The Patient Unified Lookup System for Emergencies (PULSE) Community – Listening Session & Workshop

Office of the National Coordinator for Health Information Technology (ONC)

February 9, 2022

The Office of the National Coordinator for Health Information Technology

Agenda

- Opening Remarks
- Workshop Objectives
- Emergency Management Landscape
- Overview of the PULSE Initiative
- Deep Dive on PULSE Community
- State Panel: PULSE Implementation Perspectives
- BREAK
- Breakout Groups
- The Future of PULSE Initiative & PULSE Community
- Wrap-up

Welcome

Rim Cothren
EMI Advisors

Kristina Celentano
EMI Advisors

Rachel Abbey
ONC

Kate Ricker-Kiefert
EMI Advisors

Brenda Kiritkumar
EMI Advisors

Opening Remarks

Micky Tripathi, Ph.D., M.P.P.

National Coordinator for Health Information Technology,
U.S. Department of Health and Human Services

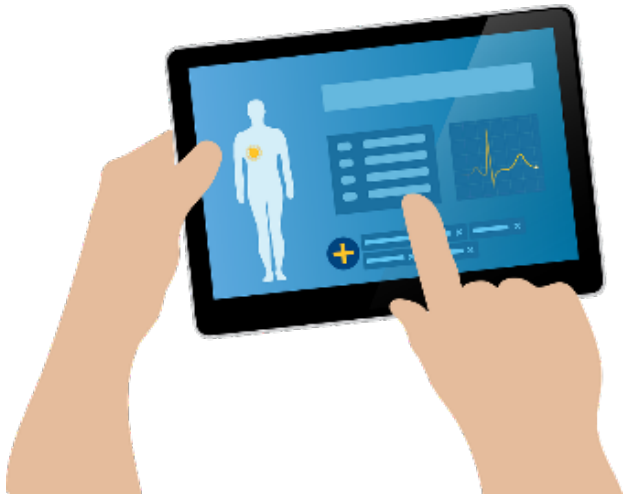
Workshop Objectives

Objectives

- Raise awareness of the PULSE Initiative and PULSE Community.
- Discuss state and local planning and implementation considerations for PULSE Community.
- Engage in peer-to-peer discussions to identify challenges and mitigation strategies.
- Discuss the opportunities for the future of the PULSE Initiative and PULSE Community.
- Discuss opportunities for improving access to health information during disasters and emergencies.

What is the PULSE Initiative?

- **PULSE™** stands for the Patient Unified Lookup System for Emergencies.
- **The PULSE Initiative** is an effort to support national resilience through access to health information during disasters, including public health emergencies.
- **PULSE Community** a technical solution managed by ONC that is designed to be a code only resource that is scalable, flexible, non-proprietary, and available at no cost to state, territorial, local, and tribal governments and their public and private sectors partners.



Emergency Management Landscape

What is Emergency Services and Disaster Management?

An organized analysis, planning, decision making, and assignment of available resources to prevent, prepare for, mitigate, respond to and recover from the effects of all hazards.

Emergency Services

- Refers to the day-to-day activities that fire or police departments perform that are part of their planned, anticipated, budgeted daily routine.
- Activities may include putting out fires, rescuing injured victims from vehicle accidents, tending to heart attack victims, directing traffic, or even rescuing cats from trees.
- Part of being part of the planned daily routine which does not upset the overall patterns of a community, these types of events do not generate unmet organizational needs.

Disaster Management

- Refers to situations, events, or occasions when a community's resources are perceived as not sufficient, and unmet social needs are generated.
- Social life becomes disrupted for much of the community, and the community must reach to the outside environment for additional resources.

Background – Examples of Disaster Types

Human Caused	Natural	Technological
• Active Shooter • Bombs and Explosives • Cyber Crime • Terrorism	• Avalanche • Drought • Earthquake • Epidemic/Pandemic • Flood • Hurricanes • Landslide • Severe Storm • Tornado • Wildfire • Winter Storm/Blizzard	• Hazardous Material Release • Infrastructure Failure

*Sources: https://www.fema.gov/sites/default/files/2020-04/NRF_FINALApproved_2011028.pdf and http://www.coemergency.com/

National Preparedness and Response

ASPR
ASSISTANT SECRETARY FOR PREPAREDNESS AND RESPONSE

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

FEMA

National Preparedness Goal

"*A secure and resilient nation with the capabilities required across the whole community to prevent, protect against, mitigate, respond to, and recover from the threats and hazards that pose the greatest risk.*"

National Preparedness System

The National Preparedness System outlines an organized process for everyone in the **whole community** to move forward with their preparedness activities and achieve the **National Preparedness Goal.**

Six Parts of the National Preparedness System

1. Identifying and Assessing Risk
2. Estimating Capability Requirements
3. Building and Sustaining Capabilities
4. Planning to Deliver Capabilities
5. Validating Capabilities
6. Reviewing and Updating

*Source: Presidential Policy Directive / PPD-8 National Preparedness (dhs.gov). https://www.dhs.gov/xlibrary/assets/presidential-policy-directive-8-national-preparedness.pdf

Five Preparedness Mission Areas and Five National Planning Frameworks

- In order to achieve the National Preparedness Goal, the National Preparedness System integrates efforts across the five preparedness mission areas:
  - Prevention,
  - Protection,
  - Mitigation,
  - Response and
  - Recovery

- Five national planning frameworks that reflects five preparedness mission areas.

Five National Planning Frameworks included in the National Preparedness System

*Source: CDC presentation

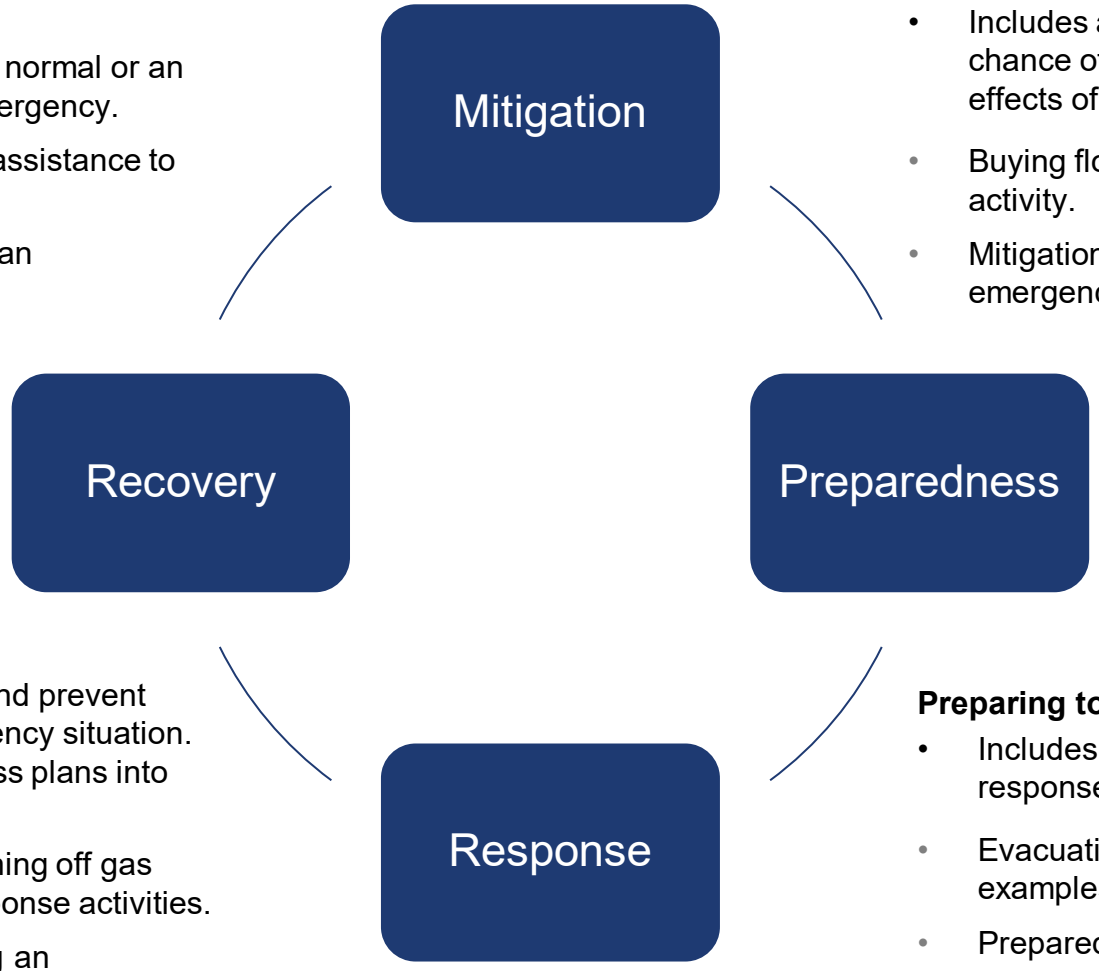
Emergency Management Lifecycle

Recovering from an emergency

- Includes actions taken to return to a normal or an even safer situation following an emergency.
- Recovery includes getting financial assistance to help pay for the repairs.
- Recovery activities take place **after** an emergency.

Preventing future emergencies or minimizing their effects

- Includes any activities that prevent an emergency, reduce the chance of an emergency happening, or reduce the damaging effects of unavoidable emergencies.
- Buying flood and fire insurance for your home is a mitigation activity.
- Mitigation activities take place **before** and **after** emergencies.



