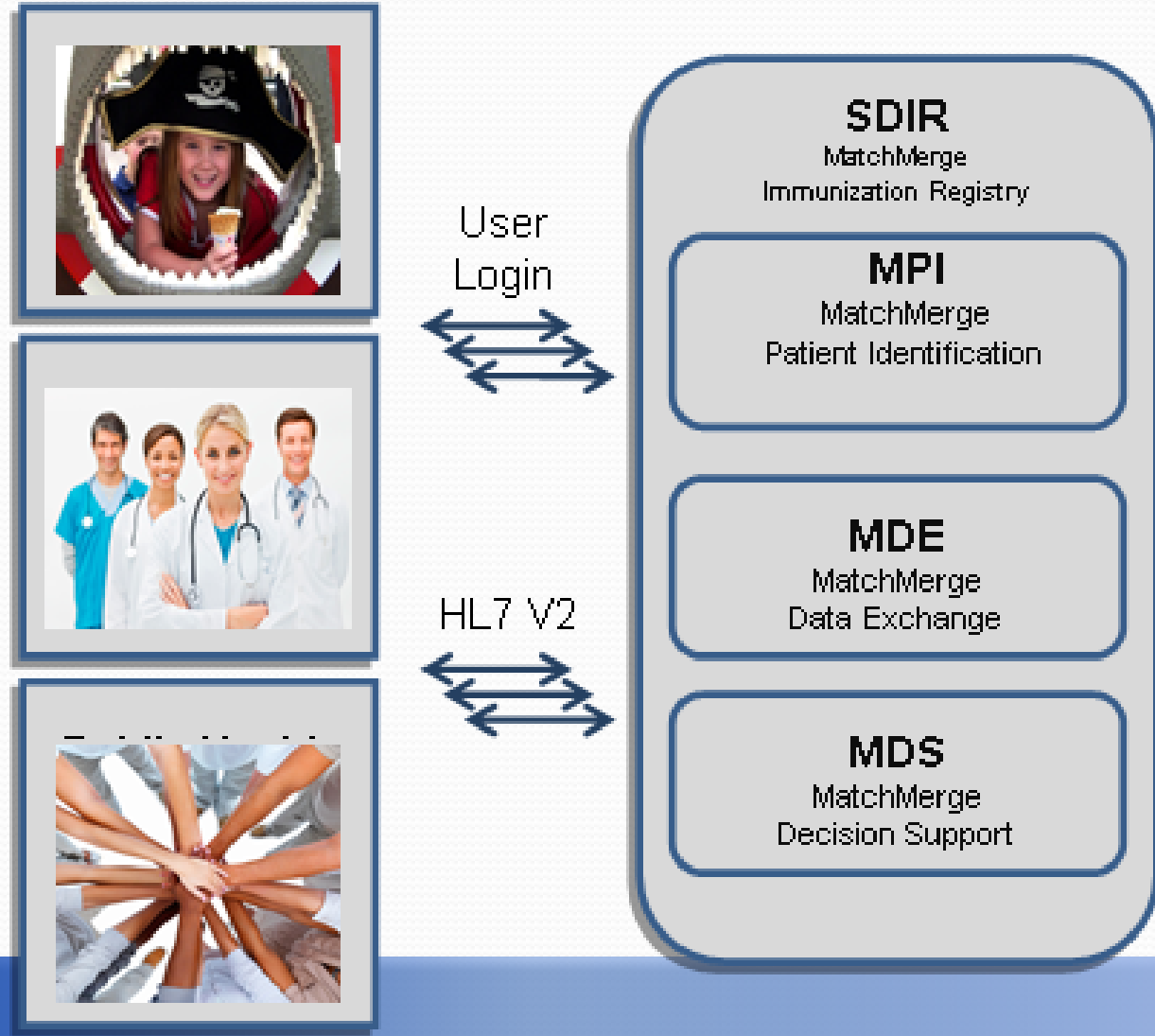
- Stage I - transport layer and message format mismatch
- Stage II – tries to solve, but gap may increase
 - Vast majority of immunization submissions are arriving in HL7 V2.3.1, not 2.5.1
 - Stage II transport layers are among least common current immunization interfaces
- Multiple hops from sender to receiver

