CDC HEALTH
DATA INNOVATION
SUMMIT

Atlanta, GA | September 27-28, 2023

**AGENDA:**
- What's Real?
- What's TEFCA, FHIR?
- What's Possible?
- What's Next?

Wed Sep 27, 4:10 PM - 4:40 PM EDT   (30 Min)  Room: 247/248

**Detailed Description of the Product or Service**
eHealth Exchange is a national network planning to become a QHIN under TEFCA.
Today, eHealth Exchange supports public health, most notably by supporting data flows for eCase Reporting.

Looking forward, the eHealth Exchange vision supports the CDC Public Health Data Strategy by leveraging FHIR and its current HIE, Provider and Federal partner participants (e.g. VA/DoD) to address several use cases including (but not limited to):
1. querying for supplemental demographics (to improve record linking),
2. querying for supplemental clinical data (to enable case follow-up),
3. enabling Provider and Patient access to data (to enable bi-directional exchange),
4. more advanced solutions, including Privacy Preserving Record Linking.

These Public Health use cases build on ~15 years of high-volume (~2 billion transactions per month) production experience under the DURSA "Trust" framework. Another specific example that we would like to present is the work with the FDA BEST program (which has been piloted under the DURSA using FHIR in production with ~12 large health systems including the VA to support follow-up on adverse drug events).

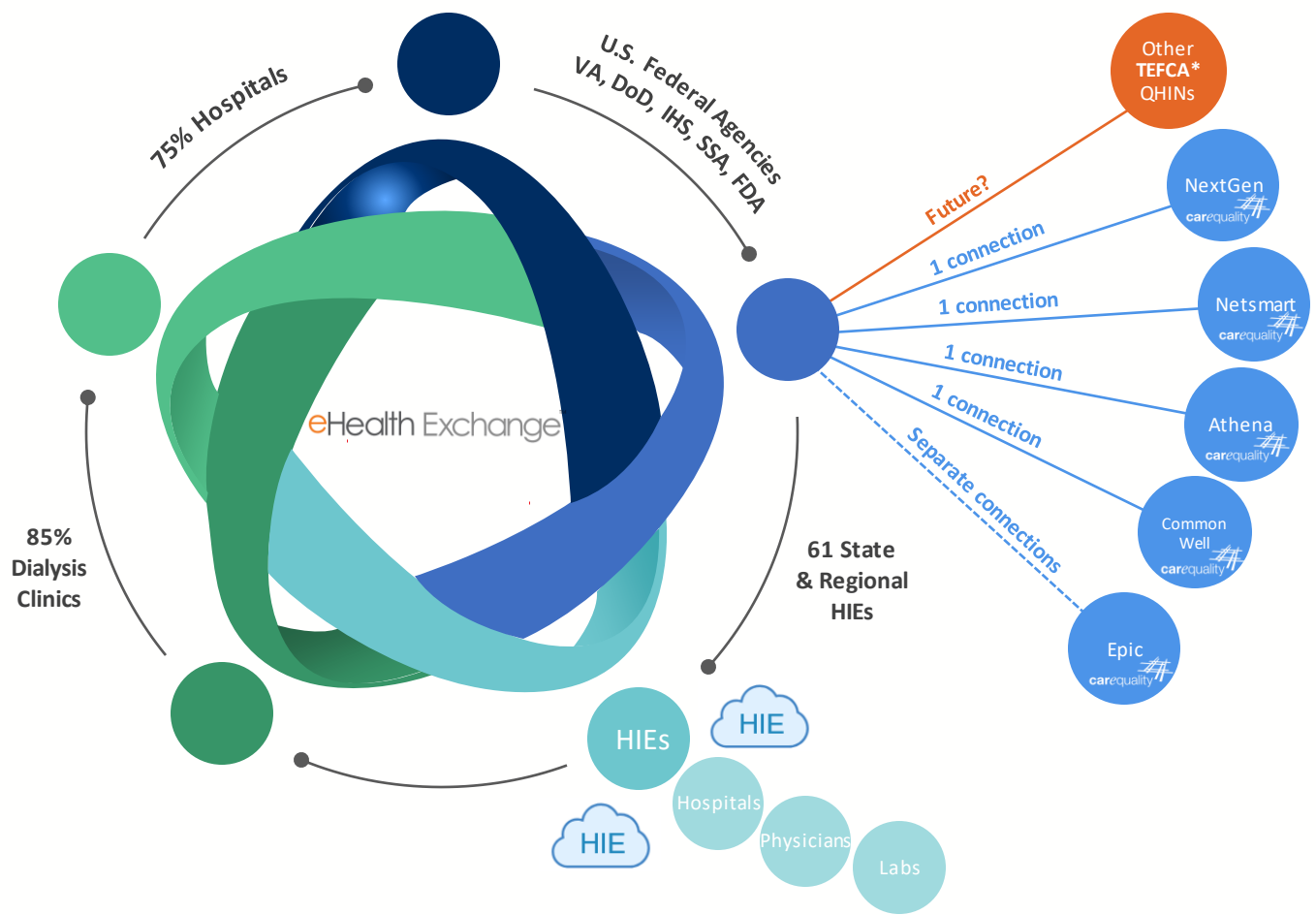https://www.fbcinc.com/e/CDCGA/agenda.aspx

# eHealth Exchange™

# What's Real?

## What's Real:
### 1 Connection & 1 Trust Agreement to Facilitate Exchange with 4,300 Hospitals Nationwide

Using a **Federated** hub & spoke architecture, eHealth Exchange participants leverage 1 connection to exchange **20 billion** transactions annually within **all 50 states**

- Via FHIR
- Via C-CDAs



75% Hospitals

U.S. Federal Agencies VA, DoD, IHS, SSA, FDA

85% Dialysis Clinics

61 State & Regional HIEs

Future?

