Health Information Technology and Emergency Preparedness

Three Example Use Cases

2020 ONC Annual Meeting

Monday, January 27, 2020

The Office of the National Coordinator for Health Information Technology

Disasters and Emergencies Can Strike Anytime…Anywhere

Emergency Preparedness & Response Use Cases

Situational Awareness of At-Risk Populations

HHS emPOWER Map 3.0 HHS gives every public health official, emergency manager, hospital, first responder, electric company, and community member the power to discover the electricity-dependent Medicare population in their state, territory, county, and ZIP Code

When combined with real-time severe weather and hazard maps, communities can easily anticipate and plan for the needs of this population during an emergency, including pre-identification of at-risk and vulnerable population

Disaster Health Care Volunteer Access to Health Information

Patient Unified Lookup System for Emergencies (PULSE) allows authorized disaster healthcare volunteers, including first responders, access to vital patient health information during disasters

Leverages the national networks

Sequoia Project convenes the expert advisory council

Family Reunification

Encounter Notification Services (ENS®) receives real-time Admission, Discharge, Transfer messages (HL7 ADTs) and routes those messages to subscribers that have a permitted relationship with a patient for care coordination purposes

Identifies if missing individuals have been registered at a hospital

Enables registration events to be created from a web interface in order to support registrations at evacuation site

Emergency Preparedness and Health IT
HHS emPOWER Program

Joint Program of the

Office of the Assistant Secretary for Preparedness and Response (ASPR)

and the Centers for Medicare and Medicaid Services (CMS)

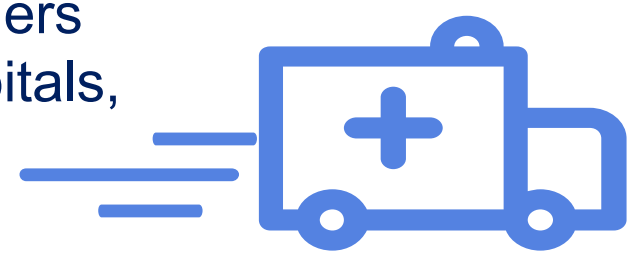
U.S. Department of Health and Human Services

The Office of the National Coordinator for Health Information Technology

Why was the HHS emPOWER Program created?

Millions of Americans rely on electricity-dependent medical equipment and essential health care services to live independently in their homes

In the event of an **incident**, **emergency, or disaster**, at-risk populations often seek immediate care from first responders (e.g., EMS), hospitals, and shelters



This leads to **surges in health care demand** and **stress** on systems and shelters

Can Centers for Medicare & Medicaid Services (CMS) data help communities **protect the health** of community-based at-risk populations, **ensure continuity of care,** and **reduce system stress**?

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The HHS emPOWER Program emPOWERing Communities, Saving Lives

The HHS emPOWER Program, a partnership between ASPR and CMS, provides dynamic data and mapping tools, training and informational resources to help communities **protect the health of more than 4.2 million** Medicare beneficiaries who live independently and rely on electricity-dependent medical equipment and health care services.

HHS emPOWER Map and REST Service_Public

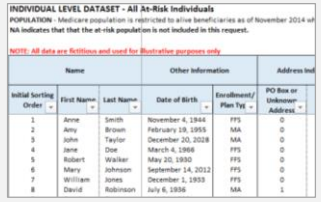
Public

HHS emPOWER Emergency Planning De-identified Dataset

Services	Services	All Power Dependent
# Home health (3 months)	# At-Home Hospice (3 months)	# Electricity-Dependent Devices and DME
11	11	44
59	50	13
59	50	13
11	11	44
59	50	13

Restricted

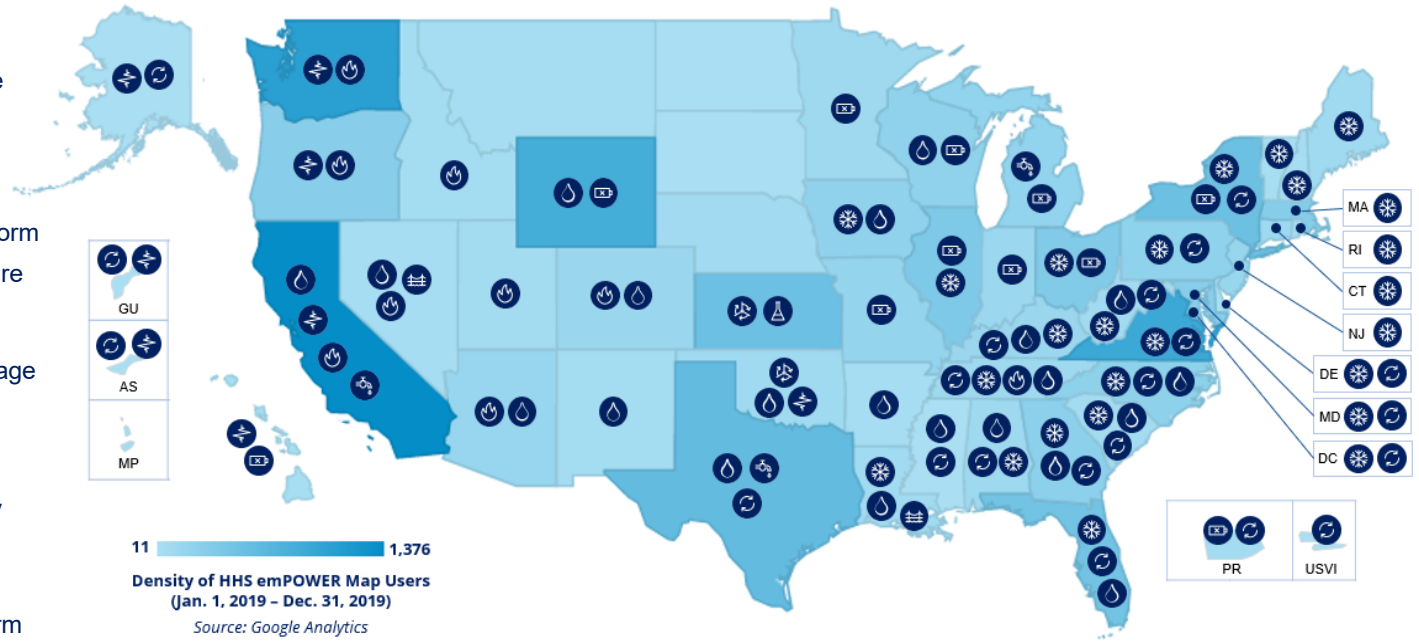
HHS emPOWER Emergency Response Outreach Individual Dataset