Services Provided by Intermediary

- Delivered by Health Information Exchange (HIE) or other intermediary
- Provide Meaningful Use credit
- Resolve sender, receiver mismatches
- Introduce additional protocol options
- Additional services
 - Respond to queries
 - Deliver decision support

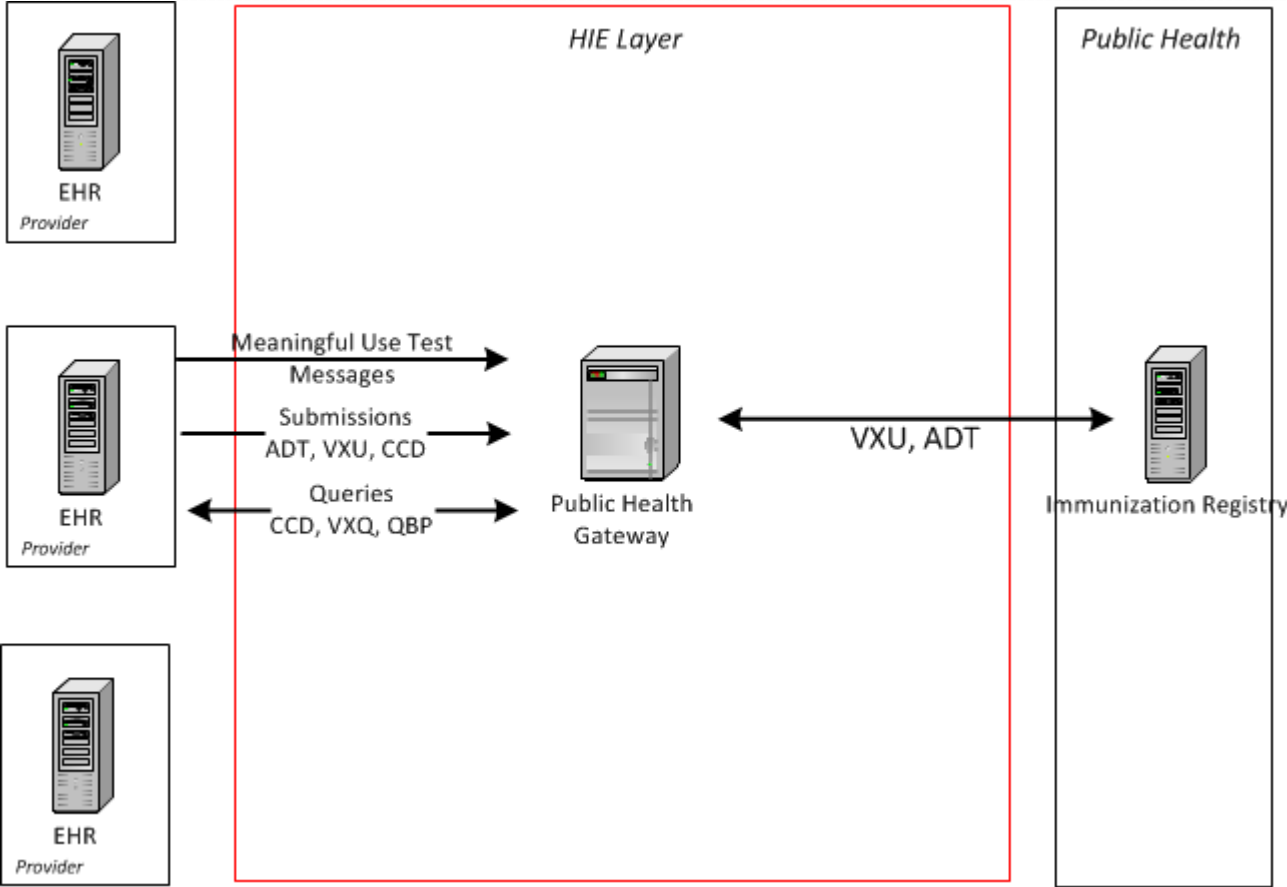