1 connection
1 connection
1 connection
1 connection

Separate connections

Other **TEFCA\*** QHINs

NextGen *carequality*
Netsmart *carequality*
Athena *carequality*
Common Well *carequality*
Epic *carequality*

HIEs
HIE
Hospitals
HIE
Physicians
Labs

This single Connection & single Trust Agreement also provide exchange with **Carequality** & **TEFCA**.
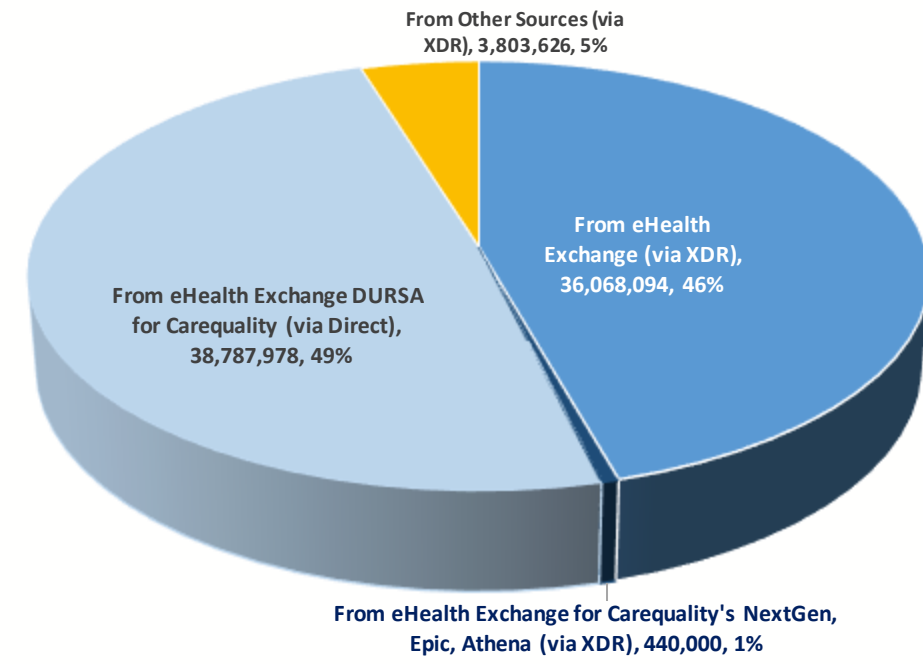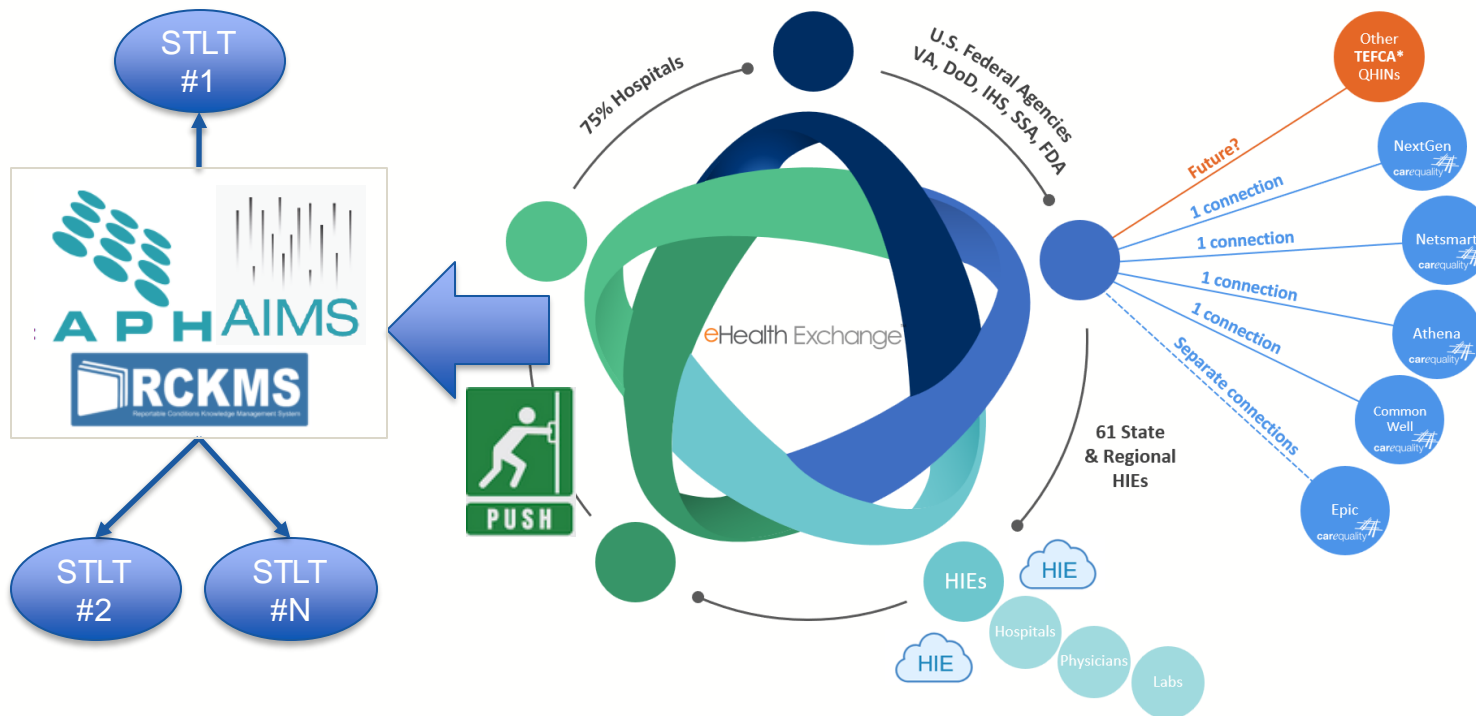
\*eHealth Exchange has been designated a "candidate QHIN"; TEFCA is not yet live.

