

May 9, 2016

HIE in EMS Summit 2016

Patient Unified Lookup System for Emergencies

PULSE

Customers We Serve



**Healthcare Systems;
Health Information
Organizations; Provider
Organizations;
and Government and
Private
Payer Organizations**

The Office of the National Coordinator for
Health Information Technology



What is Interoperability

Interoperability has been interpreted in a numerous ways and established as a national imperative.

There are a few definitions / descriptions that capture the conceptual essence...

The IEEE definition of interoperability as *the ability of systems to exchange and use electronic health information from other systems without special effort on the part of the user.*

The HL7 definition focuses on 4 key areas:

1. Transport Interoperability (e.g. VPN, sFTP, Direct)
2. Message/Document Interoperability (e.g. CCD, HL7)
3. Semantic (Vocabulary) Interoperability (e.g. LOINC, SNOMED)
4. Process Interoperability (workflow)

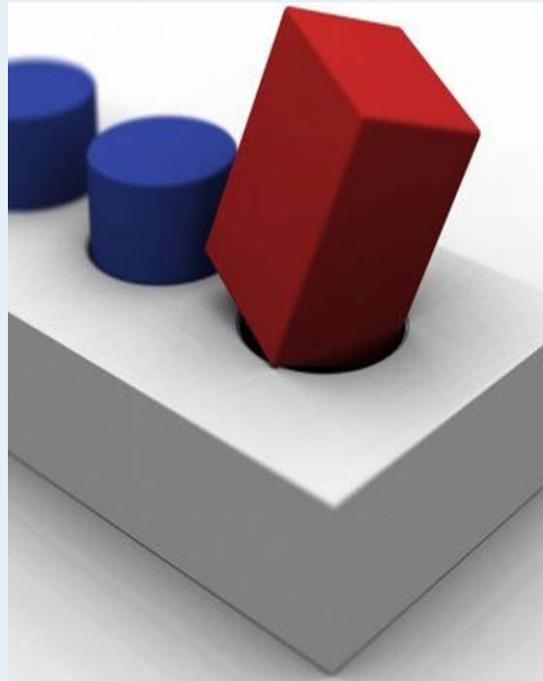


Interoperability vs. Connectivity

What you would like...



What you usually get...



What you have to do...



Most systems integration efforts still rely heavily on customization and interface by interface effort.

Technical Integration Approaches

HL7 v2.x

- There are numerous HL7 message types (like ADT, Lab ORUs, MDM documents, etc).
- This has been (and in large part continues to be) the most common approach to establishing clinical data connectivity between two systems.
- HL7 messaging is the backbone message format for most clinical systems and is the method for communication between component systems within hospitals.

Consolidation Clinical Document Architecture (C-CDA)

- Continuity of Care Document (CCD) – the CCD is a template within the C-CDA construct that includes 17 different sections.

Integrating the Healthcare Enterprise

- IHE is an effort to define and tightly constrain a set of interoperability profiles to support a specific set of transactions. If the implementation guides are followed exactly, the IHE profiles should enable interoperability.

FHIR

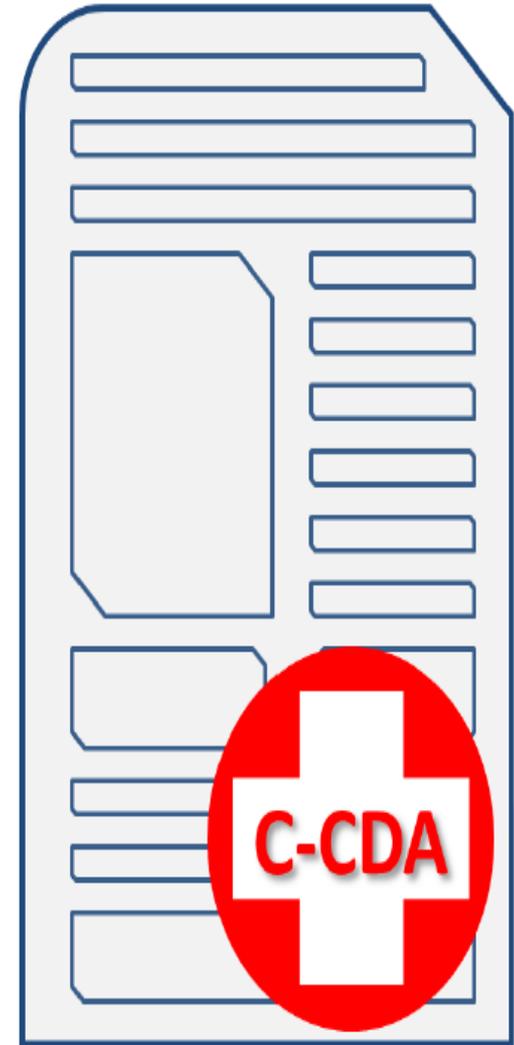
- FHIR is a more recent application programming interface (API) framework focused on “resource” level interoperability

