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WHERE THE WORLD CONNECTS FOR HEALTH

Conference & Exhibition | March 5–9, 2018

Las Vegas | Venetian – Palazzo – Sands Expo Center

# Leveraging Health Information Exchange for Disaster Preparedness and Response

CMS

The Office of the National Coordinator for Health Information Technology

ASPR ASSISTANT SECRETARY FOR PREPAREDNESS AND RESPONSE

Session 164, March 7, 2018

CDR Samuel Schaffzin, Technical Director for Medicaid Health IT, CMS

Thomas Novak, Medicaid Interoperability Lead, ONC/CMS

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# Conflict of Interest

Samuel Schaffzin and Thomas Novak

Have no real or apparent conflicts of interest to report.

# Agenda

- Informal survey of attendees and session level setting
- Health Information Exchange (HIE) Landscape
- HIE in the context of Disaster Preparedness and Response
- Tie in to Emergency Support Function (ESF) 8
- Patient Unified Lookup System for Emergencies (PULSE)
- HHS emPOWER Program
- Future direction in this space

# Learning Objectives

- Describe the general Health Information Exchange (HIE) framework and environment and how it applies to disaster preparedness and response activities
- Identify potential overlap between ESF 8 response and HIE activities, and how this can be leveraged to improve patient care
- Discuss ways in which HHS and the HIT/HIE community can work together to enhance access to and retrieval of clinical data to provide safer, more timely, efficient, effective, equitable, patient-centered care in times of disaster

# Preparedness is a shared responsibility

# Lessons Learned from Previous Disasters

Broadly, we need to better:

- Engage in advance planning, Improve communications strategies, and take advantage of existing resources.
- Ensure the privacy and security of health information.
- Ensure access to health data outside the disaster zone.
- Overcome interstate policy barriers to develop and institute mutual aid agreements.

# Solution: HIE

One solution to the challenges in disaster response is to implement HIE to provide access to clinical records at the point of care.

- Health information exchange is computer-based clinical communications for care coordination.
- Clinical records are available through a query to the HIE.
- Or, clinical records can be sent directly to another physician through secure messaging.
- HIE makes access to clinical records efficient and timely.

# Approaches to HIE

- Several approaches to HIE can be deployed:
    - The “patient lookup” model
    - Secure messaging
    - A patient’s personal health record (PHR)
- Each of these approaches offers a unique opportunity to access patient records following a disaster.
- Each approach leverages a different technology solution.

# Current State HIE Activity

- There is a mix of HIE models being deployed at different stages of development across the States.
- There is little or no cross-border data exchange taking place today.
- The projected volume of clinical data available is dependent on rates of health IT adoption and participation in statewide HIE.
- There are significant variations in State approaches to authorization or consent to disclose information that impact access to the records.

# Key HIE Considerations in Disaster

- Legal issues:
  - Addressing privacy and security of protected health information (PHI) following a disaster
- Technical issues among participating States:
  - Different State-level HIE models being deployed
- Governance of disaster planning:
  - ESF 8 to take the lead

# Technical Issues in HIE

- HIE capabilities vary from state to state:
  - Different HIE models are being deployed—both patient lookup and secure messaging models.
  - Little or no cross-border exchange of electronic data takes place today.
  - The volume of clinical data available for exchange will depend on EHR adoption and participation in HIE.
  - Each State varies in its approach to authorization or consent to disclose information.

# Governance of Disaster Planning


- There must be a lead agency to govern HIE related emergency planning, response, and recovery following a disaster.
- The ESF 8 Public Health and Medical Services remain responsible for health care disaster planning and response.