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## What's Real:
eHealth Exchange plays a role in ~95% of all Electronic Case Reports submitted (at no additional cost)

NOTE: this function is aligned with the Public Health Data Strategy Goals #1 and #2 (strengthen core public health data; emphasis on eCR)
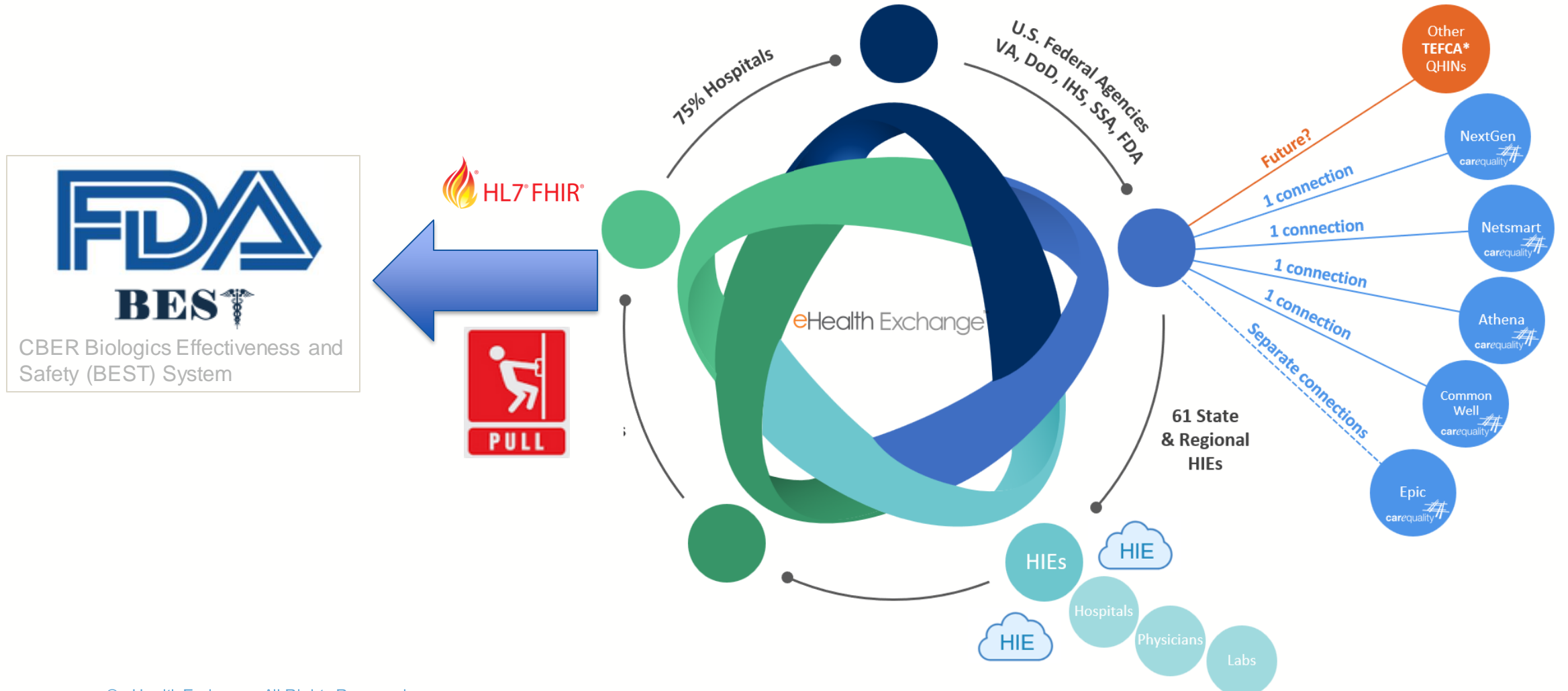


eICRs (June 2022 through May 2023)

From Other Sources (via XDR), 3,803,626, 5%

From eHealth Exchange (via XDR), 36,068,094, 46%

From eHealth Exchange DURSA for Carequality (via Direct), 38,787,978, 49%

From eHealth Exchange for Carequality's NextGen, Epic, Athena (via XDR), 440,000, 1%

## What's Real:

*1 Connection & 1 Trust Agreement to Facilitate "Networked FHIR" Exchange: VA (46 states) and 11 Large IDNs*

*NOTE: this function is aligned with the Public Health Data Strategy Goal #1 (and the use of FHIR messaging)*



CBER Biologics Effectiveness and Safety (BEST) System

https://ehealthexchange.org/wp-content/uploads/2023/01/1430-Public-Health-Pilot.pdf

| Permitted Purposes by eHealth Exchange | What's Real: Data Currently Exchanged in Production |
|---|---|
| 1. **Treatment** | 1. **Treatment:** 20 billion annual transactions |
| 2. **Public Health** | 2. **Public Health:**<br>• **Electronic Case Reporting (eCR):** eHealth Exchange facilitates <u>95% of the 80 million</u> case reports submitted to public health.<br>• **FDA FHIR R4 Adverse Events:** Millions of transactions annually<br>• **PULSE:** emergency preparedness in multiple states. |
| 3. **Healthcare Operations** (HCO) | 3. **Healthcare Operations:**<br>• 29 million annual SSA disability determination transactions<br>• 1 million annual life insurance underwriting transactions<br>• Minimal care management, case management, payer care coordination, or quality transactions, but conceivable via FHIR and/or TEFCA* |
| 4. **Payment** | 4. **Payment:** minimal (except when querying select HIE's) |
| 5. **Individual Access** | 5. **Individual Access:** - a handful of eHealth Exchange state & regional HIEs respond today; Required at TEFCA* go-live. |

*eHealth Exchange has been designated a "candidate QHIN"; TEFCA is not yet live.