Secure, Restricted

Communities in all 50 states and 5 territories have used the HHS emPOWER Program prior to, during, and after the following incidents, emergencies, and disasters

- Chemical Spill
- Earthquake
- Flood
- Hurricane/ Tropical Storm
- Infrastructure Failure
- Severe Power Outage
- Tornado
- Water Emergency
- Wildfire
- Winter Storm

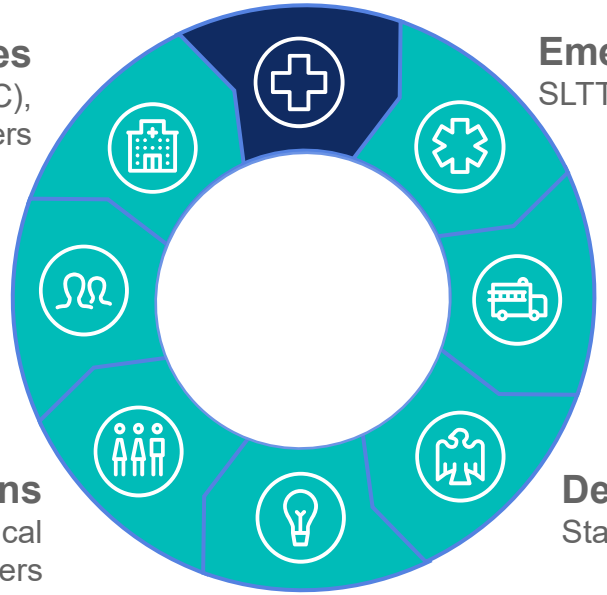


The HHS emPOWER Program in Practice

emPOWER Informs Community Partnerships

The HHS emPOWER Program helps public health authorities inform and support collaboration across a variety of national, state, local, and community partners within the emergency management cycle

Public Health Authorities [ESF-8]
State, Local, Tribal, and Territorial (SLTT) Public Health Authorities



Health Care Services
Health Care Coalitions (HCC), Providers, Suppliers

Emergency Management
SLTT Emergency Managers

Human Services
Home & Community-Based Human Services

First Responders
Emergency Medical Services (EMS); Fire Department; Law Enforcement; Urban Search and Rescue (USAR)

Volunteer & Community Organizations
Volunteer (e.g., American Red Cross); Medical Reserve Corps (MRC); Other Non-Traditional Partners

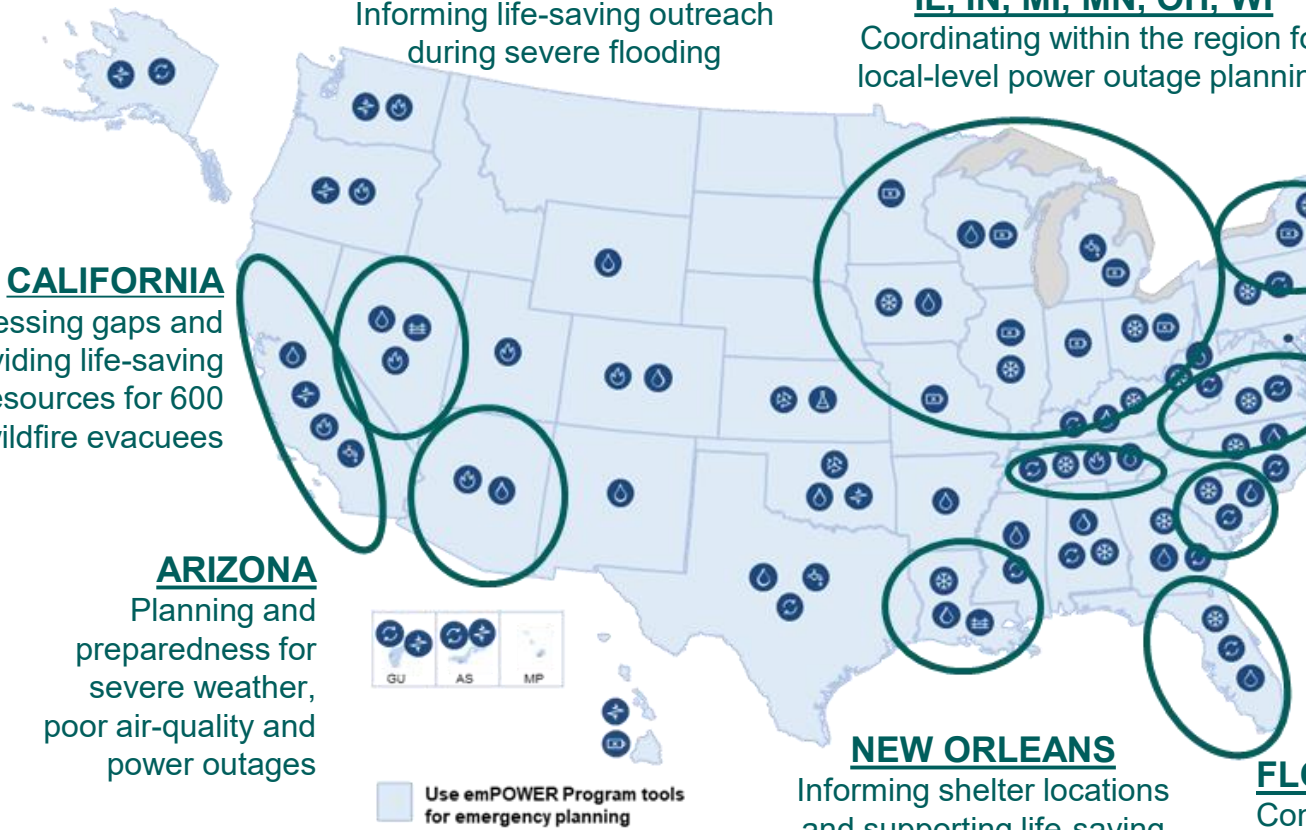
Department of Defense (DoD)
State National Guard or Reservists