Continuity of Care Document

- The CCD is an important document in the context of enabling richer clinical data exchange.
- Because the document was intended to convey a full clinical summary, different specialties and interests created complexity and variation during the evolution of the document.
- Currently, the document is intended to support a range of use cases, but implementation variation remains.
- That said, there is significant emphasis on improving CCD conformance and uniformity in the vendor community.

CCD Templates* include:

1. Header
2. Purpose
3. Problems
4. Procedures
5. Family history
6. Social history
7. Payers
8. Advance directives
9. Alerts
10. Medications
11. Immunizations
12. Medical equipment
13. Vital signs
14. Functional stats
15. Results
16. Encounters
17. Plan of care



IHE Interoperability Profiles



- Many vendors that are enabling “interoperability” are relying on IHE-based approaches.
- There are a range of profiles that define how to search for patients, request documents, or to push content to another provider.

Examples

- Patient Identity Cross-References / Patient Demographic Query (PIX / PDQ)
- Cross-Enterprise Document Sharing (XDS.b)
- Cross-Community Patient Discovery (XCPD)
- Cross-Community Access (XCA)



DEPARTMENT OF HEALTH & HUMAN SERVICES

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Director
Office for Civil Rights
200 Independence Ave., SW Rm 506F
Washington, DC 20201



September 9, 2005

**U.S. Department of Health and Human Services Office for Civil Rights
HURRICANE KATRINA BULLETIN #2:**

**HIPAA Privacy Rule Compliance Guidance and Enforcement Statement
For Activities in Response to Hurricane Katrina**

Background

Hundreds of thousands of evacuees from areas affected by Hurricane Katrina have been relocated to shelters across the country. For many, an important need is to identify and provide prescription medications. However, medical and prescription records of many evacuees either are lost or inaccessible.

Health plans and health care providers are working together with other industry segments to gather and provide this information to the appropriate points of care for the evacuees. The information below provides guidance on how the HIPAA Privacy Rule applies to these activities, as well as describes the HHS Office for Civil Rights' enforcement approach in light of these emergency circumstances.

Compliance Guidance

The *Hurricane Katrina Bulletin: HIPAA Privacy and Disclosures in Emergency Situations* (attached), issued by OCR, emphasizes the broad range of permissible disclosures that covered entities may make to respond to the needs of evacuees in these situations. For example, health plans and health care providers may disclose prescription and other health information to health care providers at shelters to facilitate treatment of the evacuees.

PULSE History



- **2013:** CalEMSA holds its first HIE in EMS Summit
- **April 2014:** ONC Engages Ai to evaluate use of HIE infrastructure for disaster preparedness and response; *HIE Services in Support of Disaster Preparedness and Emergency Medical Response* report published
- **March 2015:** the HHS Ideas Lab funds use case and technical architecture development of PULSE; detailed *Patient Unified Lookup System for Emergencies* report published
- **July 2015:** ONC grants EMSA a grant to advance HIE statewide during a disaster and regionally in daily EMS
- **January 2016:** EMSA releases PULSE Development RFO
- **March 2016:** EMSA awards Ai the PULSE Development contract

Initial Thinking

- ❖ The disaster response use case discussion evolved over the course of the sessions in an important way (especially during the Alameda County and LA meetings).
- ❖ The initial use case presented focused on creating what we perceived to be the lowest barrier opportunity to enable access across public and enterprise HIE organizations.
- ❖ As presented at the conceptual level in each session, by focusing on a basic single-sign on assertion (e.g. SAML 2.0), a basic website could establish pre-existing connectivity with participating HIOs enabling access under certain (and pre-defined) disaster declaration scenarios.
- ❖ But this approach also had some important shortcomings....