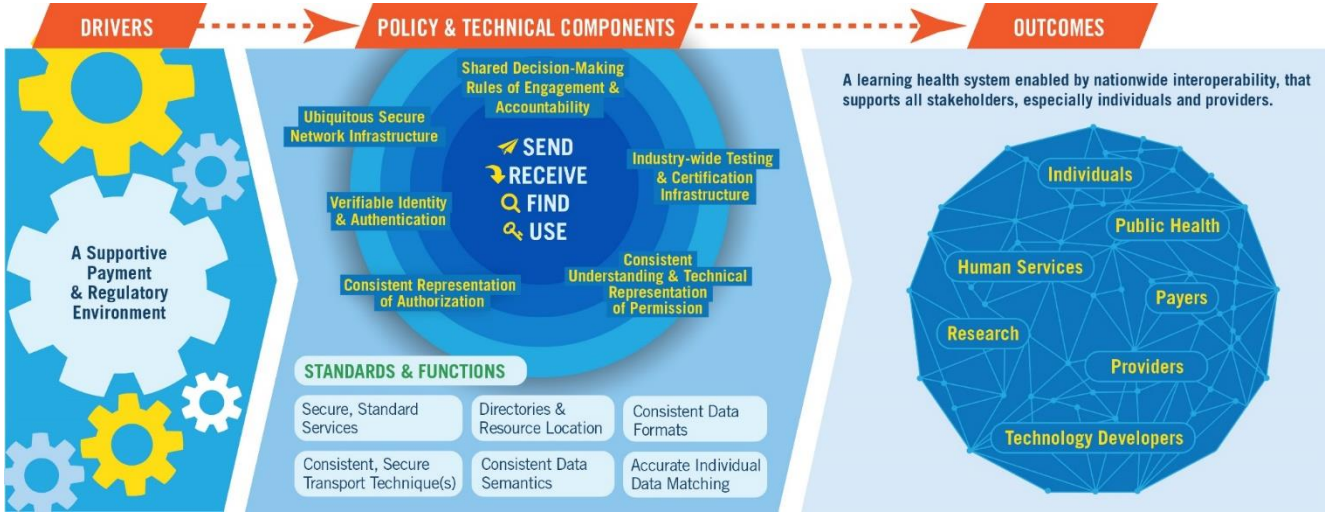
# Roles of the ESF 8 Agency in HIE

- The roles for the ESF 8 agencies in working with the State-level HIE for disaster preparedness and emergency response include four areas:
  1. Planning—Establish planning activities that include the appropriate public and private organizations.
  2. Response—HIE capability should be ready to ensure access to patient records at the point of care.
  3. Recovery—HIE is important in delivering medical records for displaced patients who have returned home.
  4. Evaluation—Assess the success or failures in the exchange of health care data.

# Recommendations

- Understand the State's disaster response policies and align with the State agency designated for ESF 8 (Public Health and Medical Services) before a disaster occurs.
- Develop standard procedures approved by relevant public and private stakeholders to share electronic health information across State lines before a disaster occurs.
- Consider enacting the Mutual Aid MOU to establish a waiver of liability for the release of records when an emergency is declared and to default State privacy and security laws to existing HIPAA rules in a disaster.
- States should also consider using the Data Use and Reciprocal Support Agreement (DURSA) to address and/or expedite patient privacy, security, and health data-sharing concerns.
- Assess the State's availability of public and private health information sources and the ability to electronically share the data using HIE(s) and other health data-sharing entities.

# Interoperability



# HHS IDEA Lab Concept

Connect health information exchange organizations and health systems so that providers and emergency responders have a way to access health information across systems.

- Improve patient health;
- Respond to disasters;
- Measure outcomes; and
- Save lives.

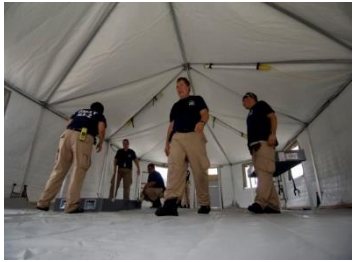

**Interoperability and national scalability**

# Patient Unified Lookup System for Emergencies (PULSE)

Statewide Project in California
58 Counties and 53 Congressional Districts

**Target Populations:**

- All victims experiencing a medical or trauma emergency served by EMS
- Displaced Victims of Disasters



**Providers & Practices:**

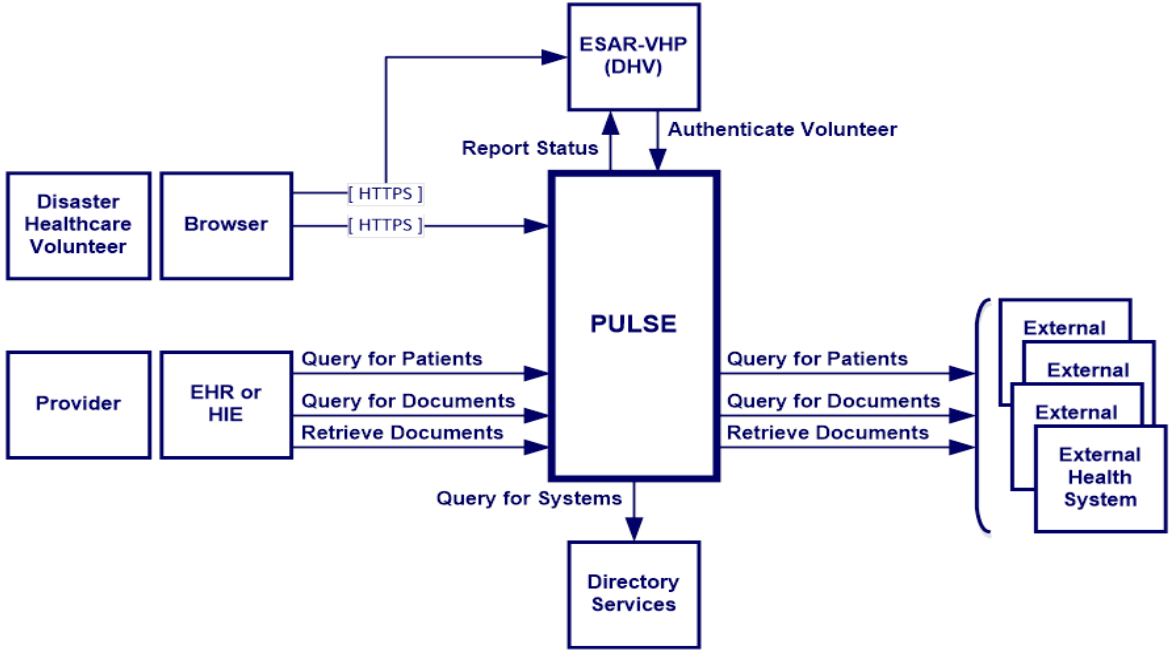
- Paramedics and EMTs
- Physicians in Emergency Departments
- Physicians working in a Mobile Field Hospital or Alternate Care site
- Nurses
- Pharmacist