Public Utilities and Transportation
Electric, Water, and Transportation

HHS emPOWER Program in Action

Since 2013, communities in all 50 states and 5 territories have used the HHS emPOWER Program prior to, during, and after the following emergencies, and will continue to request and use emPOWER data in the coming years

- Chemical Spill
- Earthquake
- Flood
- Hurricane/ Tropical Storm
- Infrastructure Failure
- Severe Power Outage
- Tornado
- Water Emergency
- Wildfire
- Winter storm



NEVADA
Informing life-saving outreach during severe flooding

IL, IN, MI, MN, OH, WI
Coordinating within the region for local-level power outage planning

NEW YORK
Informing power restoration decisions during a severe wind storm

VIRGINIA
Emergency planning for a severe winter storm

TENNESSEE
Conducting life-saving outreach during wildfires to 70 oxygen dependent individuals

CALIFORNIA
Addressing gaps and providing life-saving resources for 600 wildfire evacuees

ARIZONA
Planning and preparedness for severe weather, poor air-quality and power outages

SOUTH CAROLINA
Developing county-level at-risk profiles for emergency preparedness

NEW ORLEANS
Informing shelter locations and supporting life-saving outreach

FLORIDA
Conducting outreach to almost 45,000 at-risk residents during a hurricane

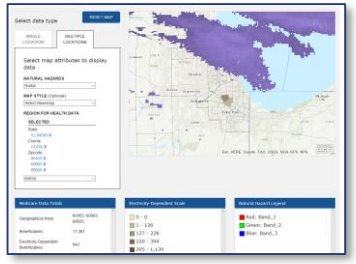
Leveraging HHS emPOWER Map Data

HHS emPOWER Map data can be used to help address the needs of electricity-dependent populations and implement targeted public health activities across the emergency management cycle

CMS & ASPR

Federal Medicare De-identified HHS emPOWER Map

Communities



State, territory, county and ZIP Code specific de-identified data on the HHS emPOWER Map

Use the HHS emPOWER Map data to answer: How many electricity-dependent Medicare beneficiaries are there in the affected ZIP Codes?

488	*60453*
184	*60803*
170	*60655*

842 **Electricity-Dependent**

Partner With State, Regional, and Local Partners (as appropriate)

Preparedness
Assess & establish plans, contracts, capabilities & communications to assist DME population shelter, re-charging station, evacuation, & power restoration needs

Response
Activate plans, capabilities and contracts to support the needs and assess supplier capacity for continuing community-based health services during the emergency

Recovery
Prioritize DME and healthcare suppliers access to shelters/community to expedite repair, replacement or services to help expedite safe returns to homes

Mitigation
Integrate power needs into shelter and recharging station planning and transportation support to expedite resources for DME and healthcare needs in the future

HHS emPOWER Map Supporting Response to the 2019 California Wildfires and Public Safety Power Shutoff (PSPS) Events

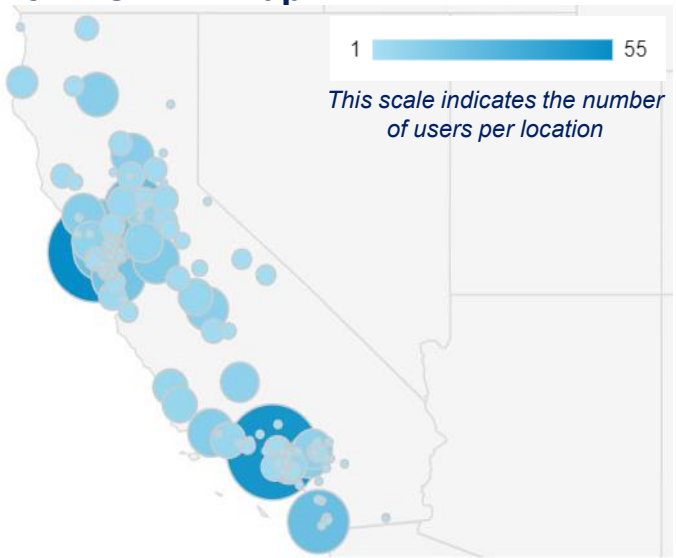
According to the California Department of Forestry & Fire Protection, from **January 1, 2019 – November 26, 2019**, there have been approximately:

- **6,190 incidents**
- **~200,000 acres burned**
- **3 fatalities**

California Wildfires: 1/1/19 – 11/26/19
Source: https://www.fire.ca.gov/incidents/2019/

Due to **heightened wildfire risk in October and November 2019**, power companies implemented **Public Safety Power Shutoff (PSPS) events** in high fire-risk areas across the state of California

During this time, individuals across these impacted areas used the **HHS emPOWER Map**

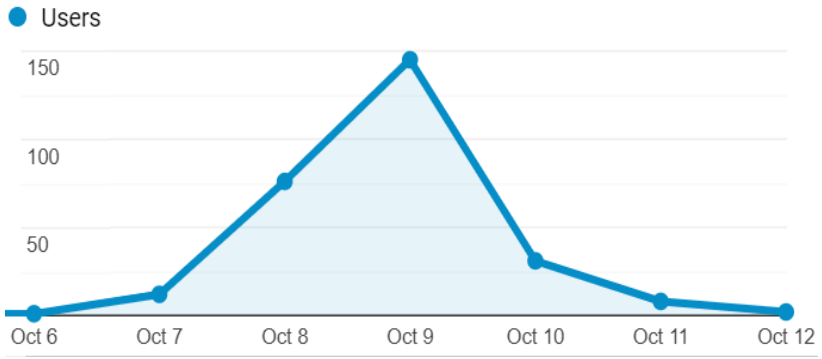


Density of emPOWER Map Users: 10/1/19 – 11/26/19
Source: https://analytics.google.com/analytics/web/

One PSPS event on **October 9, 2019** was estimated to impact nearly **3 million people** from Northern to Southern California

261 people in California used the HHS emPOWER Map the first week of PSPS (October 6 – 12)

145 California people used the HHS emPOWER Map on the first day of the PSPS event alone



Number of emPOWER Map Users: 10/6/19 – 10/12/19
Source: https://analytics.google.com/analytics/web/

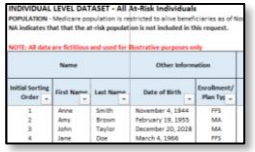
Advancing the Program through Innovative Technology

emPOWER Strategy: Translation, Innovation & Expansion

emPOWER Map and REST Service

emPOWER Medicare Datasets

Services	All Power Dependent	
# At-Home Hospice (3 months)	# Electricity-Dependent Devices and DME	# Cardiac Devices (5 years)
11	44	50
50	13	11
50	13	11
11	44	50



Fact Sheets, Job Aids, Stories from the Field

emPOWER Platform

Federal Data and Tools

Informational Resources

HHS emPOWER Program

Data Innovation & Technology

Training

emPOWER AI

emPOWERing State Medicaid/ CHIP Data Pilot

emPOWERing VA Data

VA | U.S. Department of Veterans Affairs

HHS emPOWER Program Web-Based Training

Introducing emPOWER AI

In 2020, the HHS emPOWER Program will launch HHS emPOWER AI through **Amazon Alexa** and **Google Assistant** to put emPOWER de-identified data more quickly into the hands of responders.

Provides users with **a public, voice-controlled application** that audibly answers a user's questions about the HHS emPOWER Program or its underlying data, such as the total number of at-risk electricity-dependent Medicare beneficiaries in a geographic area, down to the ZIP Code

Allows community partners across public health authorities, emergency management, first responders, aging and disability networks, and utilities to have greater situational awareness

Start by Saying…

HHS emPOWER Program Resources

1 Training

HHS emPOWER Program Web-based Training Program (ID #1083714) is a free, publicly accessible course designed to help partners better understand the HHS emPOWER Program and integrate its tools into their emergency preparedness, response, recovery, and mitigation activities. The course is divided into five modules: an introduction to the HHS emPOWER Program, a detailed overview of each of the mapping and dataset tools, practical application examples and case studies of how public health authorities and their partners have used the program tools in real world emergencies.

See the Web-Based Training Job Aid for more information.

2 Informational Resources

HHS emPOWER Program Executive Summary
HHS emPOWER Program Fact Sheet
HHS emPOWER Map Job Aid
HHS emPOWER REST Service Public Job Aid
HHS emPOWER REST Service Public Link

- The REST Service allows users to consume the HHS emPOWER Map data layer in their own geographic information system (GIS) applications to help them better integrate and use this with other community data to inform and support public health activities across the emergency management cycle.

3 Contact Information

Kristen Finne

Director, HHS emPOWER Program

Office of the Assistant Secretary for Preparedness and Response

Email: empower@hhs.gov

Web: https://empowermap.hhs.gov

HHS emPOWER Program Contact Information

Kristen Finne

Program Manager, HHS emPOWER Program

Office of the Assistant Secretary for Preparedness and Response

Email: empower@hhs.gov

Web: https://empowermap.hhs.gov

Patient Unified Lookup System for Emergencies – States' Status

The Sequoia Project, Inc

Debbie Condrey, Chief Information Officer

The Office of the National Coordinator for Health Information Technology

PULSE – The Sequoia Project's Role

- PULSE is a nationwide health IT disaster response program that can be deployed at the city, county or state level to authenticate disaster healthcare volunteer providers and allows credentialed disaster volunteers to query and view patient histories
- States or local authority control activation and volunteer access
- When PULSE is activated by the state, the service and all connections are enabled and ready for use
- States govern policies and operations as they pertain to PULSE – funding, resources and integration
- The Sequoia Project's role is to support the states as they make decisions around implementing PULSE – this includes funding and contracting support and advice, educational materials and direct consultation

PULSE Advisory Council

- The Sequoia Project established the PULSE Advisory Council as the body responsible for sharing lessons learned and best practices when implementing the program
- The Advisory Council is made up of representatives from all the states either in production or in the implementation phase: California, Florida, Texas, North Carolina and Georgia
- Others attending the Advisory Council meetings include representatives from HHS and the ONC and Audacious Inquiry
- Topics during these meetings include updates from states, any challenges or opportunities, updates on new features from Ai, governance topics, etc.