Evolution of the Model

Initial hypothesis: avoid the need to comply with IHE-based eHealth Exchange transactions could reduce barriers to participation. However, the following key points below impacted the ultimate use case outlined below.

- ❖ Although simple access to other HIEs would be valuable, knowing how to navigate their technologies would be problematic in practice.
- ❖ The variety of formats in which data could be presented could make it difficult for users, especially during the stress of disaster response, to effectively use the information.
- ❖ Many HIE efforts in California are already pursuing (or capable of) use of the eHealth Exchange transactions for broader exchange efforts.
- ❖ Most public and enterprise HIOs in California use an array of technologies including Mirth, Epic, and Orion; each of which have demonstrated effective use of the eHealth Exchange (i.e. IHE) transactions.



PULSE

Sign In to Search for a Patient



Email

Password

[Forgot Your Password?](#)

OR

Sign in using one of these accounts:



Sign In

[Create a new PULSE account](#)

Patient Search

To find a patient, please complete all of the required fields and click search.

First Name*

Last Name*

Date of Birth*

Sex* Male Female

Phone Number

Address Line 1

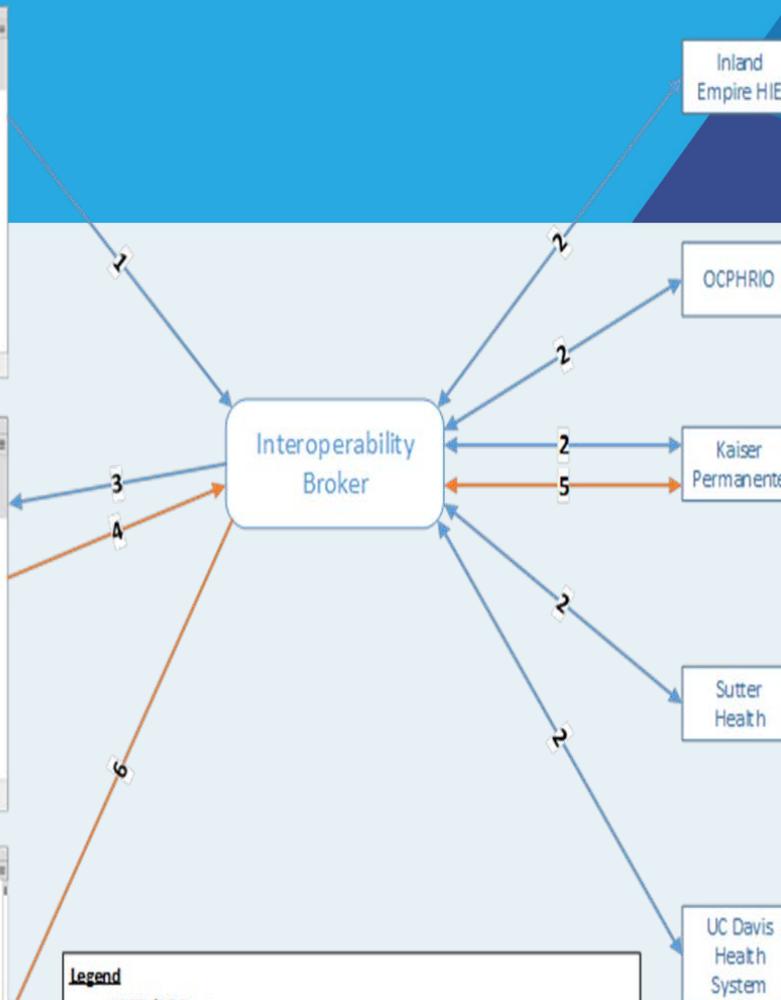
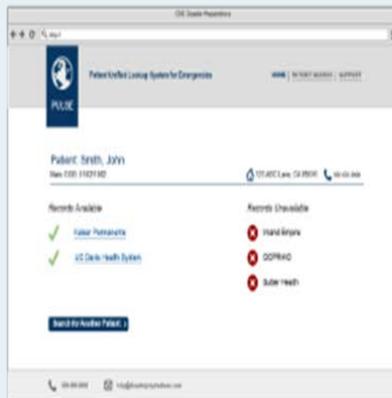
Address Line 2