# eHealth Exchange™

# What's TEFCA, FHIR?

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## Timeline to Operationalize TEFCA

ONC TEFCA RECOGNIZED COORDINATING ENTITY

**2021**
- Public engagement
- Common Agreement Work Group sessions
- RCE and ONC use feedback to finalize TEFCA

**Summer/Fall 2022***
- Finalize initial SOPs
- QHINs begin signing Common Agreement and applying for Designation

**2023**
- Establish Governing Council
- Follow change management process to iterate Common Agreement, SOPs, and QTF, including to support FHIR-based exchange

| 2021 | 2022 – Q1 | Q2 | Q3 | Q4 | 2023 |
|---|---|---|---|---|---|

**Q1 of 2022**
- Publish Common Agreement Version 1
- Publish QHIN Technical Framework (QTF) Version 1 and FHIR Roadmap
- Initiate work to enable FHIR-based exchange
- Public education and engagement

**Q3 and Q4 of 2022**
- Onboarding of initial QHINs
- Additional QHIN applications processed
- RCE establishes Transitional Council
- RCE begins designating QHINs to share data
- Prepare for TEFCA FHIR exchange pilots

*Updated per ONC Buzz Blog post, May 16, 2022    6

**TEFCA**
- GoLive expected in 2023
  - Purposes: Treatment, Individual Access

- GoLive targeted in 2024
  - Purposes: Public Health, Payment & Operations

**FHIR**
- Stage 1: Supported at GoLive (intra-QHIN)
- Stage 2: Facilitated FHIR (peer-to-peer)
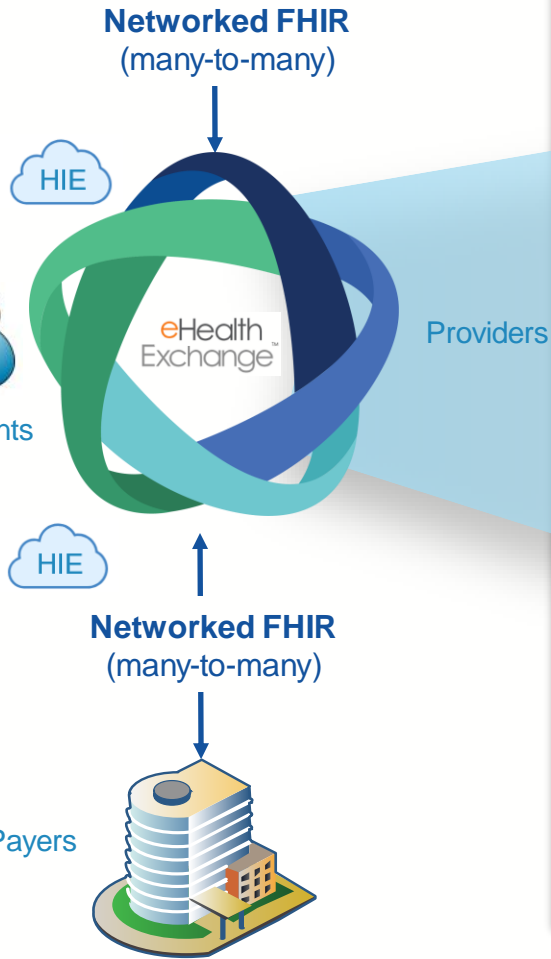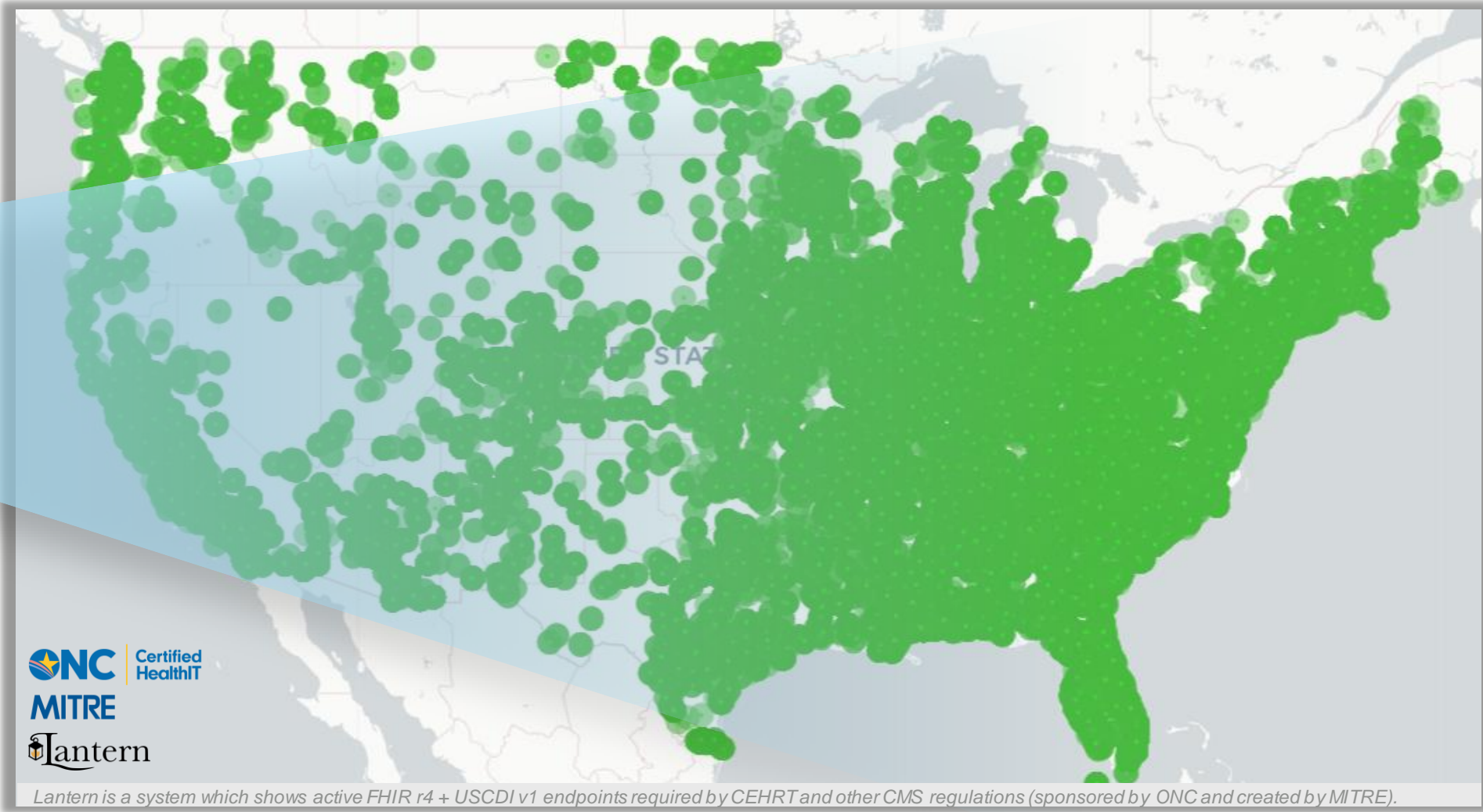- Stage 3: Brokered FHIR (via a hub)