State Updates

- Texas – PULSE is a collaboration between state government and the Texas HIE. Funding documents have been completed and awaiting approval through Medicaid. The plan is to have all connections made in time for the 2020 hurricane season
- Florida – working with state government to determine appropriate owner for PULSE; determining a procurement path in order to move forward
- California – PULSE has been implemented and activated during California wildfires. Continue to connect the local HIEs throughout California
- North Carolina – continuing to organize inside state government and determine ownership, funding and contracting strategy
- Virginia and New Jersey have also expressed interest in the PULSE program

State Updates

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PULSE Educational Materials

- The Office of the National Coordinator, The Sequoia Project and Audacious Inquiry have been working on updating all educational materials pertaining to the implementation of the PULSE program
- The updated materials include: PULSE Program Overview, Funding Considerations and Resources, Definitions, Decision Tree/Items to Consider when Implementing PULSE, Contracting Options and Resources, FAQs and the Technical Specifications Document (includes the difference between the Community Edition and the Enterprise Edition)
- Other educational materials to come include Security, Governance and Data Standards

Patient Unified Lookup System for Emergencies (PULSE)

ONC Annual Meeting – Health IT and Emergency Preparedness

Monday, January 27, 2020 – 4:15 - 5:05

Scott Afzal, President

Audacious Inquiry

The Office of the National Coordinator for Health Information Technology

PULSE Overview

PULSE enables authorized disaster healthcare volunteers to access health records to treat people injured or displaced due to disasters

How Does PULSE Work?

- Disaster Healthcare Volunteers log into the PULSE portal and are authenticated against the state's credentialed volunteer database
- Authorized volunteers in alternate care facilities, search for patient records from all connected providers and networks
- Volunteers retrieve and view patient records while treating patients at alternate care facilities

PULSE Evolution

April 2014

ONC evaluates use of HIE infrastructure for disaster preparedness and response

March 2016

EMSA begins PULSE deployment

January 2018

PULSE migrates to private sector;
Advisory Council is formed

2014 | 2015 | 2016 | 2017 | 2018 | 2019

March 2015

PULSE use case and technical architecture published

July 2015

ONC awards EMSA a grant to advance HIE statewide during a disaster and regional in daily EMS