# PULSE Overview in California

- **PULSE Web Portal**
  - DHV integration for user authentication
  - Patient query portal capability for providers
  - Robust audit logs

- **PULSE Message Broker**
  - Federate and aggregate requests/responses
  - Interface between Web Portal and message adapter services
  - Leverage California Trusted Exchange Network (CTEN) Directory Services and Connection Management Services

# PULSE Overview



# PULSE Screenshot

PULSE
Patient Unified Lookup System for Emergencies

Contra Costa-01

Peter Fisher
Log Out
Show Location Status

Search | Review

**Patient Query**

Name *
First * John
Last * Smith
Assembled Name: John Smith (Legal Name)
Gender *
Male
Date of Birth *
1966 June 6
Assembled Birth Date/Time: 19660606
SSN
XXX-XX-XXXX
Search

**Queries (0)**

**Queried Patient Information**
No current queries

# PULSE Screenshot

PULSE
Patient Unified Lookup System for Emergencies

Contra Costa-01

Peter Fisher
Log Out
Show Location Status

Search | Review

**Patient Query**

Name *
First * First
Field is required
Last * Last
Field is required

Gender *
Choose from the selection
Field is required
Date of Birth *
yyyy Month Day
Field is required
SSN
XXX-XX-XXXX

Search

**Queries (1)**

**Queried Patient Information**

| Name | Date of Birth | Gender | ▼Last Updated | Status | Action |
|---|---|---|---|---|---|
| John Smith (Legal Name) | Jun 06, 1966 | M | Jan 30, 2017 8:07:28 PM | 3 records found | + |

# PULSE Screenshot

## Patient Staging

### Queried Patient Information

| Name | Gender | Date of Birth |
|---|---|---|
| John Smith (Legal Name) | M | Jun 06, 1966 |

### Possible Patient Records

| Location | Name | Gender | Date of Birth | SSN | View Details | Select |
|---|---|---|---|---|---|---|
| St. Sebastian's Hospital | John James Smith (improper) | Male | Jun 06, 1966 7 PM | 999-88-6345 | | ☑ |
| Sacred Heart Hospital | John James Smith (improper) | Male | Jun 06, 1966 5:13 PM | 999-88-6345 | | ☐ |
| Santa Rosa Mental Health Institute | John James Smith-Smith (improper) | Male | Jun 06, 1966 5:27 AM | 999-88-6345 | | ☑ |

### Combined PULSE Patient

Full Name * John Smith
Friendly Name
Gender * Male
Date of Birth * 1966-06-06
SSN

Dismiss
Save

# PULSE Screenshot

PULSE
Patient Unified Lookup System for Emergencies

Contra Costa-01

Peter Fisher
Log Out
Show Location Status

Search | Review

Patient: John Smith

Edit | Discharge | Deactivate

## John Smith

| | |
|---|---|
| Gender | M |
| Date of Birth | Jun 5, 1966 |
| SSN | |

| Status | ▲Title | Class Name | Confidentiality | Creation Date | Size | Location |
|---|---|---|---|---|---|---|
| | Hospital Admission | ALLERGY NOTE | High | May 15, 2008 | 34.6 kB | St. Sebastian's Hospital |
| | Hospital Admission | ALLERGY NOTE | High | May 15, 2008 | 34.6 kB | Santa Rosa Mental Health Institute |
| | Physical Test | SUMMARIZATION OF EPISODE NOTE | Normal | May 16, 2008 | 34.6 kB | St. Sebastian's Hospital |
| | Physical Test | SUMMARIZATION OF EPISODE NOTE | Normal | May 16, 2008 | 34.6 kB | Santa Rosa Mental Health Institute |