Classical Immunization Registry Architecture





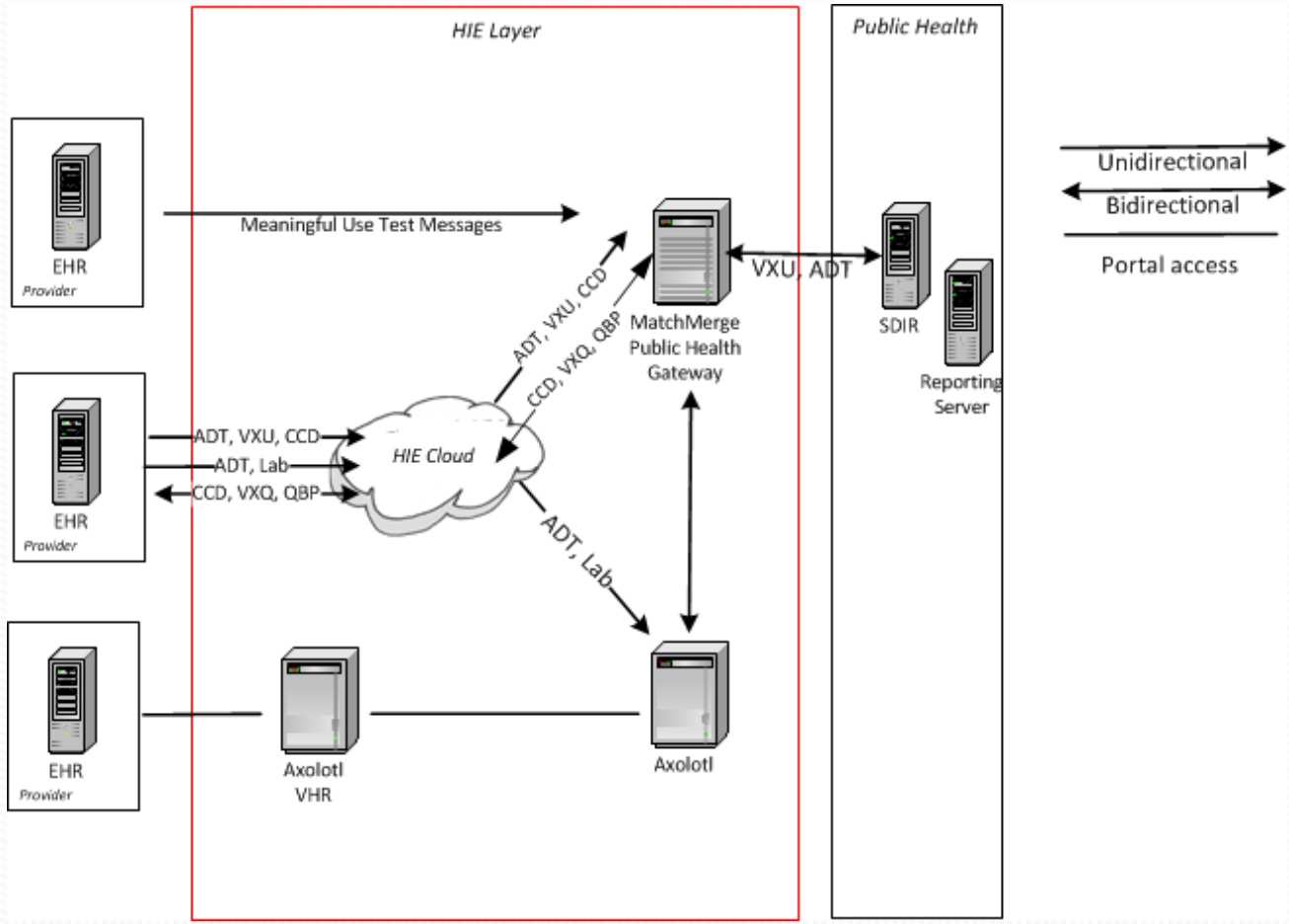
HIE and Immunization Registry



HIE Value Add

- Accepts multiple EHR submission formats
- Provides single public health connection
- Allows EHRs to consolidate on CCD
 - and still receive Stage I credit
- Responds to queries for public health
- Returns recommendation
 - Decision Support