State/Region*

ZIP Code*

Social Security Number

* Required Field



- Legend**
- XCPD/PDQ —>
 - XCA/XDS.b —>
1. PULSE sends an XCPD or PDQ request to the Interoperability Broker.
 2. Interoperability Broker sends a broadcast XCPD or PDQ request to all data sources. All data sources send an XCPD or PDQ response to Interoperability Broker.
 3. Interoperability Broker sends an aggregated XCPD or PDQ response to PULSE.
 4. When a hyperlink is clicked, PULSE sends an XCA or XDS.b request to the Interoperability Broker.
 5. Interoperability Broker sends targeted XCA or XDS.b request to the data source. Data source sends and XCA or XDS.b response with a CCD to the Interoperability Broker.
 6. Interoperability Broker sends XCA or XDS.b response with CCD to PULSE.



http://



PULSE

Patient Unified Lookup System for Emergencies

HOME | [PATIENT SEARCH](#) | [SUPPORT](#)

Patient: Smith, John

Male. DOB: 01/02/1982

 123 ABC Lane, CA 95616  000-000-0000

Records Available

-  [Kaiser Permanente](#)
-  [UC Davis Health System](#)
-  [Surescripts](#)
-  [LabCorp](#)

Records Unavailable

-  Sutter Health
-  OCPRHIO
-  San Diego Health Connect
-  Dignity Health
-  Sharp HealthCare
-  Inland Empire

[Search for Another Patient >](#)

Summary of Care

Patient Name

Smith, John

Date of Birth (MM/DD/YYYY)

01/02/1982

Vital signs (height, weight, blood pressure, BMI)

Height 5'10"