**Key Points:**
- *TEFCA is imminent and part of CDC's PHDS (Goal #4)*
- *eHealth Exchange is a "candidate QHIN"*
- *"Networked FHIR" could accelerate Public Health adoption*

https://www.healthit.gov/sites/default/files/facas/2022-10-13_TEFCA_RCE_Presentation_508.pdf
https://rce.sequoiaproject.org/three-year-fhir-roadmap-for-tefca/

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Public Health

**Facilitated FHIR**
(one-to-one)

*Building on the FDA BEST production experience (using "Networked FHIR" for Public Health), can this approach jump start TEFCA and FHIR adoption?*

**Networked FHIR**
(many-to-many)

HIE

eHealth Exchange

Patients

Providers

HIE

**Networked FHIR**
(many-to-many)

Payers

ONC | Certified HealthIT

MITRE

Lantern

*Lantern is a system which shows active FHIR r4 + USCDI v1 endpoints required by CEHRT and other CMS regulations (sponsored by ONC and created by MITRE).*

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**What's Possible?**

# PURPOSE: to enable querying for supplemental data and/or eCR (Public Health Data Strategy Goals #1, 2)

## NSSP Facility Participation by US County

Non-federal Emergency Care Participation in the National Syndromic Surveillance Program: April 1, 2023, to July 1, 2023.

1. NSSP, eLR, eCR Feeds (Triggers w/ MRN^Source)

2. Query (SOAP+CDA and/or FHIR)

3. Push Supplemental Data (or eCR)

HIE    HIE

STLT #1

STLT #2    STLT #N

APHL    AIMS    RCKMS

NNDSS — National Notifiable Diseases Surveillance System
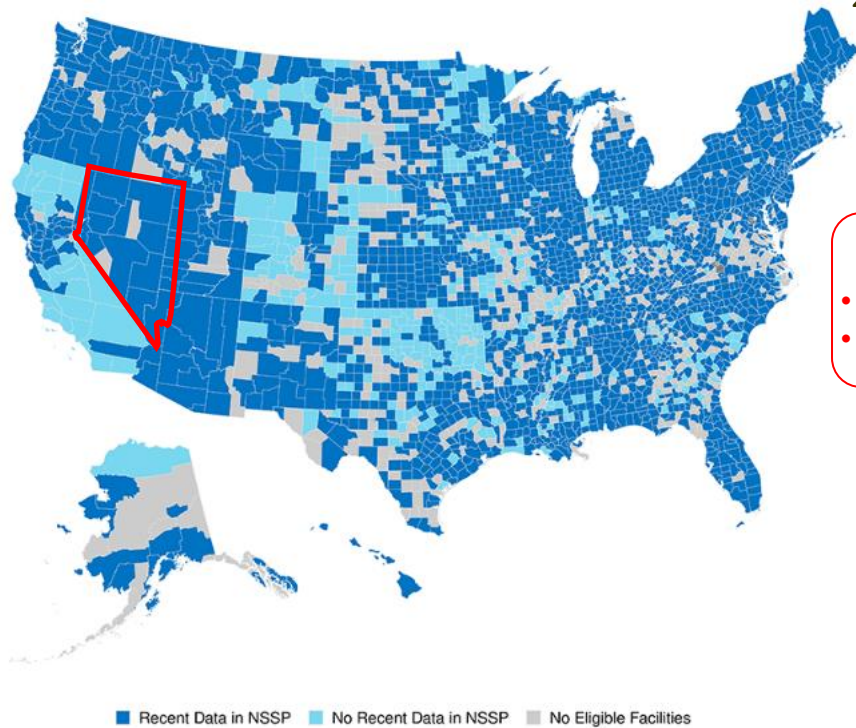
**Example: Nevada**
- NSSP has connectivity in rural areas
- eCR has gaps in the same rural areas