November 2017

PULSE activated for CA fires

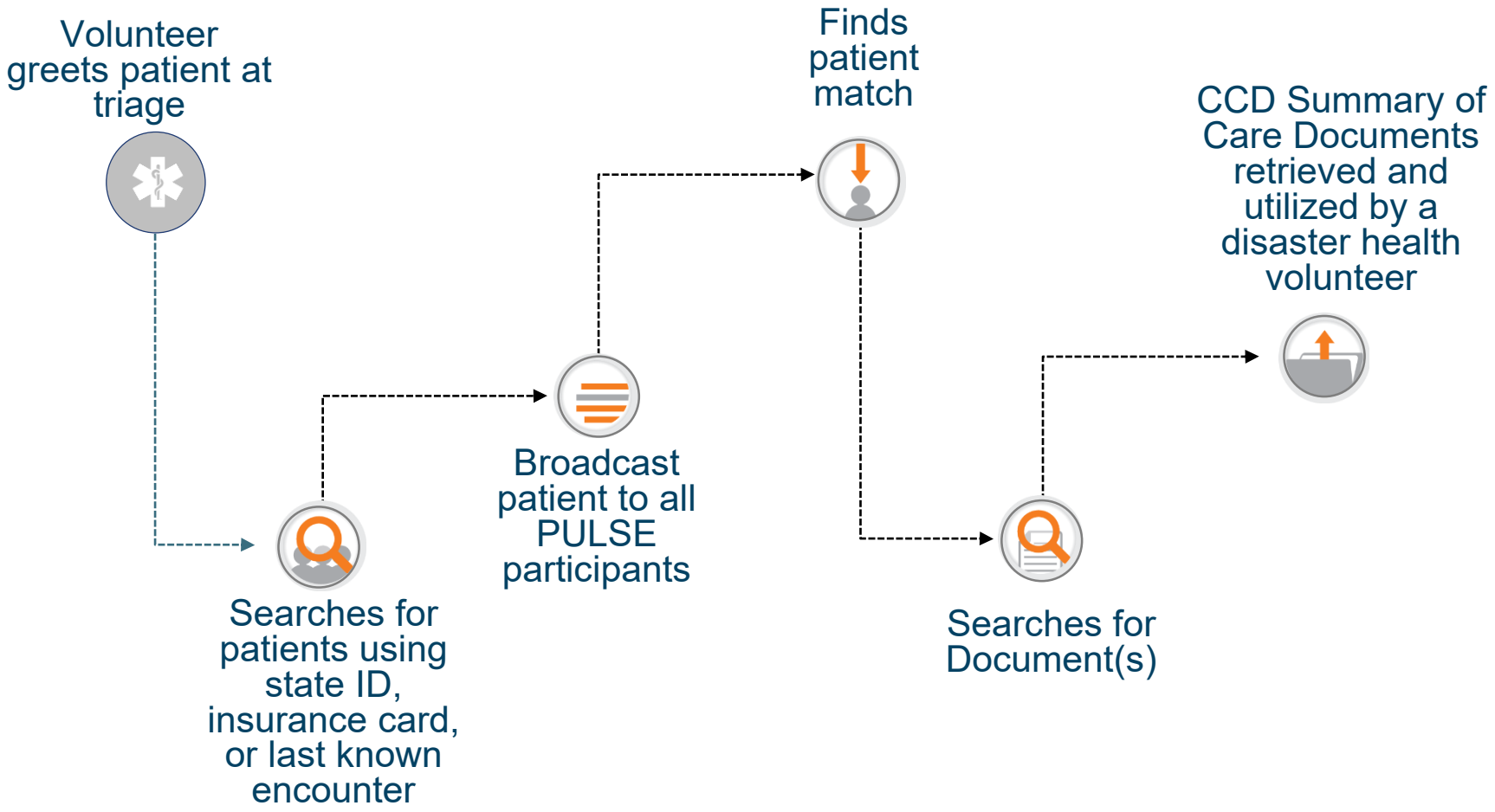
August 2019

ONC awards contract for PULSE technical enhancements

October 2019

PULSE is activated for CA fires; 6 additional HIE nodes rapidly onboarded through CTEN

Sample PULSE Workflow Triaging Patients Seeking Treatment at a Field Hospital



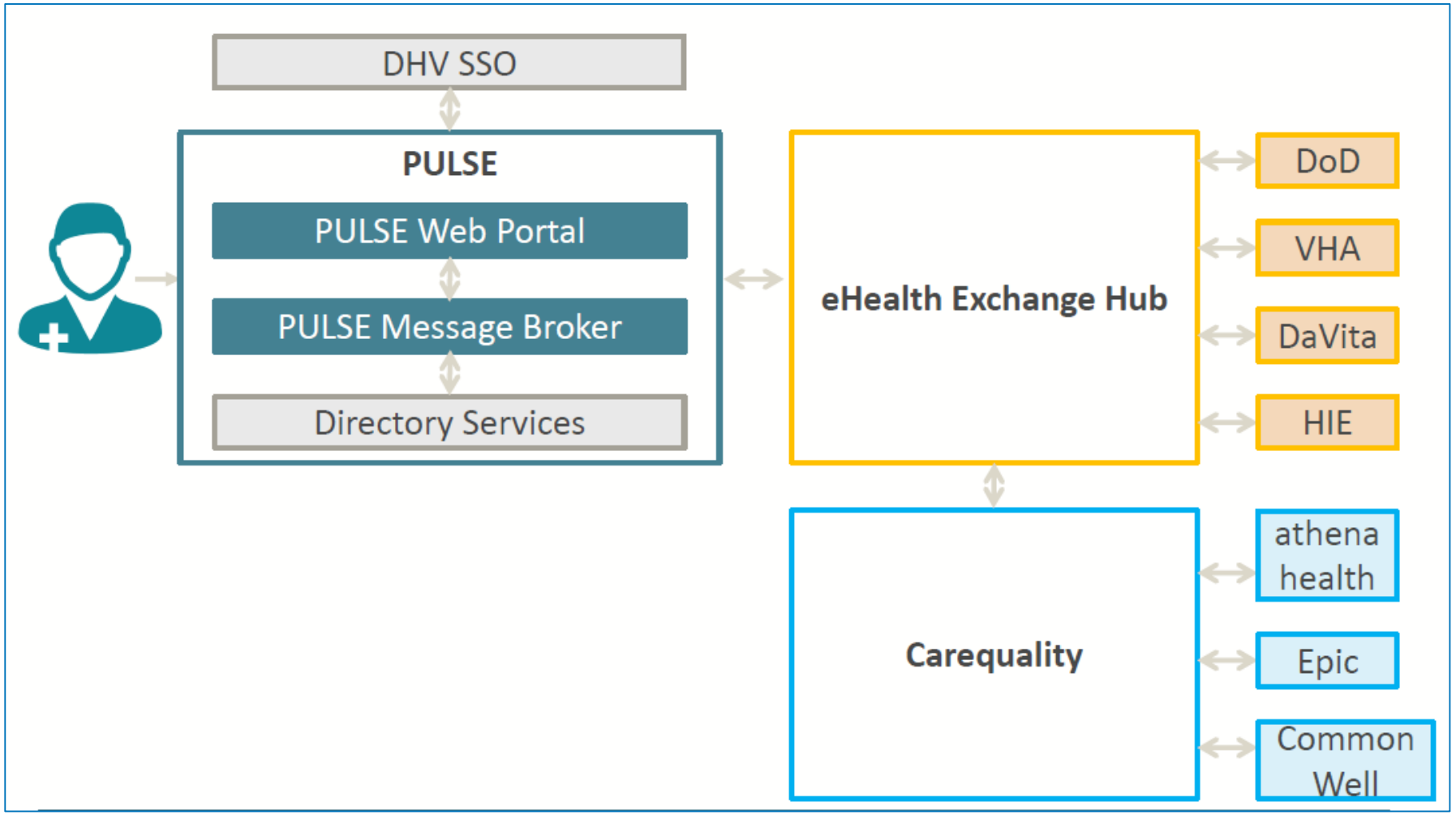
PULSE – Technical Features

- Adding Administrative User Capabilities
  - Jurisdictional levels PULSE activation
  - Dashboard with of PULSE usage key metrics and audit functions
- Improving End-User Experience
  - Clinical Document Display and Filtering
  - Medications