# PULSE Screenshot

PULSE
Patient Unified Lookup System for Emergencies

Contra Costa-01

Peter Fisher
Log Out
Show Location Status

Document Review: ALLERGY NOTE

Showing transformed document information

## 2014 Consolidated CDA

| | |
|---|---|
| **Patient** | Isabella Jones |
| **Language** | (eng) |
| **Date of birth** | February 1, 1988 |
| **Sex** | Female |
| **Race** | WHITE |
| **Ethnicity** | NOT HISPANIC |
| **Contact info** | Work Place:<br>SMALLSYS INC<br>795 E DRAGRAM<br>TUCSON 72223, USA |
| **Patient IDs** | 370<br>749267972 |
| **Confidentiality** | Normal |
| **Document Id** | TT988 |
| **Document Created:** | February 26, 2015, 00:40:09 |
| **Author** | Essentia |
| **Contact info** | Work Place: |

# PULSE Screenshot

PULSE
Patient Unified Lookup System for Emergencies

Contra Costa-01

Peter Fisher

Log Out

Show Location Status

## ALLERGIES, ADVERSE REACTIONS, ALERTS

| Type | Substance | Reaction | Status |
|---|---|---|---|
| ALLERGIES | morphine | rash | Active |
| ALLERGIES | amoxicillin | anaphylaxis | Active |
| ALLERGIES | metronidazole | difficulty breathing | Active |
| ALLERGIES | Macrolide Antibiotics Group | nausea | Active |

## MEDICATIONS

| Medication | Start Date | Route | Dose | Status |
|---|---|---|---|---|
| Abilify, ,,[RxNorm:352309] | 20150102000000 | | | Active |
| Crestor, ,,[RxNorm:859749] | 20150101000000 | | | Active |
| Sucraid, ,,[RxNorm:213337] | 20150217000000 | | | Active |
| Dilantin, ,,[RxNorm:855871] | 20150216000000 | | | Active |

## PROBLEMS

1. Alteration in Mood[Status-Active]

## SOCIAL HISTORY

| Social History Element | Description | Effective Dates |
|---|---|---|
| Smoking Status | Current Light Tobacco Smoker. | - |

# Next Steps

- Build out PULSE nationwide
- Continue collaboration between CMS and ONC to connect PULSE with Carequality (a nationwide health information exchange network)
- ASPR's ESAR-VHP Program to identify state ESAR-VHP programs to connect to PULSE
- Inform CDC's PHEP program about PULSE
- Connect and integrate with other stakeholders

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# HHS emPOWER INITIATIVE

ASPR ASSISTANT SECRETARY FOR PREPAREDNESS AND RESPONSE

CMS

***Using Medicare Data to Support Federal-to-Community Emergency Preparedness, Response and Recovery***

#HIMSS18

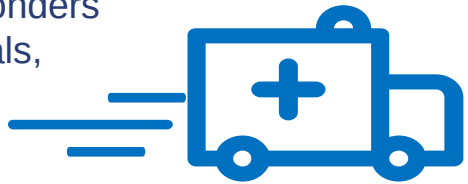
# Why HHS Created the emPOWER Program

## *Identifying and Addressing At-Risk Population Needs*

**3.8 million** Medicare beneficiaries

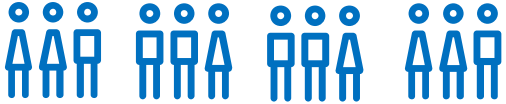
rely on electricity-dependent medical equipment and health care services to live independently in their homes.

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



This leads to **surges in health care demand** and **stress** on the health care system and shelters**.**

How can we help communities **reduce system stress, ensure continuity of care,** and better **protect** their at-risk Medicare beneficiary populations from adverse health outcomes?



# Evidence for the HHS emPOWER Program

## *Testing Medicare Data for Emergency Preparedness*

In 2013, ASPR and the Centers for Medicare and Medicaid Services (CMS) partnered to explore how Medicare data can help communities **anticipate, plan for,** and **address** the unique needs of the electricity-dependent population.

## The Pilot

ASPR and CMS tested the accuracy of Medicare claims data in locating residents of New Orleans that use ventilators, oxygen tanks, and/or oxygen concentrators. The data must be highly accurate to ensure first responders are not put at risk unnecessarily.