Responding safely to an emergency

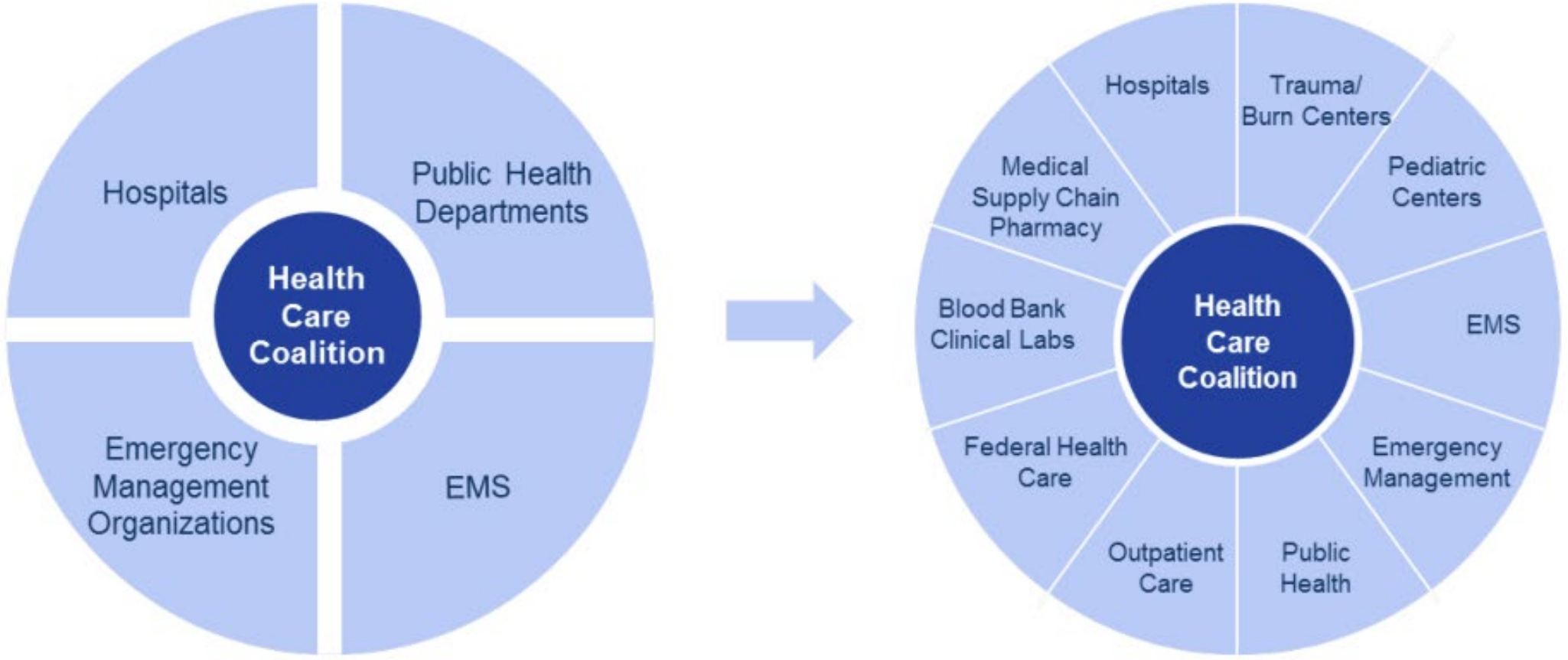
- Includes actions taken to save lives and prevent further property damage in an emergency situation. Response is putting your preparedness plans into action.
- Seeking shelter from a tornado or turning off gas valves in an earthquake are both response activities.
- Response activities take place **during** an emergency.

Preparing to handle an emergency

- Includes plans or preparations made to save lives and to help response and rescue operations.
- Evacuation plans and stocking food and water are both examples of preparedness.
- Preparedness activities take place **before** an emergency occurs.

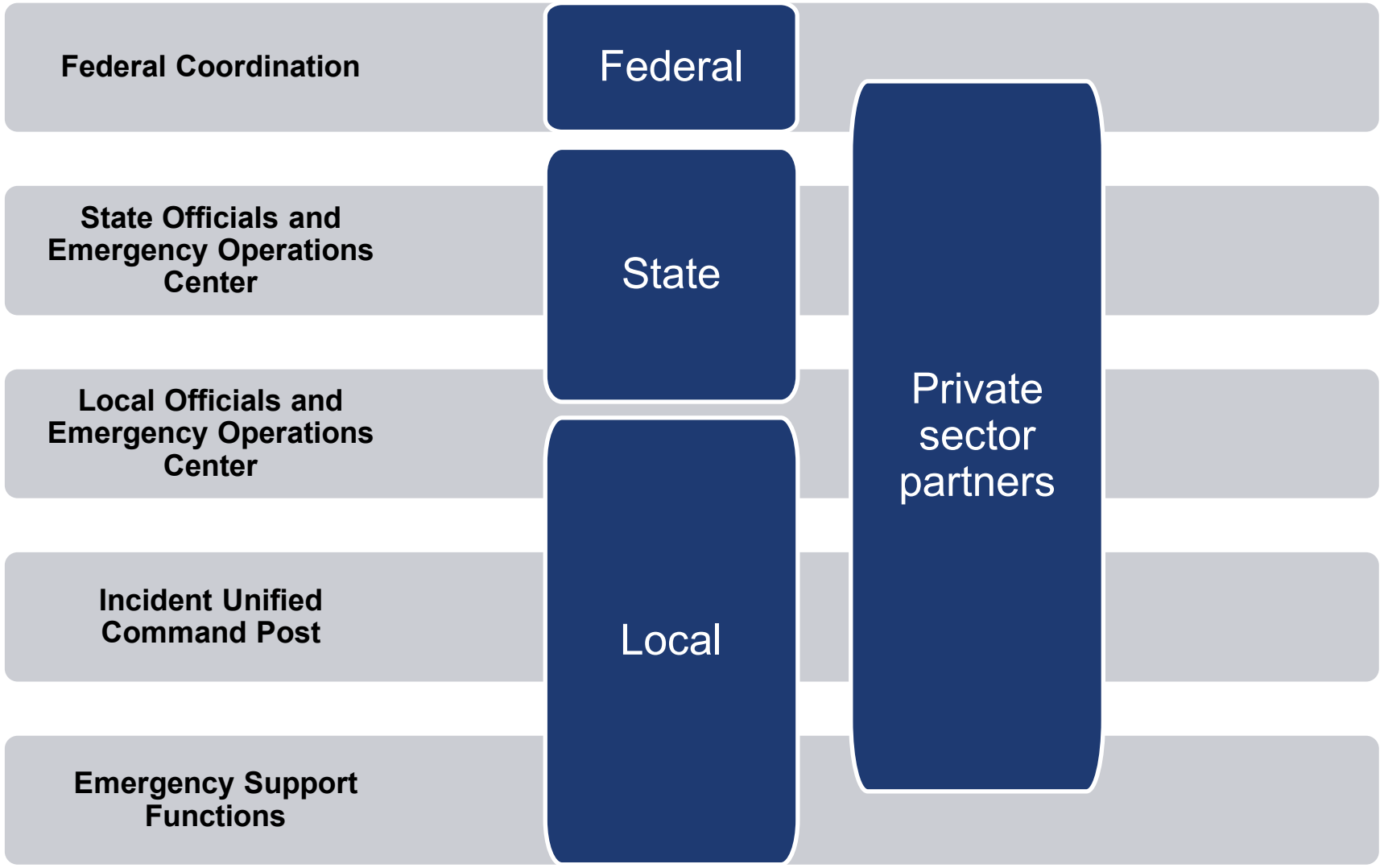
*Source: https://training.fema.gov/emiweb/downloads/is111_unit%204.pdf

Emergency Management Partnerships



*Source: https://www.phe.gov/Preparedness/planning/authority/nhss/Documents/2019-2022-nhss-ip-v508.pdf

Federal, State & Local Roles & Coordination



*Source: https://www.fema.gov/sites/default/files/2020-04/ https://www.fema.gov/sites/default/files/2020-04/

Role of Data & Information Technology (IT) in Public Health Emergency Response

CDC Public Health Emergency Response Readiness
Capability 6: Information Sharing

- Increases alignment with National Strategy for Biosurveillance and CDC.
- Surveillance Strategy.
- Emphasizes need to implement data security and cybersecurity protocols.
- Promotes adherence to certified electronic health records (EHR) technologies and standards.
- Strengthens information sharing to decrease reporting time and increase collaboration through use of electronic information systems, such as electronic death registration (EDR), electronic laboratory reporting (ELR), and syndromic surveillance systems.
- References need for inventory data exchange depending on medical countermeasure type.
- Encourages information sharing with fusion centers and intelligence.

*Source: https://www.cdc.gov/cpr/readiness/fb_2018_15capabilities.html

Overview of the PULSE Initiative

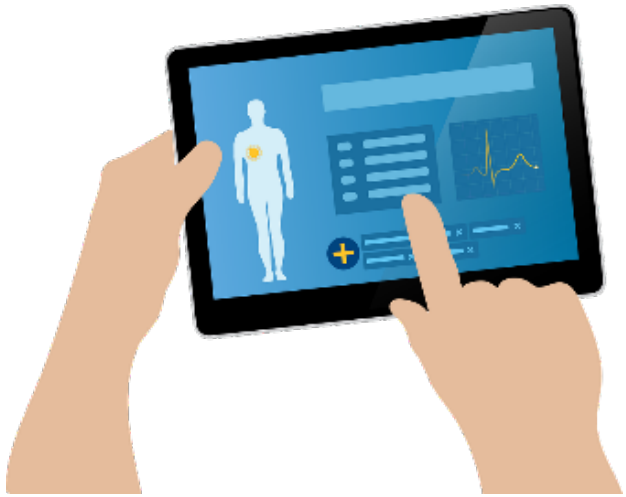
Need for Access to Health Information During Disasters

- There is widespread adoption of electronic health records (EHRs) by most hospitals (96%) and office-based physicians (86%).*
- Health care providers and first responders at alternative care facilities (e.g., shelters) are often volunteers—who may not have access to an electronic health record system but are credentialed and authorized to provide care during a disaster.
- During a disaster, many people will seek care outside of their “traditional health care environments”—continuity of care is broken
- Providers and first responders serving disaster patients need basic information such as allergies, current medications, and problems—providers can not rely on patient knowledge in times of extreme stress.

*Source: https://www.healthit.gov/data/quickstats

What is PULSE?

- The PULSE Initiative is an effort to support national resilience through access to health information during disasters, including public health emergencies.
- PULSE provides a state with autonomy over activation, which helps ensure privacy and security, while allowing connections statewide and to nationwide networks when necessary.
- PULSE can leverage systems such as a state's Emergency System for Advance Registration of Volunteer Health Professionals (or ESAR-VHP) when activated.



How Does PULSE Work?

- Authorized personnel log into the PULSE web portal that can optionally be authenticated against the state's credentialed volunteer database (ESAR-VHP).
- Authorized personnel at alternative care facilities can search for patient records from all connected providers and networks.
- Authorized personnel can retrieve and view patient records while treating them at the alternative care facilities.