Weight 170 lbs

Blood Pressure 122/80

BMI 24.4

Problem List

E11.9 Type 2 diabetes mellitus without complications

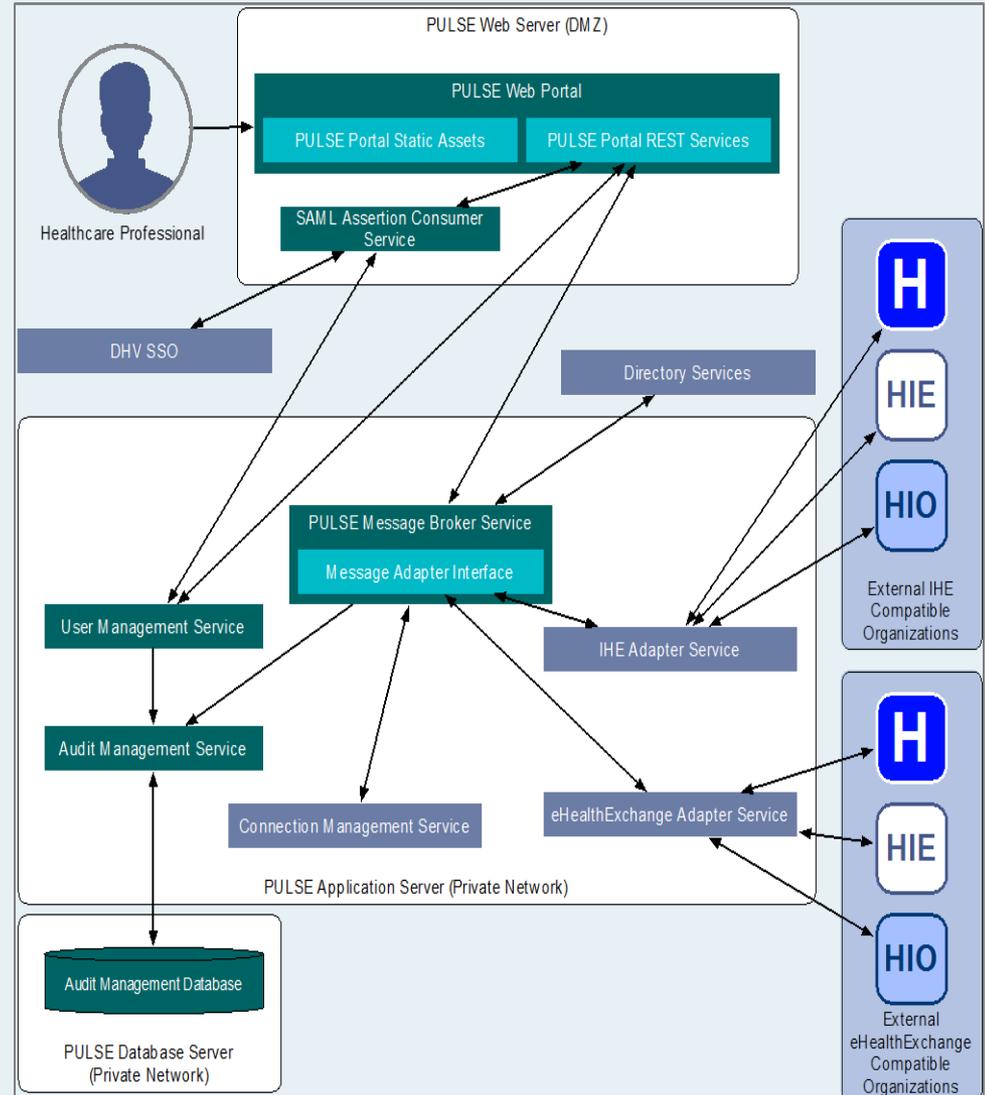
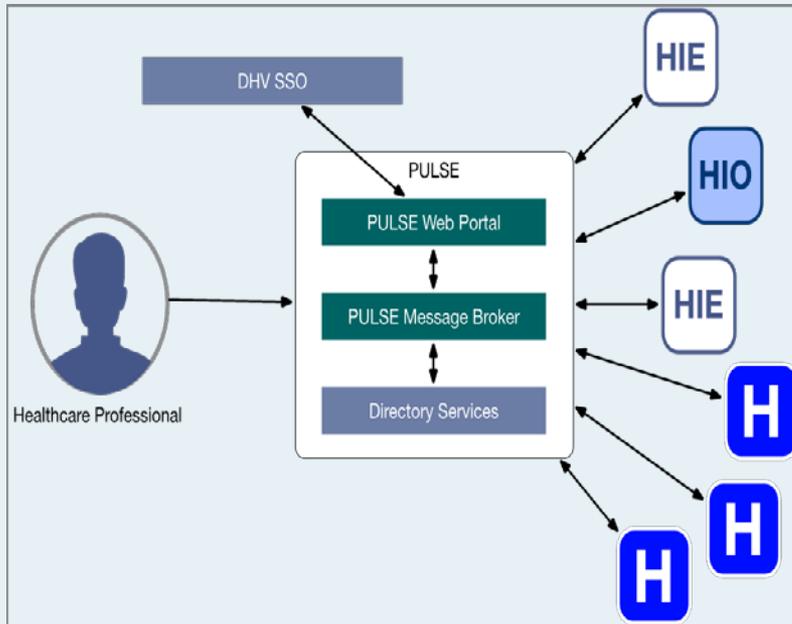
Medications

Insulin Lispro 50 UNT/ML / Insulin, Protamine Lispro, Human 50 UNT/ML Prefilled Syringe