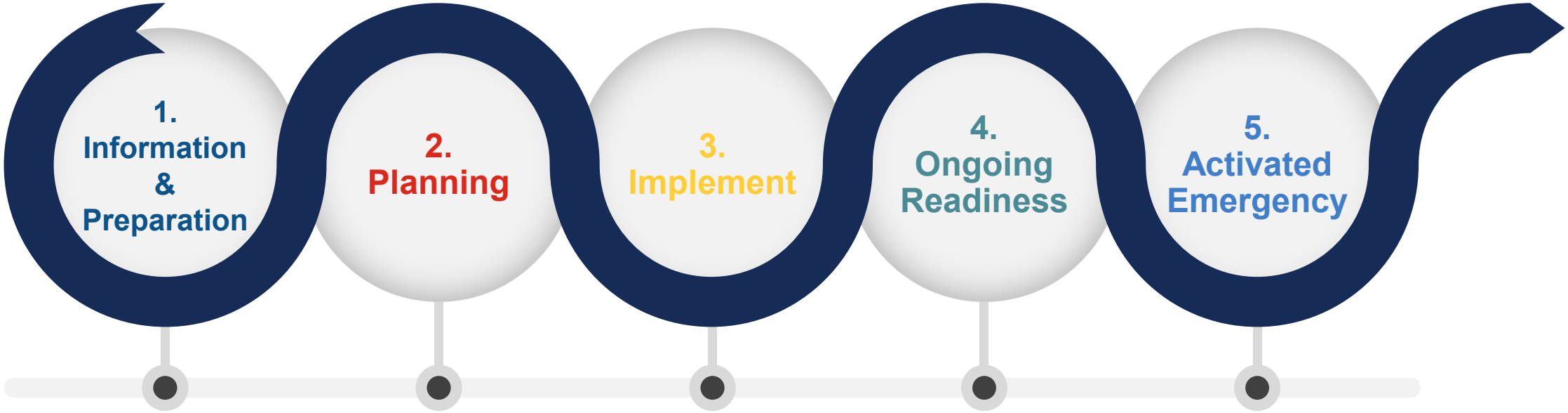
- Updating the PULSE Message Adapter for eHealthExchange Network and Carequality query support
- Enabling PULSE Directory Service to connect to the eHealthExchange through a designated standard

- Enabling single-sign on (SSO) between the PULSE system and state's ESAR-VHPs systems
- Creating a prototype to facilitate a standardized method for volunteer single-sign on to PULSE

PULSE Network



PULSE – Proposed Phasing for States



- Outreach to Ai, Sequoia, ONC/ASPR
- Review ed materials
- Request PULSE demo
- Conduct self-assessment
- Secure funding

- Policy planning
- Decision list
- Confirm procurement approach
- Operations planning
- Contracting

- PULSE onboarding
- Connect local Disaster Volunteer Tool
- Integration to eHX (Hub)
- Table-top exercise & Training environment
- QA/Testing
- Project Management

- Training Portal
- Software hosting, updates, testing, upgrades, operational support
- Developments and improvements
- Service Level Agreements (SLAs)

- 24/7 monitoring and activation support
- Trouble-shooting support
- Network monitoring and redundancy
- Communication
- Administrative reports (auditing)