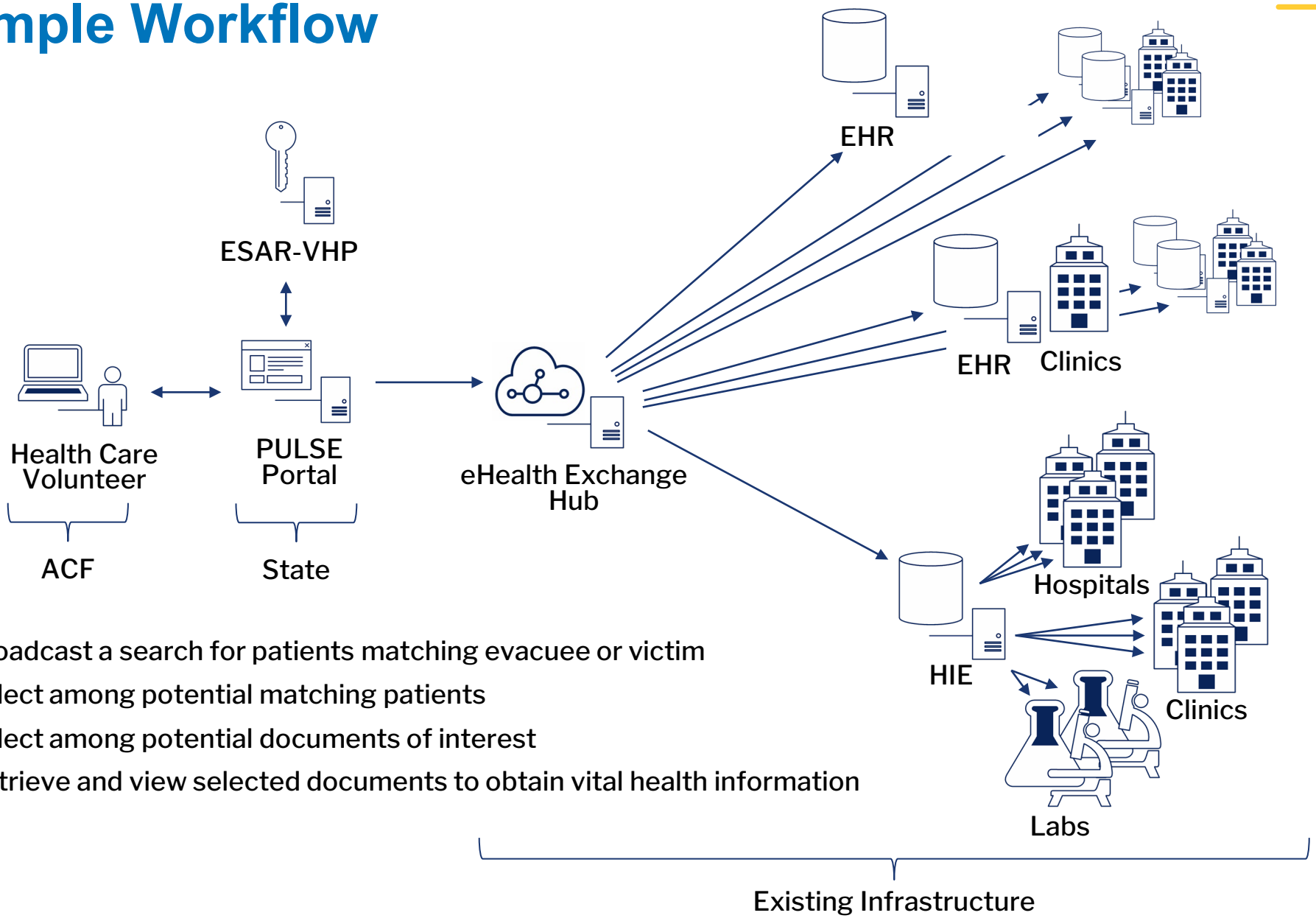
What Does PULSE Do?

PULSE enables authorized disaster healthcare personnel and first responders to view health information to treat people who are displaced or seeking care during disasters.

PULSE Community (ONC Developed)

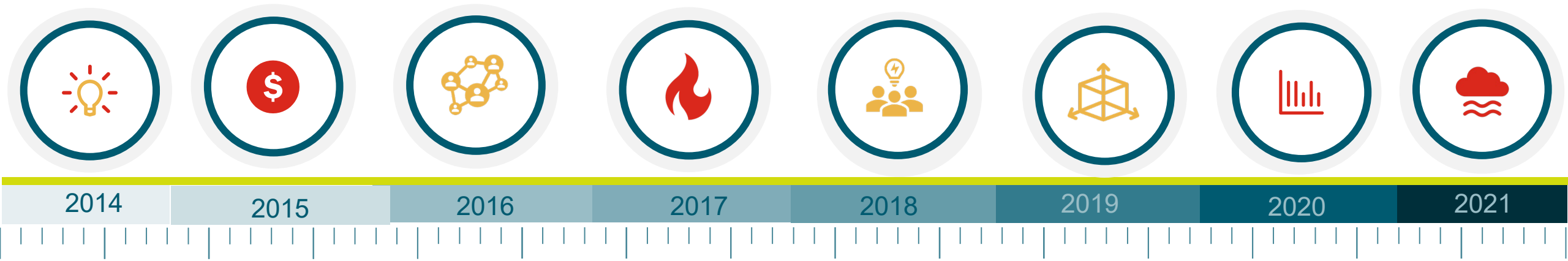
- PULSE Community is a non-commercial version of PULSE created by ONC and freely available to states.
- Gives state and local governments the flexibility to build upon existing health information exchange infrastructure to create a more customized PULSE program that utilizes existing resources.
- A code only solution and not a technology product.
- This solution is scalable, flexible, non-proprietary, and available at no cost to state, territorial, local, and tribal governments, and their public and private sector partners through the ONC GitHub.

Sample Workflow



1. Broadcast a search for patients matching evacuee or victim
2. Select among potential matching patients
3. Select among potential documents of interest
4. Retrieve and view selected documents to obtain vital health information

PULSE Initiative Timeline



April 2014
ONC evaluates use of HIE infrastructure for disaster preparedness and response

March 2015
PULSE use case and technical architecture published

July 2015
ONC awards EMSA a grant to advance health information exchange statewide during a disaster and regional in day-to-day use by EMS

March 2016
EMSA begins PULSE deployment

November 2017
PULSE activated for CA fires

January 2018
PULSE Advisory Council formed

August 2019
ONC awards contracts for PULSE Community technical enhancements

March 2020
CA deployed PULSE for COVID-19

August 2020
CA deploys PULSE for wildfires

August 2020
ONC launches GitHub Repository

August 2021
TX deploys PULSE Enterprise for Hurricane Ida flooding in Texas and Louisiana

August 2021
ONC awards contract for PULSE Community Assessment

PULSE Community Assessment in 2022

- Conduct a comprehensive technical evaluation of PULSE Community.
- Facilitate a workshop with key partners to understand how PULSE Community can be used, implemented and built and what resources would be needed.
- Develop a written independent assessment of the findings including, a summary of the convening, summary of technical evaluation, challenges and next steps.

Deep Dive on PULSE Community

PULSE Community Value Proposition

Purpose	A technical solution that enables first responders and health care volunteers to access vital health information during disasters.
What it is	A means for authorized disaster health care personnel to search for, retrieve, and view health information regionally or nationwide from an alternate care facility (ACF) via the Internet.
What it's not	A system to document the care delivered to victims or evacuees, to prescribe medications, or to track the location of evacuees at a shelter or care facility.

Provides:

- Event activation
- Access controls
- Dashboard & metrics
- Audit logging
- User management
- Single sign-on with ESAR-VHP
- ACF management
- ACF selection

Broadcasted:

1. Patient search
2. Document query
3. Document retrieval

Sample Use Cases

- Day-to-day emergencies
  - Support for first responders that do not have access to health records
- Evacuation of victims to shelters
  - Avalanches/landslides, earthquakes, floods, storms, terrorist events, wildfires that evacuate/destroy homes and require medical support for individuals at evacuation shelters
- Disrupted access to existing healthcare infrastructure
  - Avalanches/landslides, cybercrime, earthquakes, floods, infrastructure failures, storms, wildfires that disable local health facilities and require care to be provided at alternate locations
  - Pandemics, hazardous material releases, active shooter, acts of terrorism that overwhelm existing health infrastructure and require surge capacity

Accessing PULSE Community

How & Where?

- Contact ONC at email address (ONCPULSE@hhs.gov).
- Source code and implementation guide is available on ONC GitHub.