*Figure 1. Medicare beneficiaries in the City of New Orleans with a claim for ventilator, oxygen concentrator and/or oxygen tank.*

## The Results

- **191 of the 611 individuals were visited within 5 hours**
- **93% had the medical equipment**

**Similar results were achieved in an repeat validation exercise in Broome County, New York in April 2014**

The NOLA drill also revealed gaps in emergency preparedness. **Of the 611 individuals** identified:

**15 people**


**were enrolled in the city's special needs registry**

**8 people**


**were in the electric company's registry**

**Almost half**


**did not have an emergency plan**

**Over half**

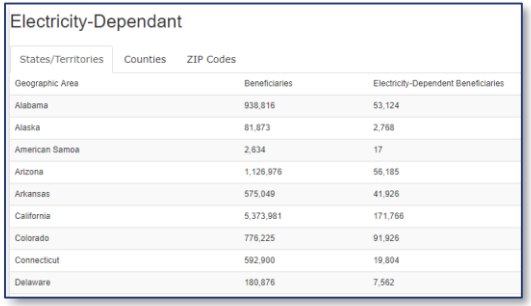

**would need assistance in an emergency**

# Elements of the HHS emPOWER Program

## *Innovative Use of CMS Data*

The HHS emPOWER Program leverages CMS beneficiary data to populate innovative program tools, including datasets and Geographic Information Systems (GIS) maps, to provide communities with the **right data** in the **right tool** to the **right person** at the **right time**

### Data

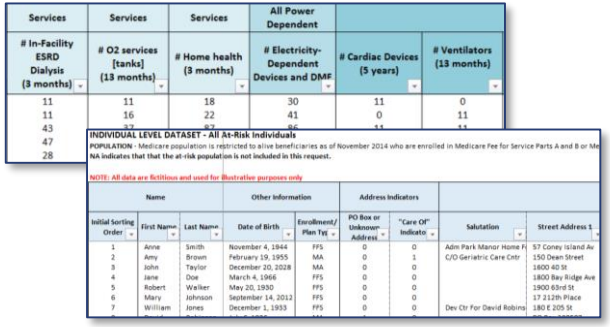


Electricity-Dependant

States/Territories | Counties | ZIP Codes

| Geographic Area | Beneficiaries | Electricity-Dependent Beneficiaries |
|---|---|---|
| Alabama | 938,816 | 53,124 |
| Alaska | 81,873 | 2,768 |
| American Samoa | 2,634 | 17 |
| Arizona | 1,126,976 | 56,185 |
| Arkansas | 575,049 | 41,926 |
| California | 5,373,981 | 171,766 |
| Colorado | 776,225 | 91,926 |
| Connecticut | 592,900 | 19,804 |
| Delaware | 180,876 | 7,562 |

### Dataset Tools



| Services | Services | Services | All Power Dependent | | |
|---|---|---|---|---|---|
| # In-Facility ESRD Dialysis (3 months) | # O2 services [tanks] (13 months) | # Home health (3 months) | # Electricity-Dependent Devices and DME | # Cardiac Devices (5 years) | # Ventilators (13 months) |
| 11 | 11 | 18 | 30 | 11 | 0 |
| 11 | 16 | 22 | 41 | 0 | 11 |
| 43 | 37 | 87 | 86 | 11 | 11 |
| 47 | | | | | |
| 28 | | | | | |

INDIVIDUAL LEVEL DATASET - All At-Risk Individuals

POPULATION - Medicare population is restricted to alive beneficiaries as of November 2014 who are enrolled in Medicare Fee for Service Parts A and B or Me

NA indicates that that the at-risk population is not included in this request.

NOTE: All data are fictitious and used for illustrative purposes only

| Name | | | Other Information | | Address Indicators | | | |
|---|---|---|---|---|---|---|---|---|
| Initial Sorting Order | First Name | Last Name | Date of Birth | Enrollment/ Plan Typ | PO Box or Unknown Address | "Care Of" Indicator | Salutation | Street Address 1 |
| 1 | Anne | Smith | November 4, 1944 | FFS | 0 | 0 | Adm Park Manor Home F | 57 Coney Island Av |
| 2 | Amy | Brown | February 19, 1955 | MA | 0 | 1 | C/O Geriatric Care Cntr | 150 Dean Street |
| 3 | John | Taylor | December 20, 2028 | MA | 0 | 0 | | 1600 40 St |
| 4 | Jane | Doe | March 4, 1966 | FFS | 0 | 0 | | 1800 Bay Ridge Ave |
| 5 | Robert | Walker | May 20, 1930 | FFS | 0 | 0 | | 1900 63rd St |
| 6 | Mary | Johnson | September 14, 2012 | FFS | 0 | 0 | | 17 212th Place |
| 7 | William | Jones | December 1, 1933 | FFS | 0 | 0 | Dev Ctr For David Robins | 180 E 205 St |

### Map & Rest Service Tools

HHS.gov | U.S. Department of Health & Human Services | PHE.GOV

HHS emPOWER Map 2.0

Over 2.5 million Medicare beneficiaries rely upon electricity-dependent medical and assistive equipment, such as ventilators and wheel chairs, and cardiac devices in our communities. Severe weather and disasters that cause power outages can be life threatening for these individuals.