Florida – Emergency Census

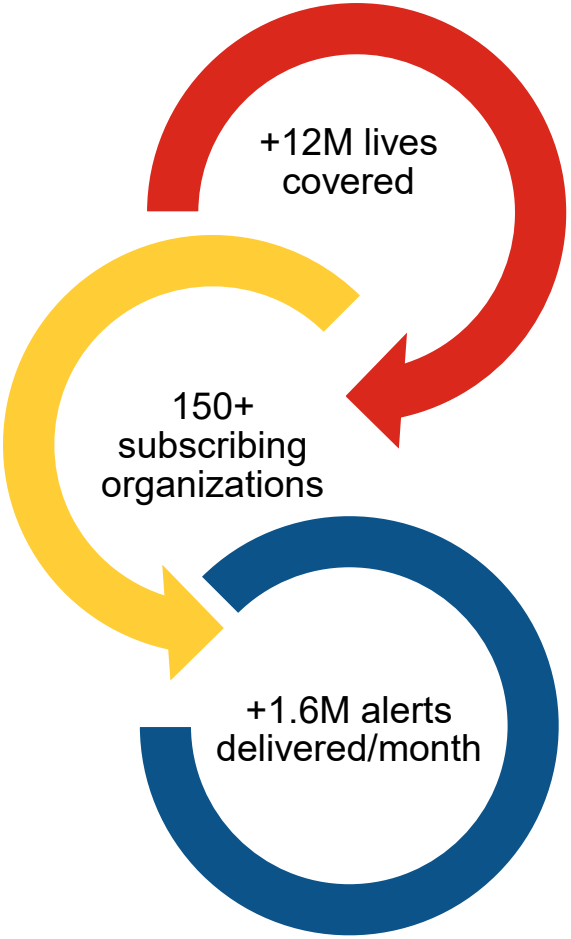
Scott Afzal, President

Audacious Inquiry

The Office of the National Coordinator for Health Information Technology

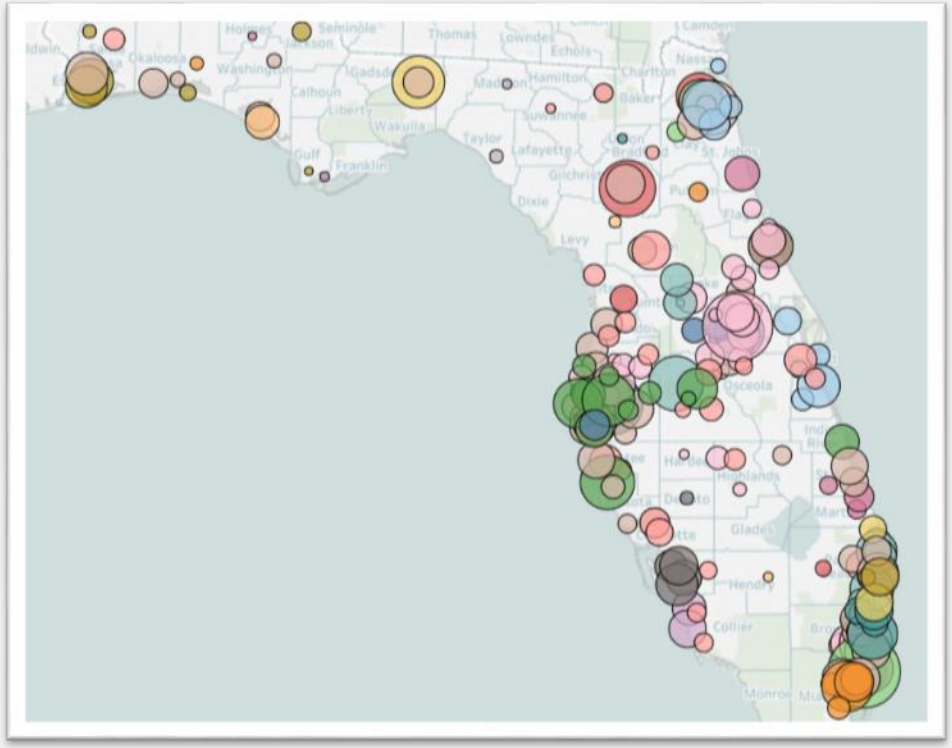
Encounter Notification Service (ENS)

- Flagship service of the Florida HIE
- Governed by the Agency for Health Care Administration (AHCA)
- Operated by Audacious Inquiry (Ai)
- Offers timely notice of patient hospital encounters to health care providers and health plans.
    - Over 225 hospitals covering 95% of all acute care and 80% of all rehab hospital beds in Florida share data
    - Over 12.2 million lives covered
    - Over 1.6 million alerts delivered/month
    - Improves care coordination and transitions of care
    - Reduces hospital admissions and readmissions
    - Supports value-based payment models
- Data is being sent to hospitals, ambulatory practices, ACOs, and health plans



How It Works

- Subscribers submit a list of patients to ENS
- Data Sources send inpatient and emergency ADTs to ENS
- ENS matches incoming ADTs to subscriber patient lists based on patient demographics, using a conservative, highly sophisticated matching algorithm
- Matched ADTs are routed to the appropriate subscriber; unmatched ADTs are discarded
- It is not dependent on a having an EHR system



FLORIDA HIE SERVICES | florida-hie.net

Hurricane Irma - 2017

Hurricane Irma - 2017

Could our existing HIE infrastructure be used to aid emergency response efforts?

- Use real-time hospital encounter feeds to locate missing persons.
- Pivot to Data Aggregation
- Service stood up less than 72 hours prior to landfall

Challenges

- Disaster response workflow

Lessons Learned

- Very difficult to engage disaster response personnel with new processes when a disaster is imminent
- Need for year-round engagement to ensure utilization

Hurricane Michael - 2018

Hurricane Michael - 2018

Engaged More Extensive Disaster Response Personnel

- Agency for Health Care Administration (AHCA)
- Florida Department of Health (DOH)
- Assistant Secretary for Preparedness and Response (ASPR)

Missing Persons Lists Received 36 hours after Landfall

- AHCA and ASPR received lists from home care and chronic care providers
- Over 5,000 missing persons were reported and loaded into the system
- Approximately 400 located within first hour
- DOH Public-facing Portal for reporting missing persons – relayed to Florida HIE

Challenges

- Process for finding missing persons was extremely manual
- Faxes of missing persons, backend restructuring of data
- Data quality of DOH public portal prevented matching from occurring.

Lessons Learned

- It worked!
- Standardization of missing persons lists
- Report only Actionable Information to Emergency Response Personnel
- Continue to refine processes to identify and pre-credential system users

Hurricane Dorian - 2019

- Minimum manual intervention with inbound and outbound reports.
- Users identified, trained, and credentialed prior to storm
- Florida storm impact not significant enough to cause evacuations/displacement

Lessons Learned

- Strong, ongoing lines of communication solidified with disaster response personnel
- System enhancements tested to confirm ability to handle Hurricane Michael-level displacement with increased automation and efficiency
- Continue to refine the system to support enhanced reporting detail and even less manual intervention
- Report only Actionable Information to Emergency Response Personnel
- Continue to refine processes to identify and pre-credential system users

ENS Emergency Census Ongoing System Enhancements

Manual Encounter Entry

Special Needs Shelter Encounters

- Emergency Response Personnel create admits and discharges
- Addition of shelter data to expand search for missing persons

Unconnected Facilities Encounters

- Allows for ENS subscribers with treatment relationships with those patients to know that an evacuation has occurred.

Manual Panel Loading

Direct Submission of Missing Persons

- Emergency response personnel upload missing persons list directly into system
- Eliminates unnecessary links in chain of communication
- Faster dissemination of information

User Interface

- Portal created to interact with disaster response personnel
- User interface to display admitted, discharged, and not identified persons.

The Office of the National Coordinator for Health Information Technology

Contact ONC

Add additional call to action or relevant speaker information and contact details.

Phone: 202-690-7151

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