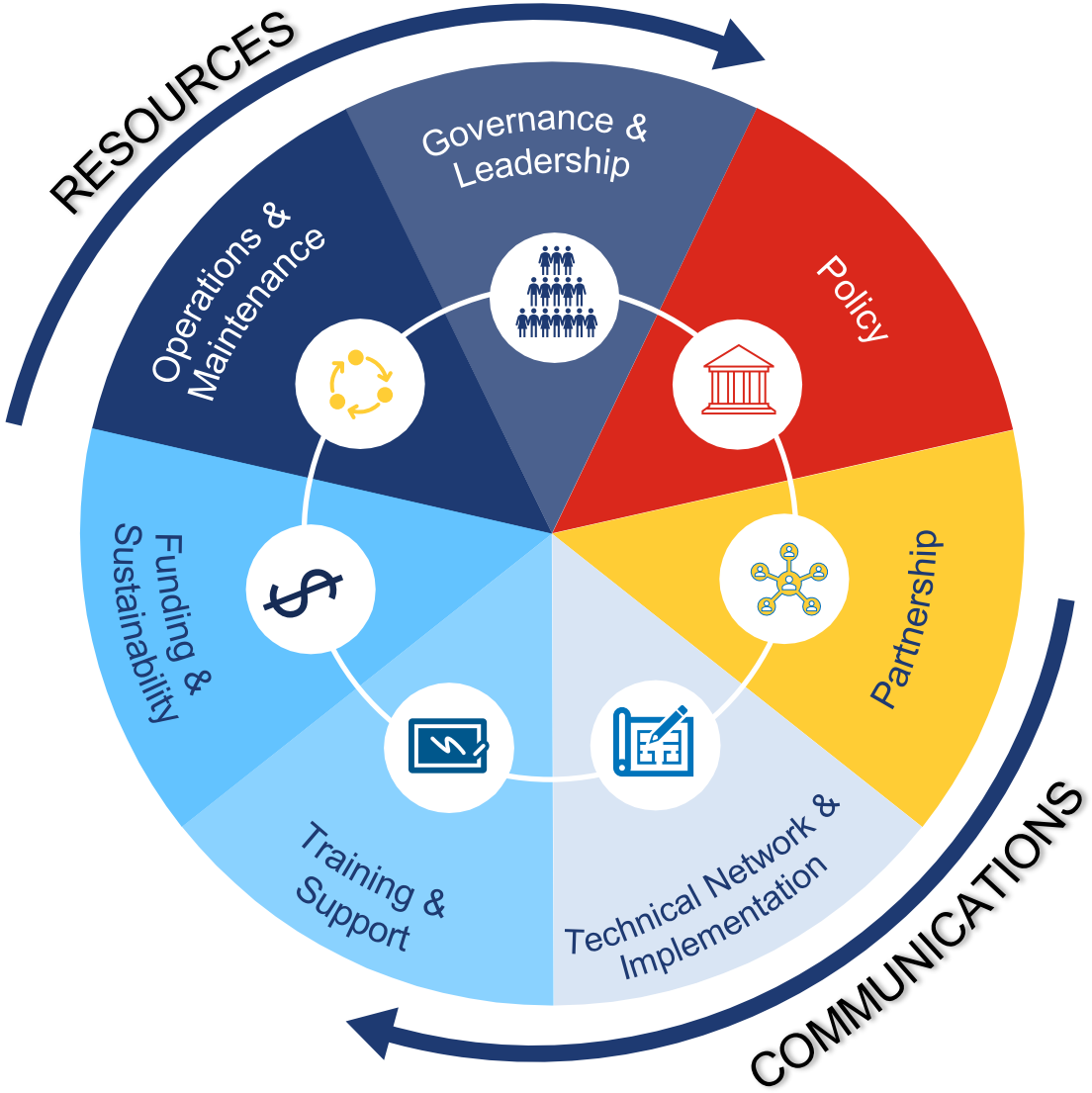
To Whom?

- State, territorial, local, and tribal governments and their public and private sector partners.

Considerations for Implementers

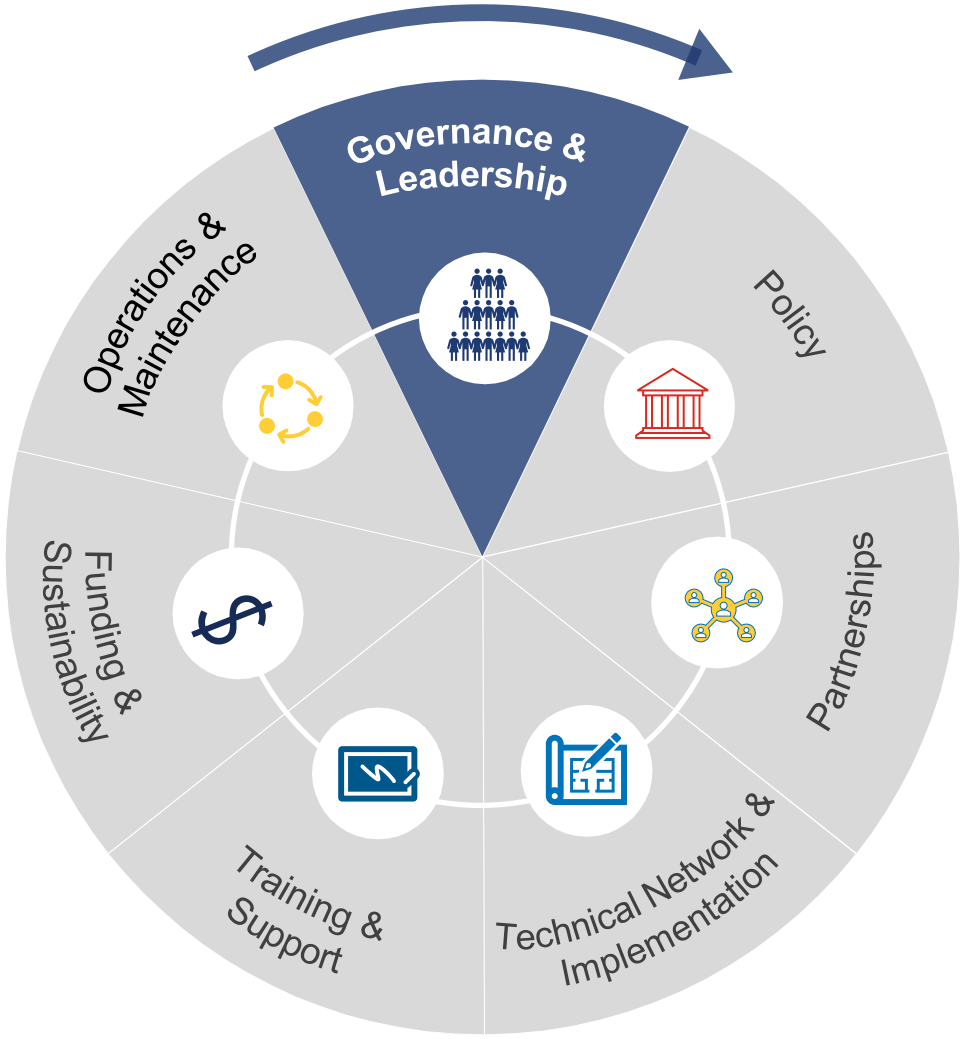
- Governance and Leadership
- Policy Considerations
- Resources
- Partnerships
- Technical Network & Implementation
- Training and Support
- Funding and Sustainability

PULSE Community Considerations



- Funding & Sustainability
- Governance & Leadership
- Operations & Maintenance
- Partnerships
- Policy
- Technical Network & Implementation
- Training & Support

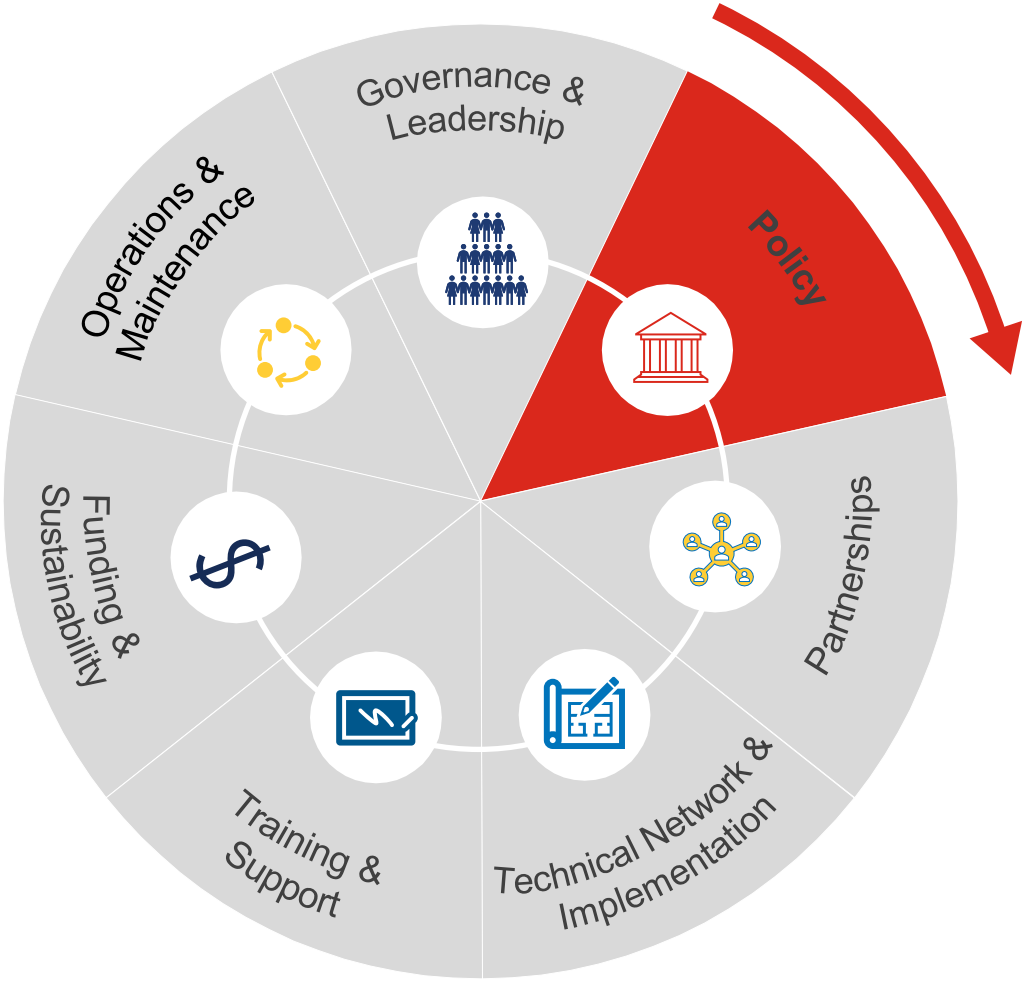
Governance & Leadership



Governance and Leadership

- Leadership, collaboration and coordination across the following groups:
  - Federal government;
  - State government;
  - Regional/local government;
  - Industry partners/contractors; and
  - Other partners.
- State emergency/disaster/all hazard preparedness and response ecosystem and how PULSE supports that ecosystem.
- State and local *champions*.