Medication Allergies

No known allergies

PULSE Development



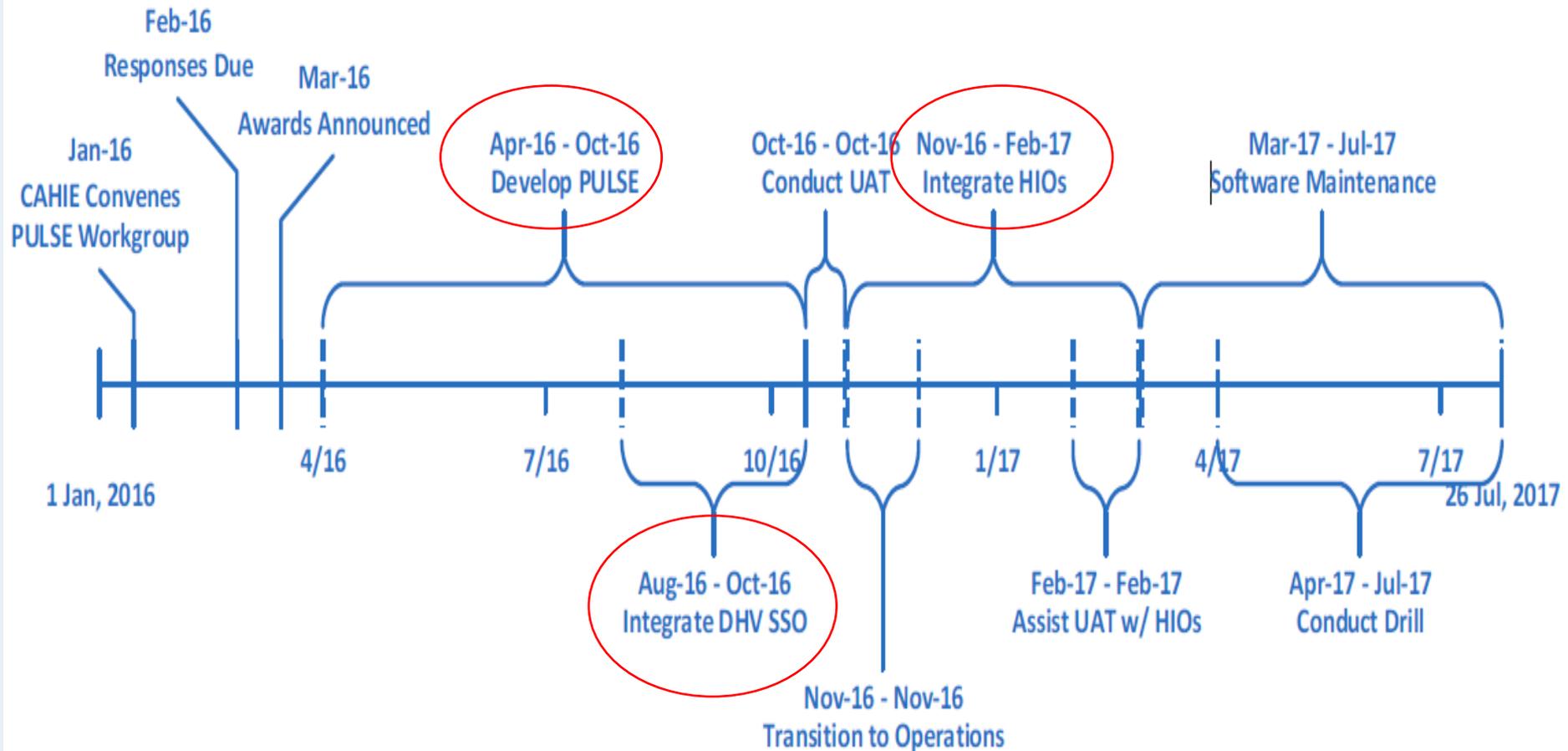
Practical Considerations

- ❖ Disaster healthcare worker workflows and use of data
- ❖ Credentialing Users
- ❖ Type and Breadth of Emergency Declarations
- ❖ HIPAA / Privacy and Security
- ❖ CalDURSA Contractual Framework
- ❖ Organizational and User Training and Awareness