Recent Data in NSSP    No Recent Data in NSSP    No Eligible Facilities

Healthcare Implementation Location

https://www.cdc.gov/nssp/participation-coverage-map.html
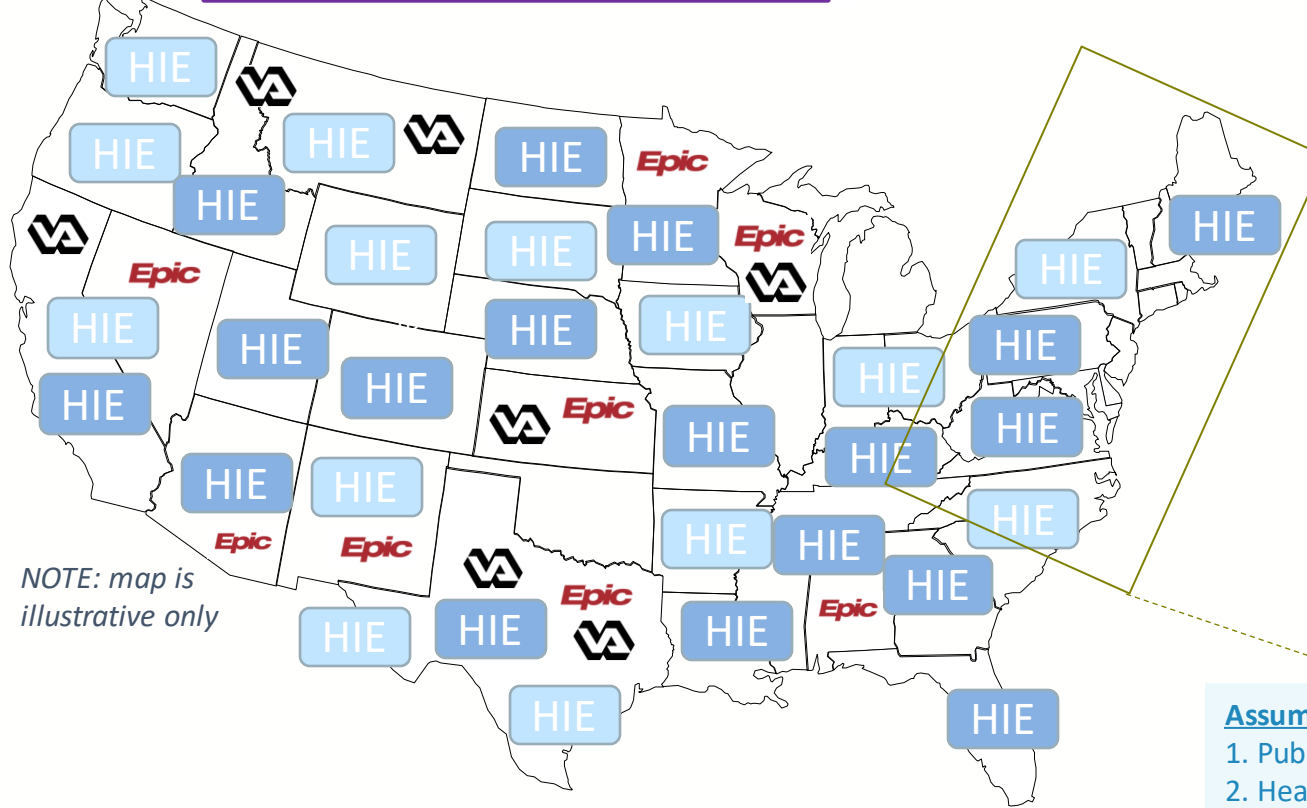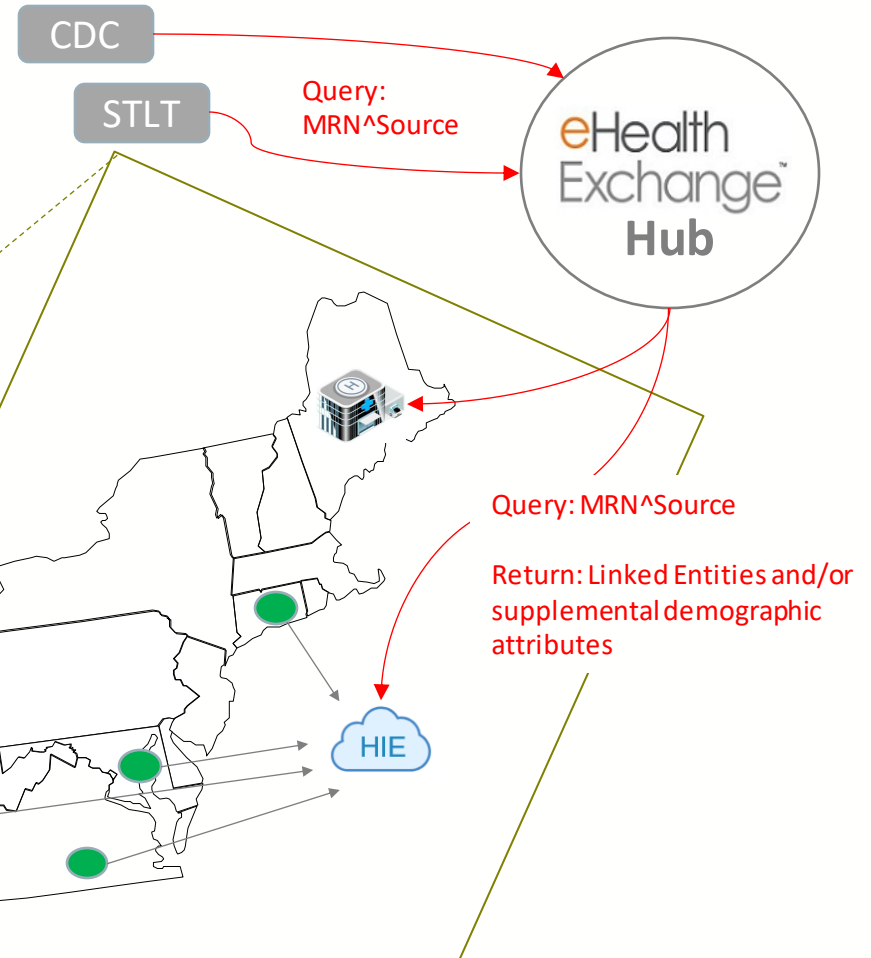
https://www.cdc.gov/ecr/facilities-map.html
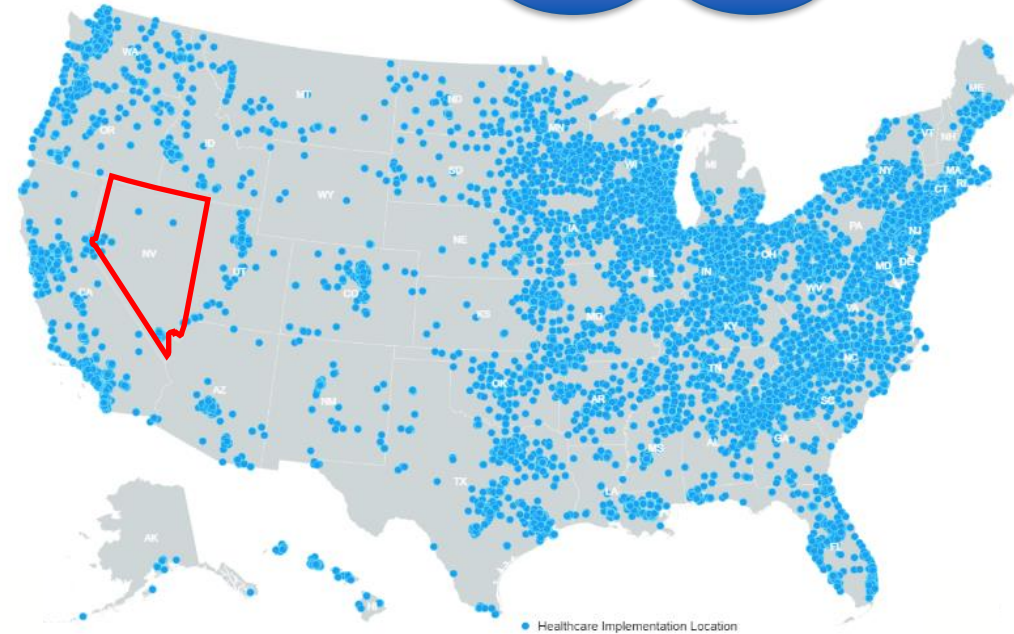
**PURPOSE:** to enable linking records across multiple data streams (Public Health Data Strategy Goal #2)