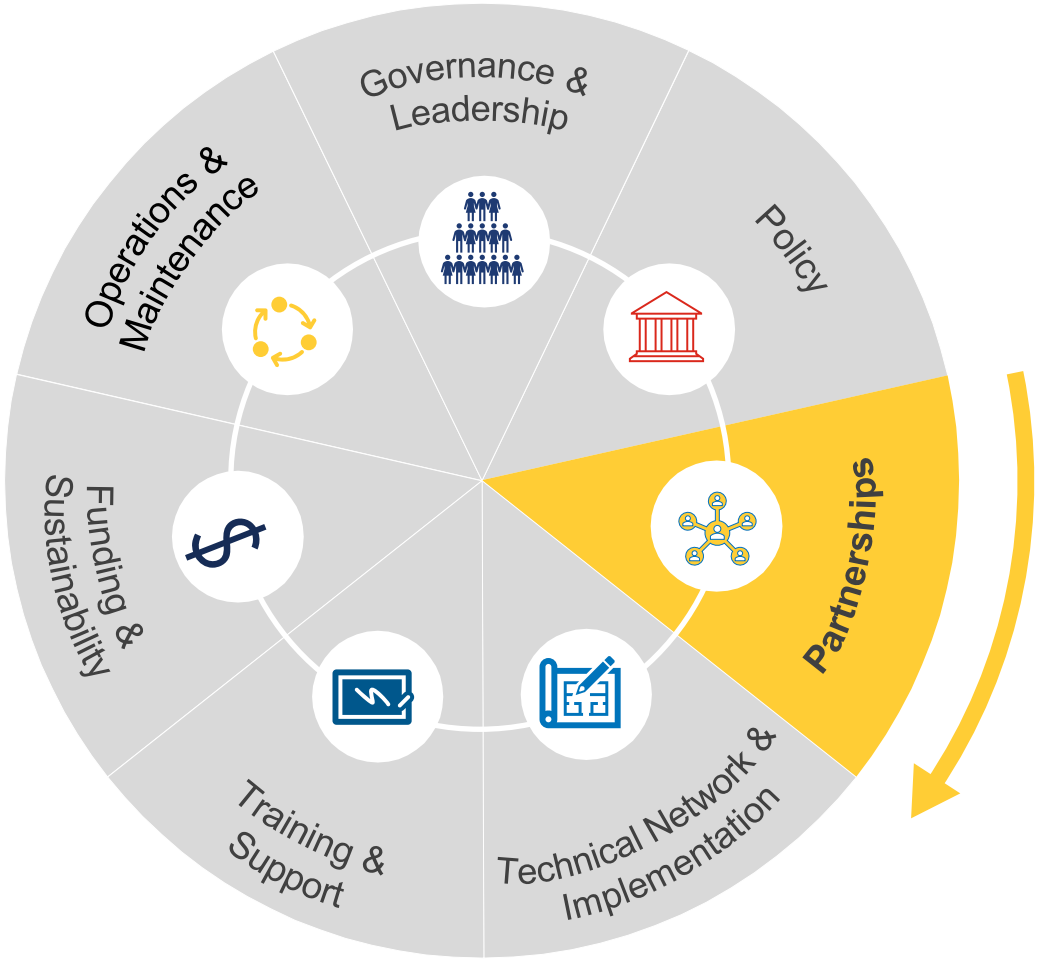
Policy



Policy

- Align/coordinate with public health data modernization efforts.
- Align/coordinate with federal partner program (e.g., ASPR empower program).
- State level emergency/disaster declarations processes, Emergency Operation Centers coordination, and how PULSE Community can be embedded into emergency operations.
- State level emergency management services landscape, policies and regulations, and how PULSE Community fits/complements state objectives.

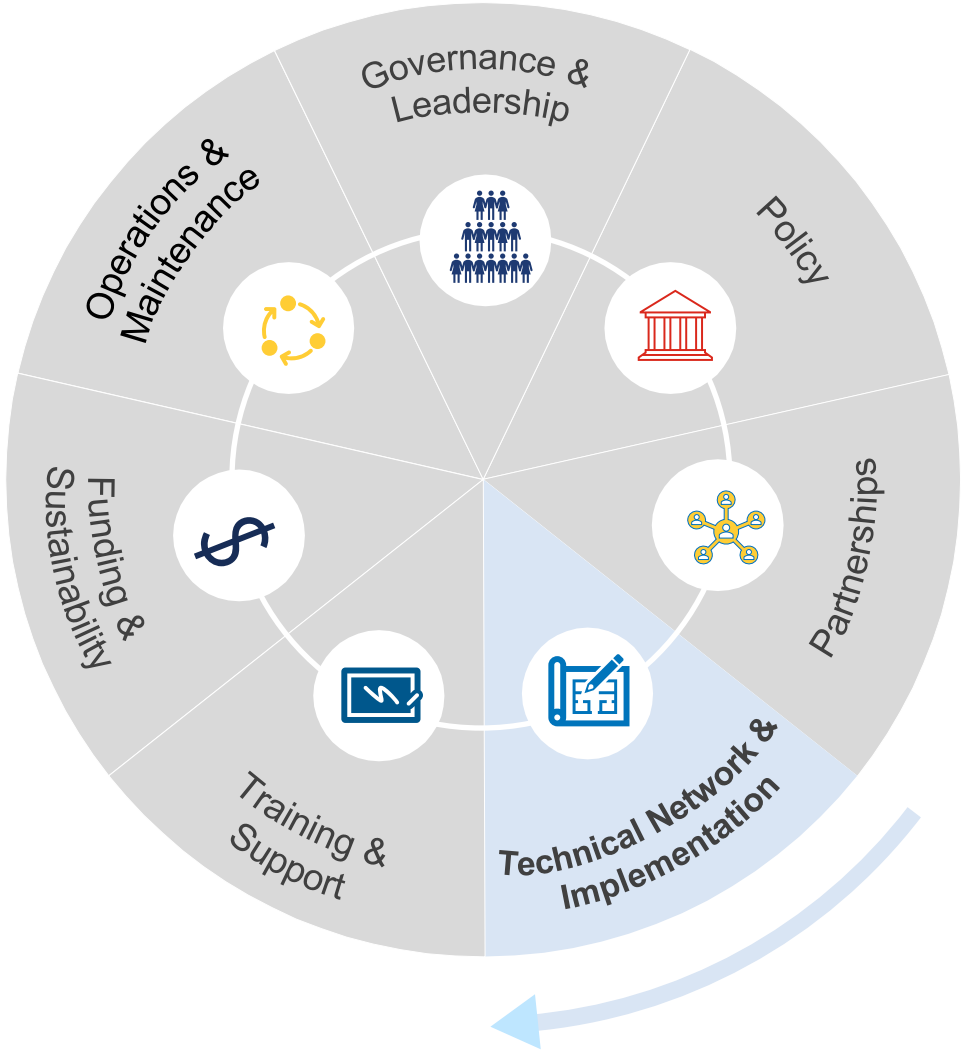
Partnerships



Partnerships

- Federal government support.
- State and local partners, including:
  - Public health;
  - Medicaid;
  - Chief Information Officer/ Chief Technology Office;
  - EMS;
  - HIEs/HIOs;
  - Health IT vendors;
  - EMS IT vendors;
  - Hospitals/health systems;
  - EMS support contractors; and
  - Community-based partners.
- Other private sector partners

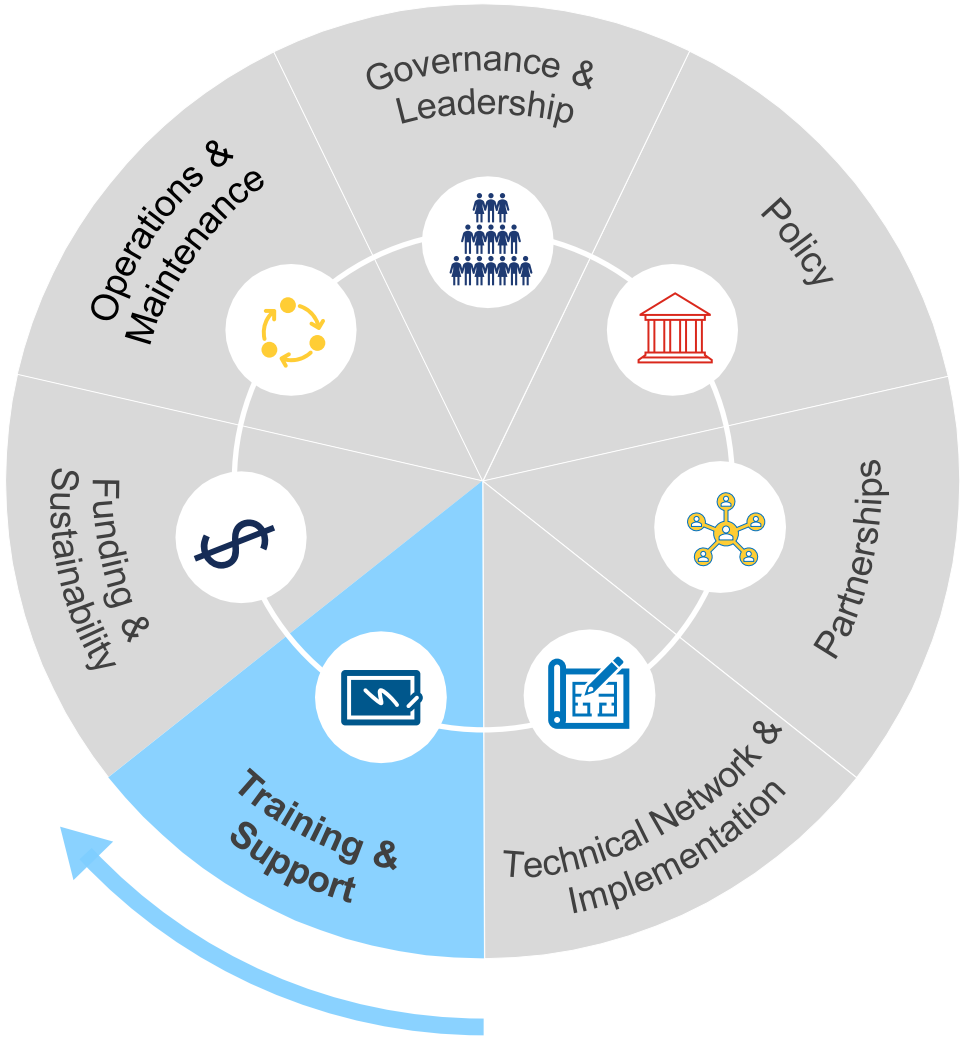
Technical Network & Implementation



Technical Network & Implementation

- Low cost of ownership
  - Non-commercial technical solution with no proprietary components or license fees
  - Based on stable open-source frameworks and technologies
- Scalable
  - Designed for cloud deployment
  - Scalable to large-scale events and multiple alternate care facilities
  - Extensible to meet special needs of a State and its operational procedures
- Secure
  - Designed for secured deployment
- Simple to use
  - Based on ONC-recognized national standards for exchanging health information
  - Simple workflows for retrieving care summary documents for key health information
- Requirements to deploy
  - Leverages existing infrastructure: HIEs and eHealth Exchange that must be available
  - Costs are associated with flexibility; IT resources are necessary to advance configuration and deployment