San Diego Beacon Deployment



Scenario #1: CCD submission

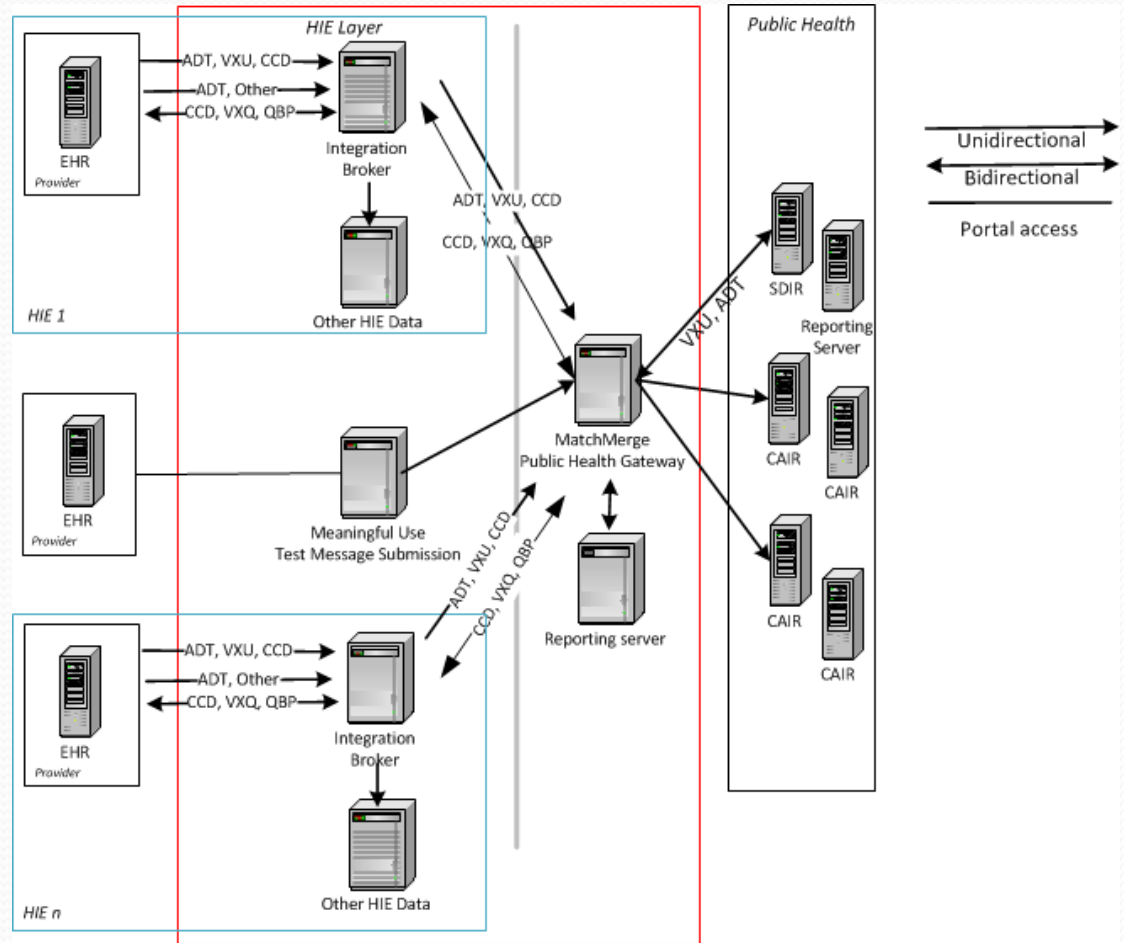
- Provider EHR submits an Immunization Content CCD document
- HIE parses the CCD, saves the data in the edge server, and forwards the data using HL7 2.5.1 to public health
- HIE software is module-certified for immunization registry reporting

Scenario #2: Bidirectional HL7 V2


- Provider obtains HIE patient consent
 - HIE and immunization registry
- Provider looks up patient history and recommendation
 - Obtained by querying HIE *not* public health
- Administers vaccines
 - HL7 V2 is sent to the HIE
 - HIE pre-matches and forwards to public health
 - Copy of data is saved in HIE to satisfy future queries



Example statewide deployment




Software Partners XCA Deployment




A 4-year-old patient visits his doctor. The provider's EHR queries the regional HIE and retrieves an Immunization Content (CCD) document that shows the child's past immunizations and vaccine recommendation. The provider administers vaccines and enters the records into his EHR.

1. Patient and Primary Care Provider #1




The EHR creates a new document and sends it to the HIE, which updates the immunization registry (IIS) using HL7 Version 2. An "on-demand" document is saved in the HIE. The next time it is accessed, the HIE queries the IIS to complete the document with current data.