How can we empower community and electricity-dependent Medicare beneficiary health resilience?

Every hospital, first responder, electric company, and community member can use the map to find the monthly total of Medicare beneficiaries with electricity-dependent equipment claims at the U.S. state, territory, county, and zip code level and turn on "real-time" natural hazard and NOAA severe weather tracking services to identify areas and populations that may be impacted and are at risk for prolonged power outages.

Together, we can all develop emergency plans and response activities fo assist our at-risk community members prior to, during and after an emer

Select map attributes to display data

NATURAL HAZARDS

Select Natural Hazard

REGION FOR HEALTH DATA

Select State/Territory

Select County

Select ZIP Code

Resource List

HHS emPOWER Map Fact Sheet

State Public Health Authorit

# HHS emPOWER Program Tools

## *emPOWERing Emergency Planning and Response*

The HHS emPOWER Program provides dynamic data and mapping tools to help communities protect more than 3.8 million Medicare beneficiaries who rely on electricity-dependent medical equipment and health care services

### emPOWER Map 2.0


**Publicly available** at https://empowermap.hhs.gov

### emPOWER Emergency Planning De-identified Dataset

| Services | Services | Services |
|---|---|---|
| # In-Facility ESRD Dialysis (3 months) | # O2 services [tanks] (13 months) | # Home health (3 months) |
| 11 | | |
| 11 | | |
| 43 | | |
| 47 | | |
| 28 | | |

| All Power Dependent | | |
|---|---|---|
| # Electricity-Dependent Devices and DME | # Cardiac Devices (5 years) | # Ventilators (13 months) |
| 30 | 11 | 0 |
| 41 | 0 | 11 |
| 86 | 11 | 11 |
| 157 | 11 | 11 |
| 92 | 0 | 11 |

**Restricted** to public health authorities and relevant partners

### emPOWER Emergency Response Outreach Individual Dataset

**INDIVIDUAL LEVEL DATASET - All At-Risk Individuals**

**POPULATION** - Medicare population is restricted to alive beneficiaries as of N

**NA indicates that that the at-risk population is not included in this report.**

**NOTE: All data are fictitious and used for illustrative purposes only**

| Name | | | Other Information | |
|---|---|---|---|---|
| Initial Sorting Order | First Name | Last Name | Date of Birth | Enrollment/ Plan Ty |

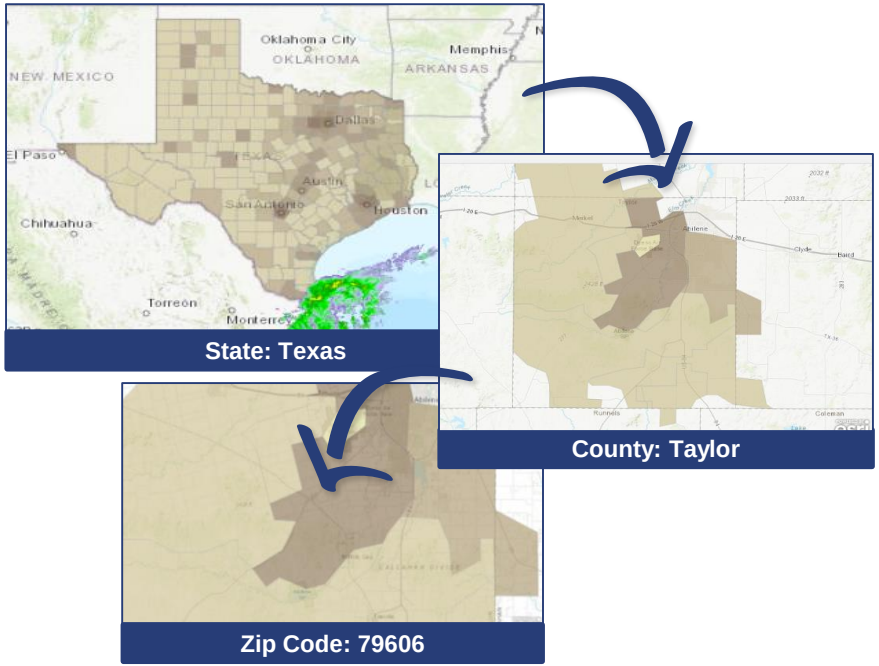
| Address | | | | | |
|---|---|---|---|---|---|
| Street Address 1 | Street Address 2 | City | County Name | County FIPS Co | State |
| 57 Coney Island Av | | Brooklyn | Kings County | 047 | NY |
| 150 Dean Street | | Brooklyn | Kings County | 047 | NY |
| 1600 40 St | | Brooklyn | Kings County | 047 | NY |
| 1800 Bay Ridge Ave | | Brooklyn | Kings County | 047 | NY |
| 1900 63rd St | First Floo | Brooklyn | Kings County | 047 | NY |
| 17 212th Place | | Queens Village | Queens County | 081 | NY |
| 180 E 205 St | | Bronx | Bronx County | 005 | NY |