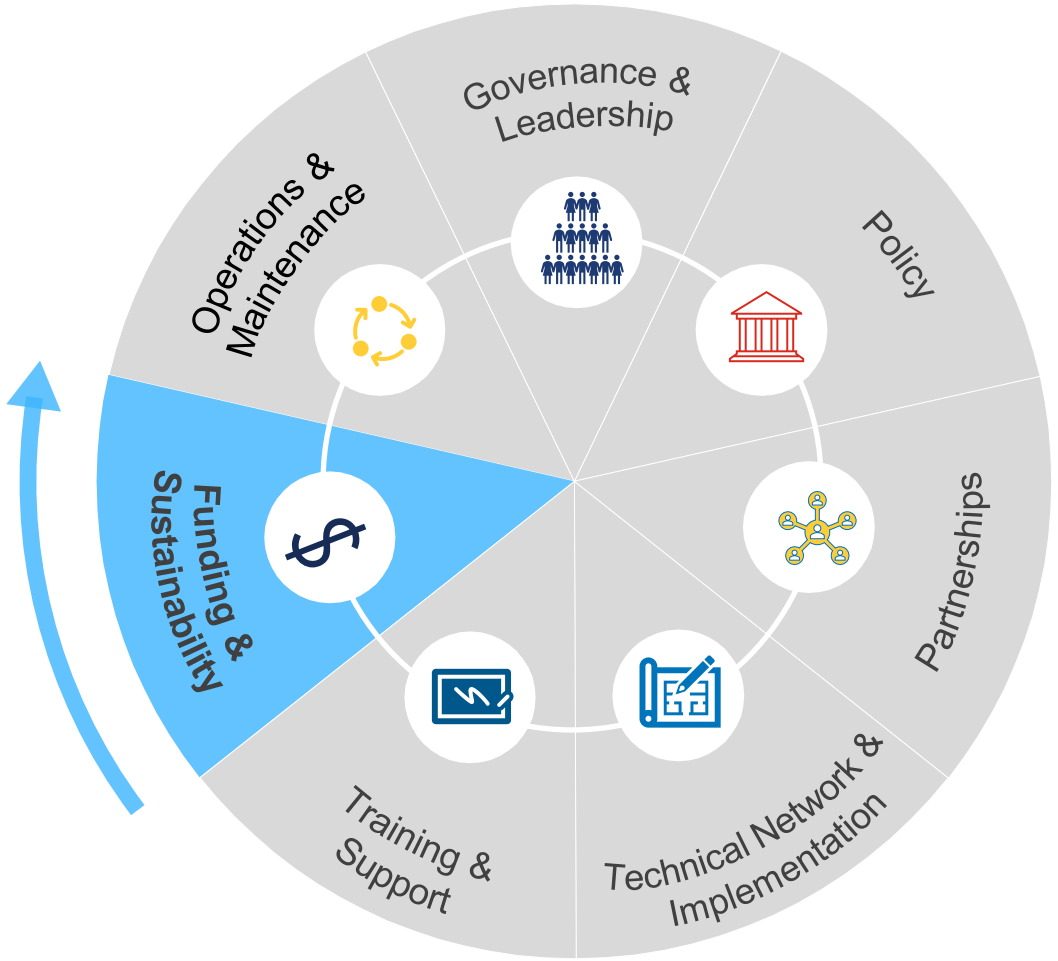
Training & Support



Training & Support

- Technical support
- State staff training
- Volunteer training
- On-demand training resources

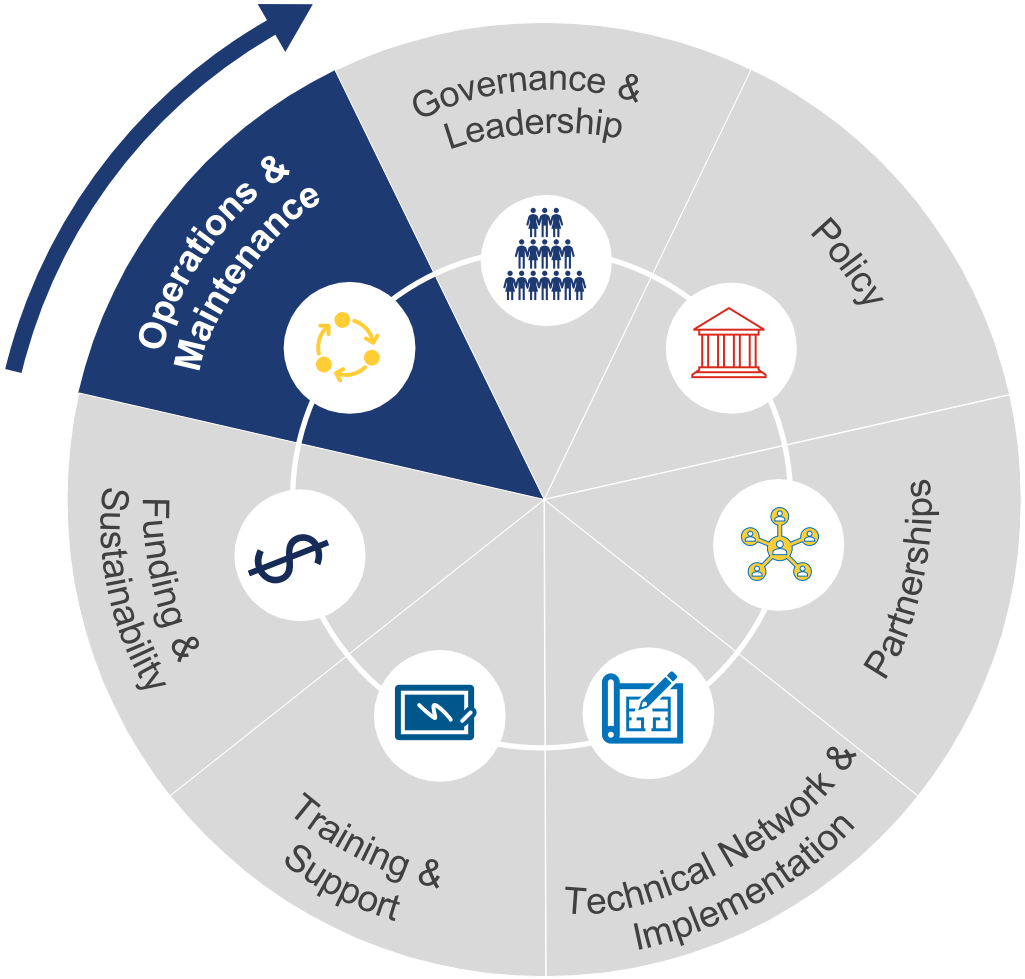
Funding & Sustainability



Funding & Sustainability

- Planning costs
- Development costs
- Implementation costs
- On-going operations and maintenance costs
- Funding sources for sustainability

Operations & Maintenance



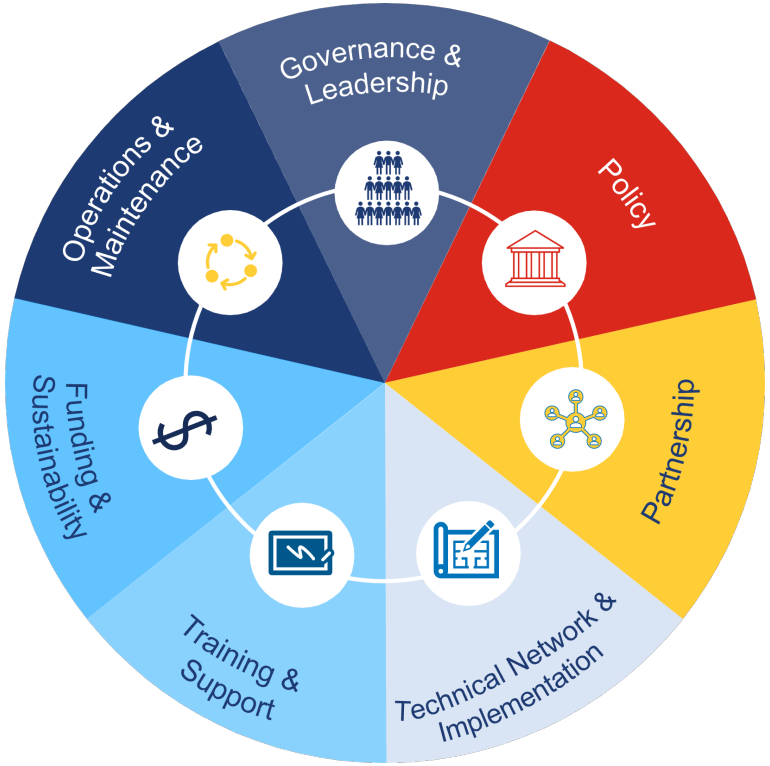
Operations & Maintenance

- Opportunity to recommend a standard set of measures to track PULSE Community usage and performance
- Maintaining technical updates
- Scaling for broader use cases

Communications & Resources

COMMUNICATIONS

- Value proposition information
- Case study examples
- Promotional materials
- Outreach and communications to partners



RESOURCES

- Partner coordination
- Technical resources
- Operational support

DISCUSSION

State Panel: PULSE Implementation Perspectives

Introductions

George Gooch
Texas Health Services Authority

Leslie Witten-Rood
State of California

Jaime Bustos
State of Florida

Nora Belcher
Texas eHealth Alliance

Steve Eichner
Texas Department of State Health Services

PULSE

Patient Unified Lookup System for Emergencies™

California Emergency Medical Services Authority

Leslie Witten-Rood

Chief, Office of Health Information Exchange

PULSE
Patient Unified Lookup System for Emergencies™

History: PULSE in California

The first version of PULSE (CA PULSE) went live in July 2017.