Supplemental Data Attributes

| Jane Doe | Female | White | Non-hispanic | 410-252-1222 \| 112 Maple Street \| EUID 111 |
| Jane Doe | Female | | | 410-252-1222 \| 112 Maple Street \| EUID 111 |
| John Doe | Male | | Non-hispanic | 212-999-7676 \| 101 Pine Avenue \| EUID 999 |
| John Doe | | Black | Non-hispanic | 212-999-7676 \| 101 Pine Avenue \| EUID 999 |

CDC

STLT

Query: MRN^Source

eHealth Exchange Hub

Query: MRN^Source

Return: Linked Entities and/or supplemental demographic attributes

HIE

*NOTE: map is illustrative only*

**Assumptions / Key Points:**
1. Public Health may have limited demographics with reportable data
2. Health Systems can be queried with MRN^Source to get additional demographics
3. HIE's have MPI's as a core component with a range of demographic data sources
4. Supplemental demographics could further improve matching and de-duplication

**PURPOSE:** to create reusable technologies and building blocks for STLTs (Public Health Data Strategy Goal #2)

## Data Integration Building Blocks (DIBBs)
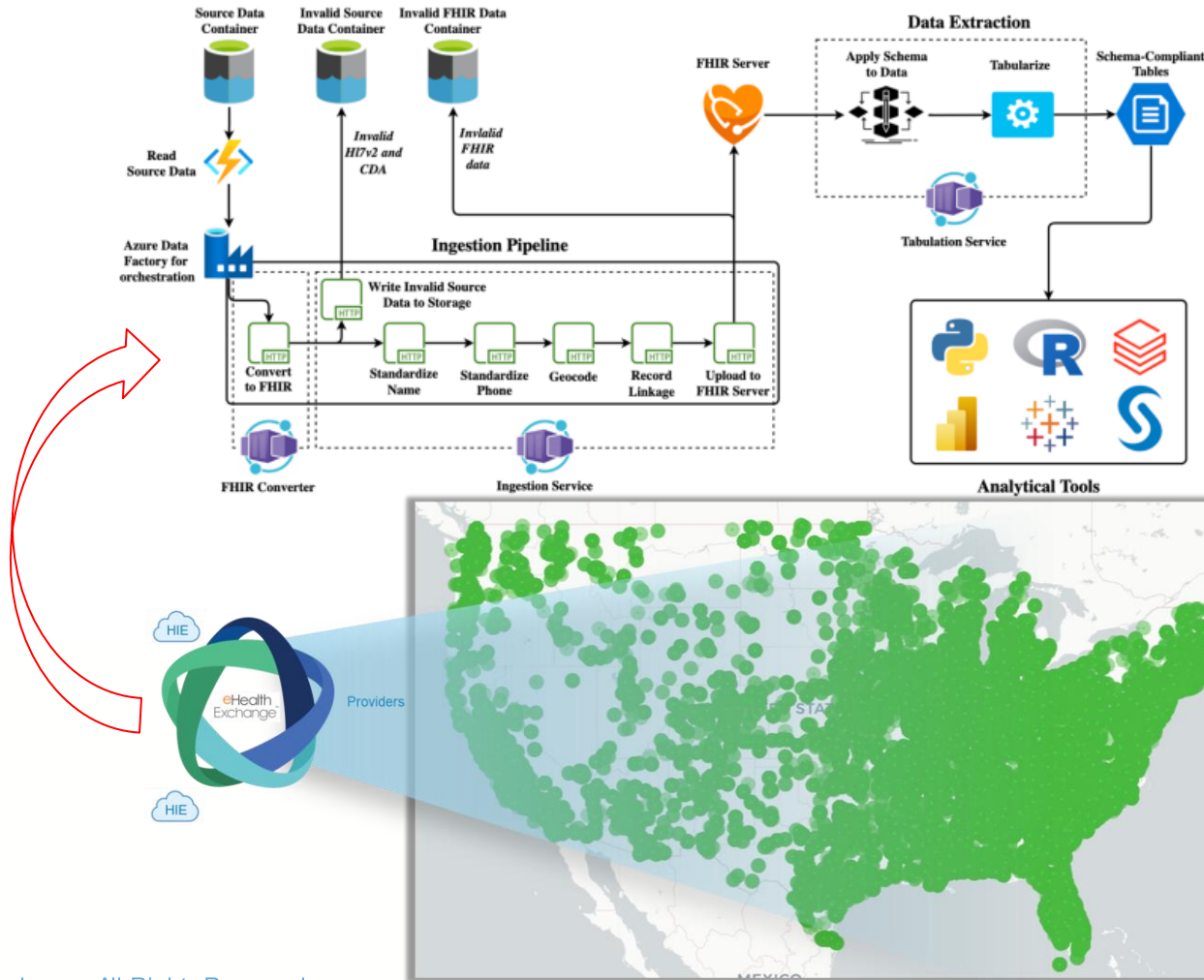


**Status:**
- ✓ Virginia and LA County Pilots
- ✓ Continued development underway

Concept:
create a plug-in to eHealth Exchange (for supplemental data queries, etc)