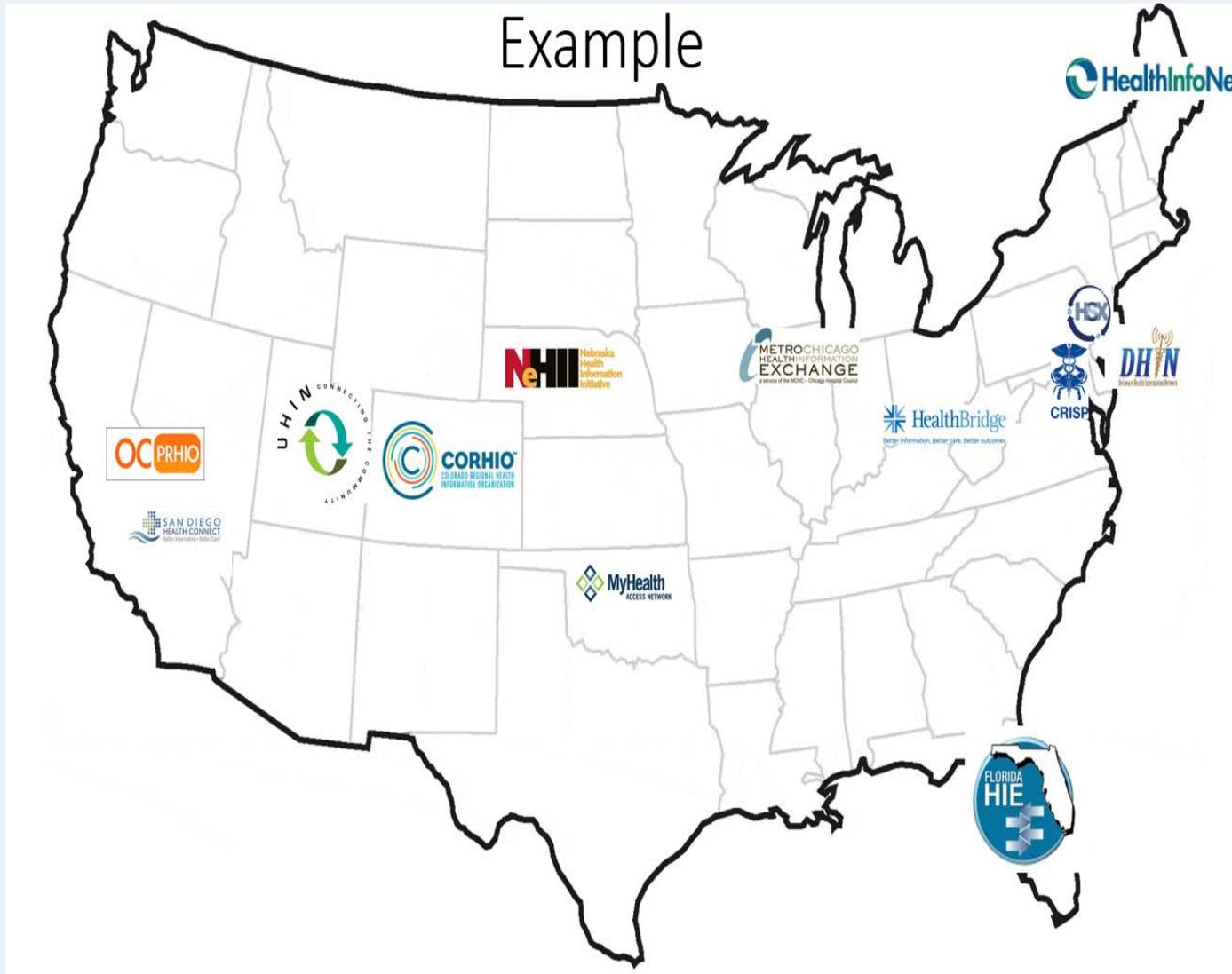
Incrementalism and a Focus on Execution

- ❖ An important aspect of driving willingness to participate in the use case was the limited circumstances in which cross-HIE access would be enabled.
- ❖ There are many ways in which this approach could be expanded, but a staying focused on near term execution is the best path to future enhancements
- ❖ While CaHIE and the HIOs throughout California coordinate to achieve the broader future objective of on-going exchange among HIOs (including with EMS), national experience suggests that smaller incremental steps can be valuable while still working towards that goal.

Timeline



Opportunity – National Critical Infrastructure





AUDACIOUS INQUIRY

**BOLD SOLUTIONS FOR
CONNECTED HEALTHCARE**

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