- Activated more than 5 times for disaster response.
  - Treat and provide medications to displaced residents and COVID-positive patients at EMSA-run alternate care facilities.
  - Provide medical care to fire crews at CAL FIRE base camps.

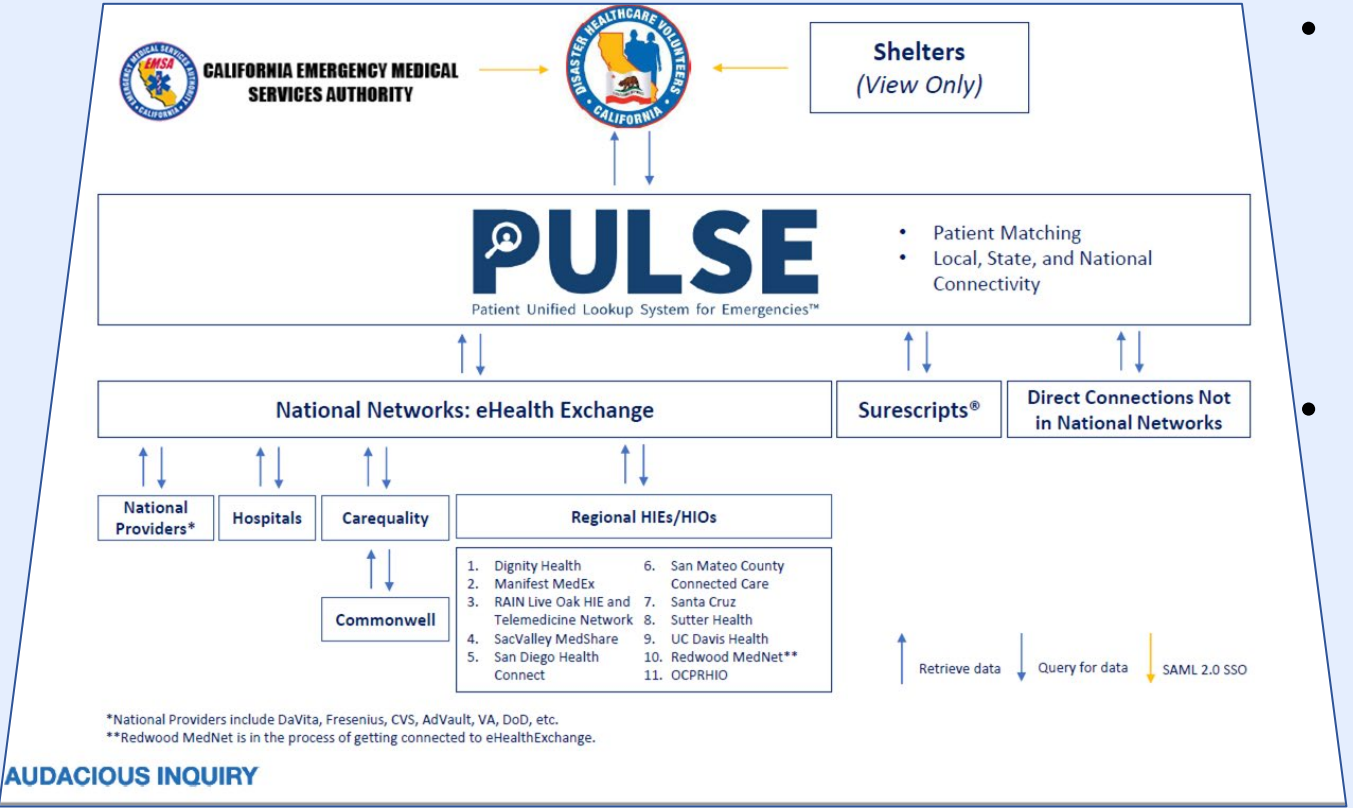
PULSE Enterprise Edition went live in California in September of 2021.

  - Vendor would no longer support CA PULSE.
  - Deployed as a trial in San Diego to support monoclonal antibody infusion centers.

PULSE
Patient Unified Lookup System for Emergencies™

PULSE Administration

- California has partnered with Audacious Inquiry (Ai) since the collaborative creation of CA PULSE.
- PULSE Enterprise SAAS is provided and maintained by Ai.



- EMSA manages the operational use of the system, including:
  - System configuration
  - PULSE activation
  - End-user training
  - User access monitoring
- User management is primarily administered through Single Sign On using the Disaster Healthcare Volunteers registry.

PULSE
Patient Unified Lookup System for Emergencies™

Use Case: 2018 Camp Fire Activation

- Camp Fire in Northern California
  - 85 fatalities
  - 18,804 structures destroyed
  - 52,000 people evacuated
- 13 medical shelters and treatment sites operated November - December 2018.
- EMSA staff deployed to activate PULSE and train California medical assistance teams (CAL-MAT).
- CAL-MAT PULSE usage:
  - Patient History and Treatment
  - Medication/Pharmacy Refills
- 326 patients were searched in PULSE.

PULSE
Patient Unified Lookup System for Emergencies™

Use Case: 2020 COVID-19 Activation

- EMSA staff deployed in March of 2020 to activate PULSE and provide just-in-time training.
  - Trained medical teams in Riverside, Imperial, San Mateo, Tulare, Orange, and Sacramento Counties.
- Trainings for additional sites were conducted virtually.
- Just-in-time training guide was posted on EMSA's website to allow 24/7 access to PULSE resources.

PULSE
Patient Unified Lookup System for Emergencies™

Lessons Learned

1. Any system utilized in disaster response must be intuitive, consistent, and require as little data entry as possible from end users.
   a) Data fields must allow incomplete entries or common typos; queries cannot require an exact match.
   b) The UI must be simple and consistent to allow emergency personnel to be trained once and to train others.
2. Reliable connection to data sources is key during activations.
   a) Maintaining and monitoring connections to data sources has remained a significant issue in both PULSE versions.
3. Configuration requirements for software integrations must be vetted as early as possible.

E-PLUS

Emergency Patient Look-Up System

Why Use E -PLUS?

- Florida leads the nation in direct hurricane hits.
  - 50 major hurricanes (category 3 or greater) from 1851-2019 as compared to Texas (25), the next highest state.
  - 6 of top 10 costliest hurricanes in US history have impacted Florida
- HITECH Funding
  - October 1, 2019, the Agency for Health Care Administration (AHCA) was awarded HITECH funds for the initial implementation of E-PLUS
    - PULSE is branded as E-PLUS in Florida
    - AHCA is the State's Medicaid Agency
- Contract Execution
  - November 13, 2020, AHCA executes the E-PLUS contract with Audacious Inquiry

How is E-PLUS Managed?

- AHCA serves as the administrator of the system via executed contract
  - Serves as path to receiving federal funding
  - More flexible to work with end users
- Audacious provides the technical solution and support

E-PLUS
Emergency Patient Look-Up System

Examples of Use to Date

- Surfside Condo Collapse
  - Goal: To find missing individuals by searching if anyone had been admitted to one of the ENS data sources prior to disaster
  - AHCA communicated with Emergency Management Services to acquire a patient panel of missing individuals
- Tropical Storm Elsa
  - At the onset of emergency, AHCA began working to credential users
  - Voluntary evacuation orders given

Other Potential Use Cases

- Red Cross
- Local Municipality Use Cases
  - Localized flooding
  - Building remediation projects
  - Sinkhole impact zones

Lessons Learned

- Collaboration with Law Enforcement
- Home Health and Shelters are most at-risk
- Look at interstate data to see potential for out-of-state use
- Holding data is easier than cross referencing using lookback capabilities
- On-site deployment of E-PLUS trainer
- Patience and Persistence

CONTACT US

- https://florida-hie.net/
- 850-412-3779
- E-PLUS@ahca.myflorida.com

HIETEXAS PULSE

ONC PULSE Community Partner Listening Session & Workshop - State Panel

FEBRUARY 9, 2022

AGENDA

1. About the THSA
2. History of PULSE in Texas
3. HIETexas PULSE Use Cases
4. Recent Deployment
5. Lessons Learned/Challenges

ABOUT THE TEXAS HEALTH SERVICES AUTHORITY

TEXAS HEALTH SERVICES AUTHORITY

- Created in 2007 by the Texas Legislature as the public/private entity to promote and coordinate electronic health information exchange in the State of Texas.
- Operates two major programs: (1) HIETexas -- electronic health information exchange platform, and (2) SECURETexas – a privacy and security certification program.
- Governed by a 12-member board of directors, appointed by the Texas Governor and confirmed by the Texas Senate. Two ex-officio members representing state health agencies also sit on the board.