**Helios Align & Optimize:
Connectathon 34 Testing (10-11Sep2023)
Public Health Query for Supplemental Data
for Newborn Screening**

https://s3.amazonaws.com/bizzabo.file.upload/CgIZxhMUSIGUOL6VTiPg_skylight_ONC-CDC_industry_days.pdf
https://confluence.hl7.org/pages/viewpage.action?pageId=175606977

# ADDITIONAL CONCEPTS: Public Health Use Case Examples

| # | Source | Destination | Type | Description |
|---|--------|-------------|------|-------------|
| 1 | Provider | STLT | Push | **Electronic Case Reporting (Push Notifications to APHL)** <br> Enables providers' EHRs to automatically notify public health agencies with COVID, Monkeypox, etc rich clinical details, even when state and local reporting requirements vary. Free service to providers using eHealth Exchange, NextGen, Athena, and Epic Care Everywhere networks. |
| 2 | Provider | FDA 🔥 | Push | **Vaccine Adverse Event Alerts (Push Notifications to FDA CBER)** <br> Providers send adverse event notifications with core clinical details to FDA CBER. |
| 3 | Provider | FDA 🔥 | Pull | **Vaccine Adverse Event Alerts Investigations (Pull from Providers' EHRs)** <br> FDA retrieves all available clinical data on previously reported/identified vaccine adverse event cases (e.g., facial nerve palsy following immunization) to confirm the adverse events meet clinical case definition criteria. |
| 4 | Providers | Emergency Responders | Pull | **PULSE (Pull from State HIEs & Providers' EHRs)** <br> Volunteer clinicians in makeshift clinics retrieve patient histories for displaced patients to make safer, more informed decisions. |
| 5 | PDMP | Providers 🔥 | Pull | **Prescription Drug Monitoring Program (Providers Pull Medications from PDMPs)** <br> Instead of leveraging PDMP web portals, providers retrieve medication histories using natural workflows via FHIR or NCPDP. Ready for live/production when Dept of Justice signs eHealth Exchange trust agreements. |
| 6 | Providers | CDC 🔥 | Push | **Healthcare Associated Infection & Antimicrobial Use and Resistance Exchange with CDC National Healthcare Safety Network (NHSN)** <br> Kickoff phase for notifiable condition exchange in partnership with Lantana consulting. |
| 7 | Providers | STLT | Pull | **Case Augmentation / Follow-up** <br> Augment eLR, eCR and Syndromic Surveillance by querying for supplemental data with MRN and Source. |

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| # | Source | Destination | Type | Description |
|---|---|---|---|---|
| 8 | EMS | STLT | Push | **CONCEPT** **Opioid Event Reporting** An EMS run/ride sheet could be pushed to eHealth Exchange for routing to and HIE and/or Public Health and to the ambulance destination hospital. This fills reporting gaps where the ambulance does not deliver the patient to the hospital. |
| 9 | IIS | Provider or Patient | Pull | **CONCEPT** **Immunization (and Clinical) Record Access** Today, the CDC's nationwide immunization gateway has selective connectivity, and there otherwise is not a single endpoint to query for immunization records. Further, IIS queries are generally only allowed from CEHRT (and not from entities using non-CEHRT, or even include individual access for IZ or clinical records (w/ TEFCA)) |
| 10 | Provider | Social Services | Pull | **CONCEPT** **Medication Record Access** Enable access to medication lists during juvenile justice care, foster care and other social service scenarios. |
| 11 | Provider | Vital Statistics | Pull | **CONCEPT** **Medical Record Access** Vital statistics commonly needs access to medical records during autopsies and when issuing death notices. |
| 12 | HIE or Provider | Public Health | Pull | **CONCEPT** **Privacy-Preserving Record Linking** National Networks (and future TEFCA QHINs) may enable an opportunity for a more centralized implementation of PPRL to enable expanded public health surveillance within current privacy laws, regulations (and public perception). |
| 13 | Provider | Public Health | Push | **CONCEPT** **Notifiable Condition Detector** National Networks (and future TEFCA QHINs) may enable an opportunity for additional syndromic surveillance by scanning network traffic for Public Health Notifiable Conditions (to augment or redundancy to S.S., eLR, eCR). |
| 14 | HIE, STLT or Provider | STLT or CDC | Pull | **CONCEPT** **Demographic, Social and Comorbidity Data Table** HIE's (and/or STLTs) typically have a robust MPI which includes additional attributes for diagnoses and, more recently, RELSOGI data to enable regional equity analytics. This regionally curated data (under a national trust framework) could serve as a federated sources for national statistics. |

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## What's Next?

**1. TEFCA:** engage and understand the framework and SOPs; work to close policy or technology gaps.
https://rce.sequoiaproject.org/tefca-and-rce-resources/

**2. FHIR:** HL7 Helios … engage and shape the use cases to fit Public Health needs.
https://confluence.hl7.org/display/PH

**3. Implementation:** let's pilot these concepts today (to make "What's Possible" into "What's Real"!!!).
https://ehealthexchange.org/communications/

**4. Roadmap:** align with the CDC Public Health Data Strategy (DMI & "North Star") roadmap and goals.
https://www.cdc.gov/ophdst/public-health-data-strategy/public_health_data_strategy-final-p.pdf

**Topics** (agenda/speakers are being finalized):

- Implementing Trusted Exchange Framework and Common Agreement (TEFCA)
- Supporting public health
- Reaching rural health
- Expanding federal agency participation
- Increasing data usability
- Spreading FHIR
- Exploring the network roadmap

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