**Secure**, restricted to authorized public health authorities

# HHS emPOWER Map 2.0

## *How can I use the emPOWER Map 2.0?*

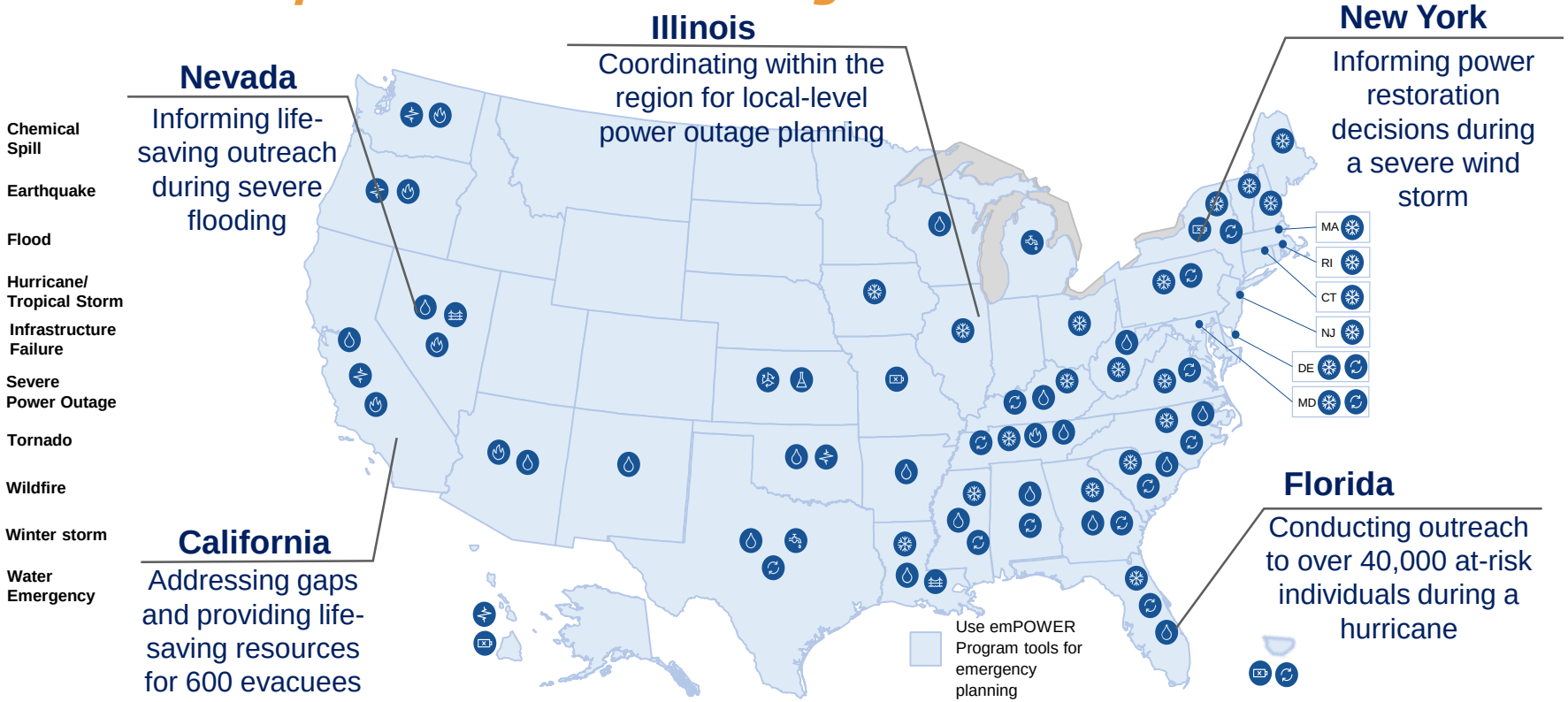
The map provides a starting point for estimating the electricity-dependent population in a geographic area prior to, during, or after an emergency




- Gain population-based situational awareness
- Plan for evacuations and identify evacuation routes
- Identify health care resource needs and potential areas of hospital/EMS surge
- Determine potential shelter locations and shelter resource needs
- Inform public communications and foster community engagement and assistance