HISTORY OF PULSE IN TEXAS

HIE TEXAS PULSE USE CASES

PULSE USE CASE #1

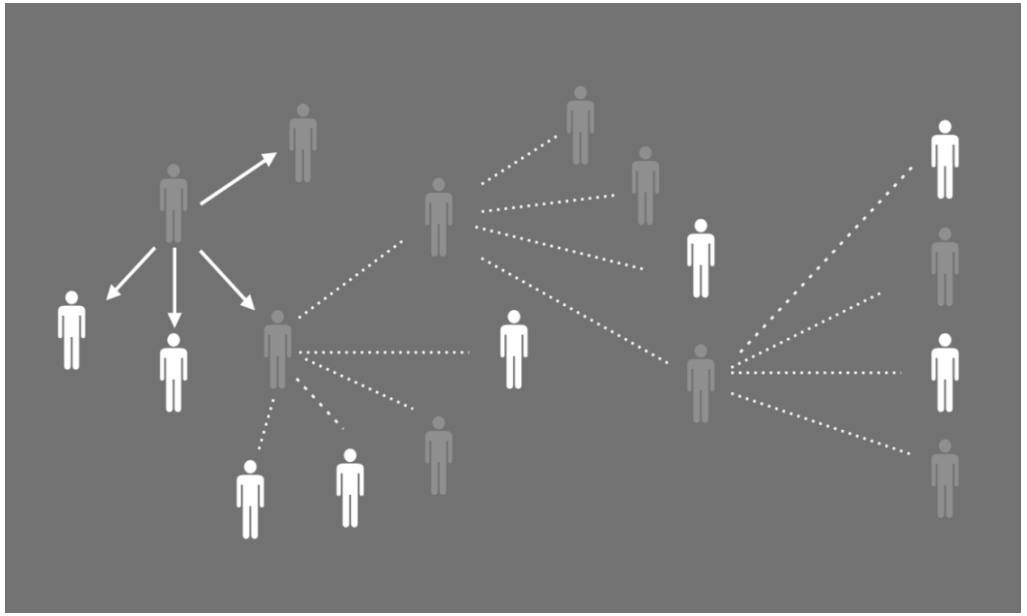
TREATMENT IN ALTERNATE CARE SITES

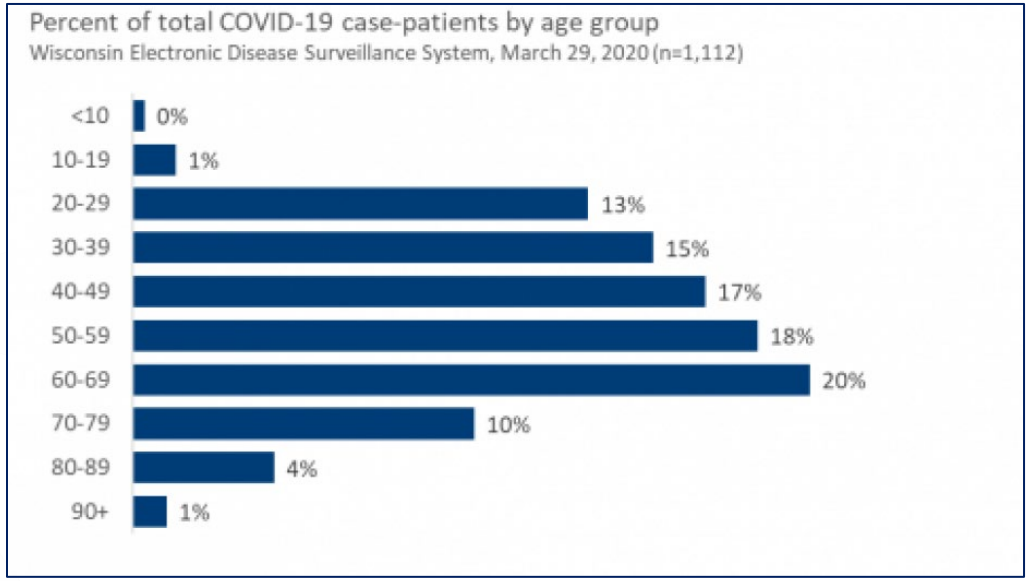
- In disasters, patients often seek care outside of their routine health care settings:
  - Shelters,
  - quarantine sites,
  - vaccination clinics, etc.
- Using PULSE, clinical providers in alternate care settings can access health and medication history.

PULSE USE CASE #2

CASE AUGMENTATION AND PUBLIC HEALTH OUTREACH

- Public health professionals can search for patients with infectious disease diagnoses to fill in demographic gaps and identify household members to facilitate outreach and contact tracing strategies.
- Public health professionals can retrieve clinical documents for a patient with confirmed infectious disease to understand healthcare encounters, comorbidities, medications and other information relevant to epidemiological assessment of the disease.





RECENT DEPLOYMENT

RECENT DEPLOYMENT
HIETexas PULSE DEPLOYS IN LOUISIANA

- On September 6th, 2021, THSA, in partnership with Audacious Inquiry and BCFS, deployed HIETexas PULSE in Louisiana in response to Hurricane Ida.

LESSONS LEARNED AND CHALLENGES

DISCUSSION

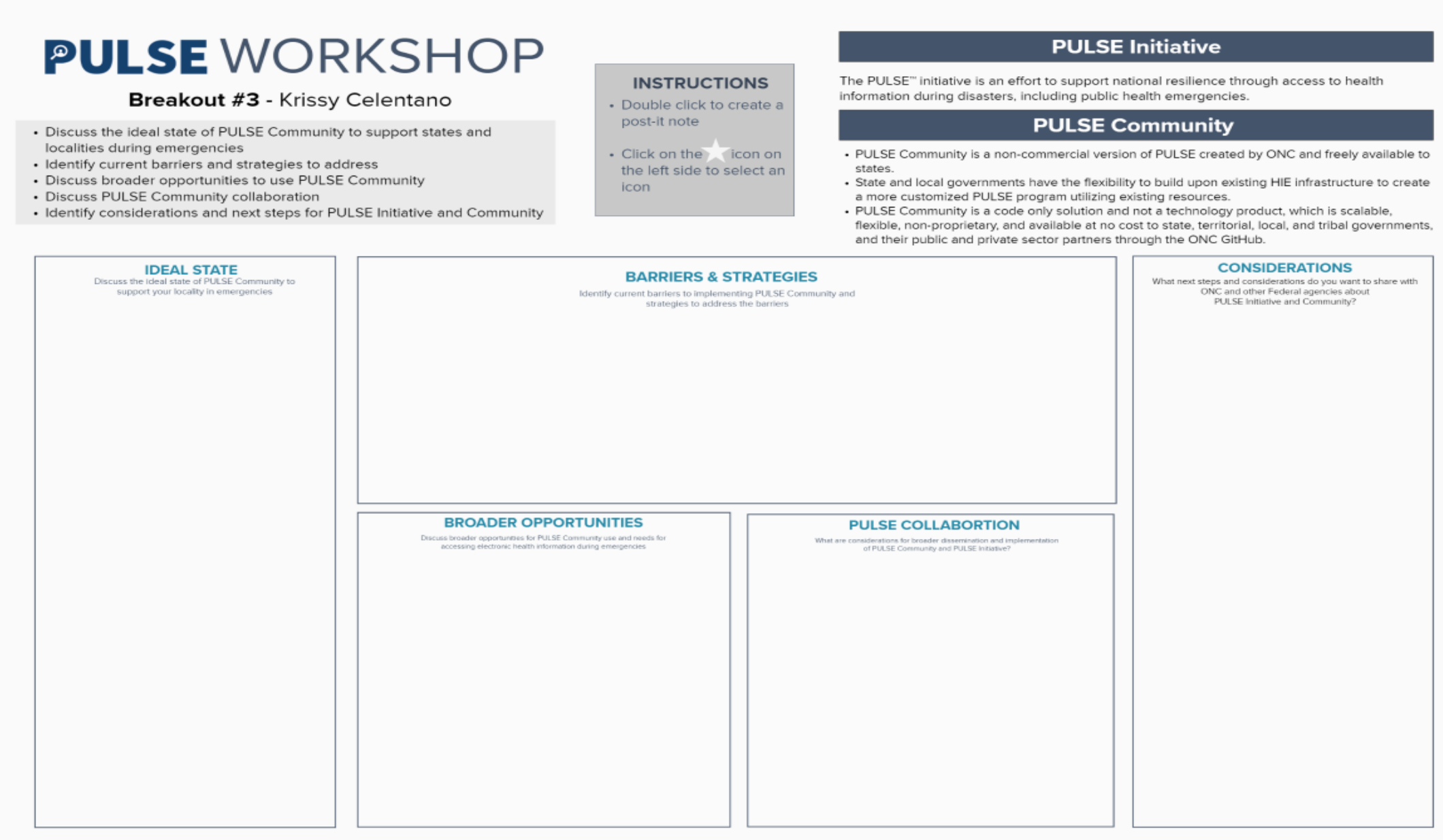
BREAK

Breakout Groups

Objectives

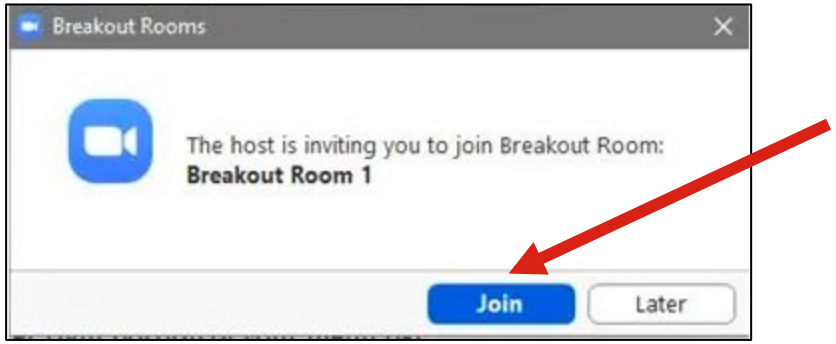
- Discuss the ideal state of PULSE Community to support disaster and emergency preparedness in your locality.
- Identify current barriers and strategies to address.
- Identify requirements for technical implementation.
- Discuss broader opportunities to use PULSE Community.
- Discuss PULSE Community collaboration and support.

Collaborating on Mural



Breakout Groups Instructions

- You will be auto assigned to a Zoom break out group.
  - *Breakout Room 1: Rim Cothren & California representatives*
  - *Breakout Room 2: Kate Kiefert & Florida representatives*
  - *Breakout Room 3: Krissy Celentano & Texas representatives*



- Technical issues? Message Brenda Kiritkumar (Zoom host).

Breakout Groups Mural Links

- Please go to the MURAL Board links during the breakout working sessions.
- MURAL Board Links:
  - **BREAKOUT GROUP #1 -** LINK
  - **BREAKOUT GROUP #2 -** LINK
  - **BREAKOUT GROUP #3 -** LINK

The Future of PULSE Initiative & PULSE Community

Discussion

- What are your key findings and takeaways from today's discussion and the breakout group?
- What future opportunities do you see for the PULSE Initiative and PULSE Community?

Wrap-up

Resources

- PULSE Initiative website: https://www.healthit.gov/topic/health-it-health-care-settings/public-health/patient-unified-lookup-system-for-emergencies-pulse
- PULSE Community contact information: ONCPULSE@hhs.gov
- PULSE Community Github: https://github.com/HHS-ONC
- Workshop materials will be available to participants in the near future

Thank you!

The Office of the National Coordinator for Health Information Technology

Contact ONC

Rachel Abbey, Rachel.Abbey@hhs.gov

Phone: 202-690-7151

Health IT Feedback Form: https://www.healthit.gov/form/healthit-feedback-form

Twitter: @onc_healthIT

LinkedIn: Search “Office of the National Coordinator for Health Information Technology”

HealthIT.gov

Subscribe to our weekly eblast at healthit.gov for the latest updates!