2. Public Health and HIE #1



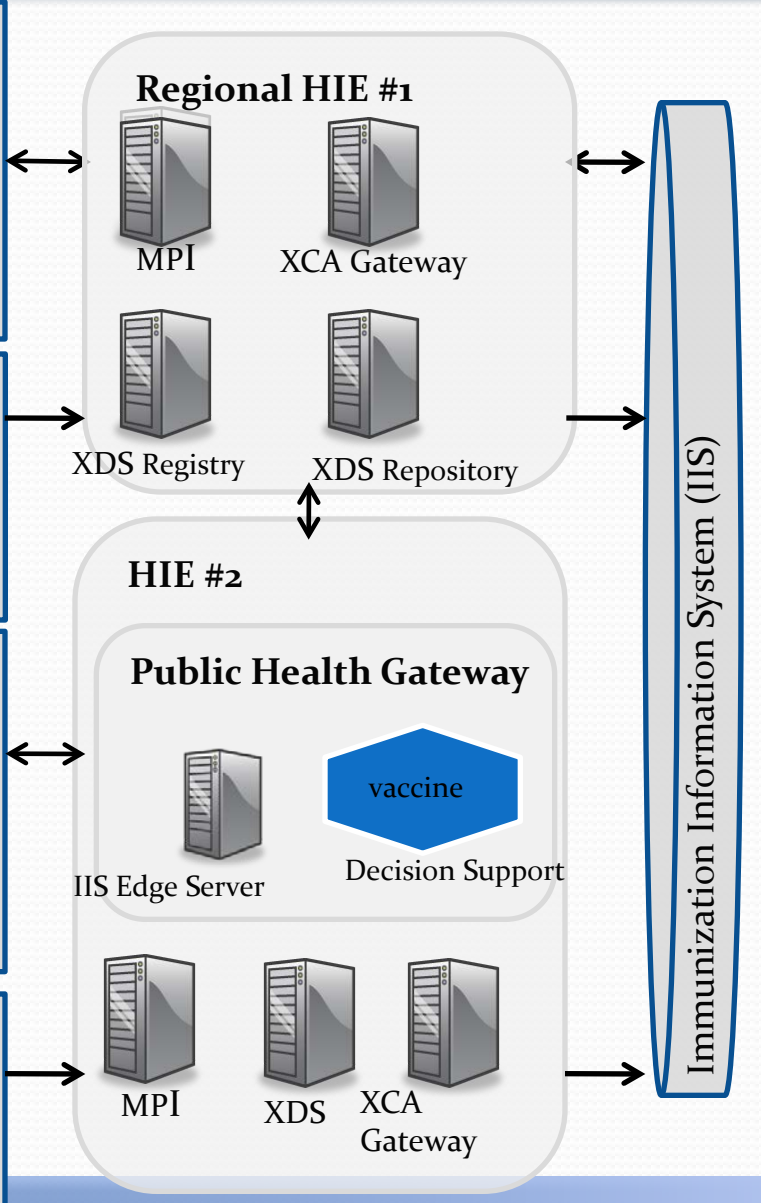
Now the child enters school in a neighboring region. According to the state's vaccine schedule, one shot is missing. The child visits a new provider. The EHR queries the new region's HIE. The child's records are **retrieved from the previous HIE**, along with up-to-date recommendation. The provider gives and records the missing shot.

3. Patient and Primary Care Provider #2



The EHR sends document to the new HIE, which updates the immunization registry (IIS) using HL7 V2. An Immunization Content document is also saved. ** Because the HIE uses certified software to report to the IIS, the provider receives Meaningful Use credit.*

2. Public Health and HIE #2



Standards Development Work

- Cross-Paradigm Interoperability Implementation Guide for Immunizations

<http://hssp.wikispaces.com/Cross+Paradigm+Interoperability+Implementation+Guide+for+Immunization>

Hssp.wikispaces.com

-> Projects

-> Cross-Paradigm Interoperability Implementation Guide for Immunizations

Questions?

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Providers



The patient and parent visit the provider, who uses the Electronic Health Record (EHR) system to:

- Query Beacon for immunizations
- Review the immunizations and care plan
- Administer vaccines & enter them into his EHR

Beacon and SDIR



The EHR sends immunization records to Beacon by one of a choice of interface formats (HL7 V2, document, etc.)

Beacon stores an on-demand document which is not filled in until accessed. Beacon simultaneously updates its SDIR edge server and updates SDIR.