# HHS emPOWER Program in Action

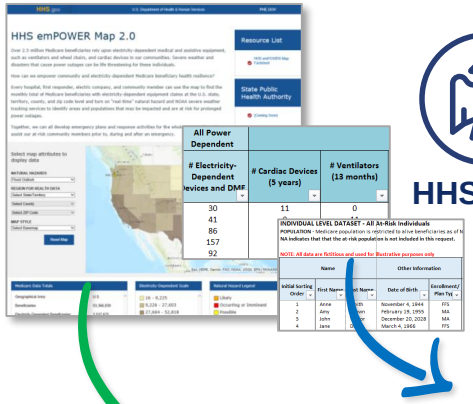
## *Examples of Where the Program has been Used*



# HHS emPOWER Program Ecosystem

## *Integrating Stakeholders for Emergency Response*

The HHS emPOWER Program enables cross-sector integration and coordination at every level and across all systems for emergency preparedness, response, and recovery




**HHS ASPR**

**State Health Departments**

**Local and Regional Health Departments**

- Health Care Services
- Emergency Management
- Human Services
- Others
- EMS/ Fire
- Community Members

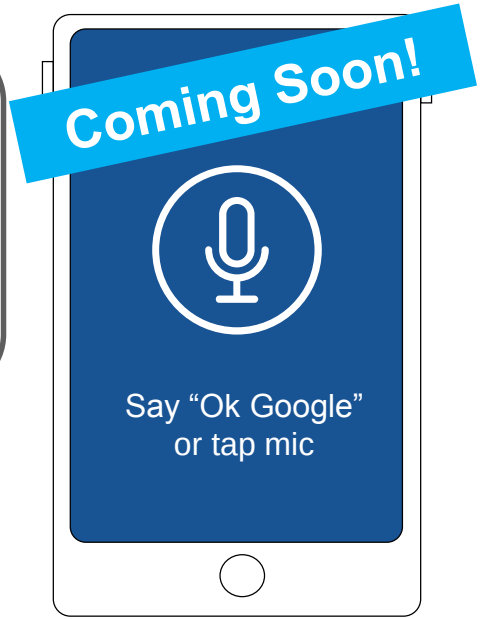
# HHS emPOWER Program Innovation

## *Using Innovative Technology to Improve and Advance the Program*

**In Spring 2018** the HHS emPOWER Program will launch the emPOWER Map Virtual Assistant through **Google Assistant and Amazon Alexa** to put emPOWER data in the hands of first responders in the field

"Ok Google" **"How many Medicare beneficiaries are electricity dependent in my current zip code?"**

*"There are 255 electricity-dependent Medicare beneficiaries in 79606"*




emPOWER Map Virtual Assistant provides communities with the **right data** in the **right tool** to the **right person** at the **right time…**

…So that first responders, community members and community organizations (e.g. aging agencies) can have **readily-available information** on the electricity-dependent population in their hands, enabling them to **make informed decisions** and take action.

# emPOWER Medicaid Pilot

- Pilot using Medicaid data with the following states:
  - Virginia: Kickoff -11/08/17 (currently analyzing)
  - Florida: Kickoff - 01/05/18 (currently under review)
  - Nevada: Kickoff - 12/4/17 (generated emPOWER data)
- Provide HHS emPOWER Framework, Algorithm Specifications and Technical (FAST) Capabilities framework and technical assistance for states to gather patient level data and de-identified data on Medicaid beneficiaries
- Utilize data to aid in disaster preparedness and response

# Nevada

- Nevada Medicaid has generated and provided both emPOWER reports to their Public Health Agency (PHA). (Aggregate and patient level data)
- Utilized FAST framework to identify and pull data from their data warehouse to generate reports
    - Currently finalizing datasets and collecting lessons learned.
    - Collaboration underway with NV PH to understand operational plans

# emPOWER Medicaid Pilot Next Steps

- Share lessons learned with other pilot states
- Include more states in the Medicaid pilot program
- Share success stories of how having both Medicaid and Medicare emPOWER data has assisted in disasters.

# Discussion

- Who are the key partners you have worked with to advance HIT/HIE efforts for preparedness & response?
- Has your organization utilized PULSE or emPOWER?
- Do you have any Disaster Health Information Exchange strategies/promising practices or lessons learned that you can share with the group?
- Turn around and introduce yourself to the person behind you. Planning and collaboration should begin way before a disaster.

# Questions?

- Where you can find us:

  Samuel.Schaffzin@cms.hhs.gov
  @Schaffzin on Twitter

  Thomas.Novak@hhs.gov
  @ThomasNOV on Twitter

- Please be sure to complete online session evaluation!

CMS

The Office of the National Coordinator for Health Information Technology

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ASSISTANT SECRETARY FOR PREPAREDNESS AND RESPONSE



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