Leveraging Health Information Exchange for Disaster Preparedness and Response

Session 164, March 7, 2018
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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.
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

A learning health system enabled by nationwide interoperability, that supports all stakeholders, especially individuals and providers.
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

Contra Costa-01

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

Search

Queries (0)

Queried Patient Information
No current queries

Log Out

Show Location Status
## PULSE Screenshot

### Contra Costa-01

**Patient: John Smith**

<table>
<thead>
<tr>
<th>Status</th>
<th>Title</th>
<th>Class Name</th>
<th>Confidentiality</th>
<th>Creation Date</th>
<th>Size</th>
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<td>May 15, 2008</td>
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<td>St. Sebastians Hospital</td>
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<td>Hospital Admission</td>
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<td>Physical Test</td>
<td>SUMMARIZATION OF EPISODE NOTE</td>
<td>Normal</td>
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<td>34.6 kB</td>
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<td>SUMMARIZATION OF EPISODE NOTE</td>
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<td>May 16, 2008</td>
<td>34.6 kB</td>
<td>Santa Rosa Mental Health Institute</td>
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</table>
# PULSE Screenshot

## 2014 Consolidated CDA

<table>
<thead>
<tr>
<th>Patient</th>
<th>Isabella Jones</th>
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<tbody>
<tr>
<td>Language</td>
<td>(eng)</td>
</tr>
<tr>
<td>Date of birth</td>
<td>February 1, 1988</td>
</tr>
<tr>
<td>Sex</td>
<td>Female</td>
</tr>
<tr>
<td>Race</td>
<td>WHITE</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>NOT HISPANIC</td>
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<tr>
<td>Contact info</td>
<td>Work Place: SMALLSYS INC 795 E DRAGAN TUCSON 72233 USA</td>
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<td>Normal</td>
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<td>Document Id</td>
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<tr>
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</tr>
<tr>
<td>Author</td>
<td>Essentia</td>
</tr>
<tr>
<td>Contact Info</td>
<td>Work Place:</td>
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</table>
### PULSE Screenshot

**Contra Costa-01**

#### ALLERGIES, ADVERSE REACTIONS, ALERTS

<table>
<thead>
<tr>
<th>Type</th>
<th>Substance</th>
<th>Reaction</th>
<th>Status</th>
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<tbody>
<tr>
<td>ALLERGIES</td>
<td>morphine</td>
<td>rash</td>
<td>Active</td>
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<tr>
<td>ALLERGIES</td>
<td>amoxicillin</td>
<td>anaphylaxis</td>
<td>Active</td>
</tr>
<tr>
<td>ALLERGIES</td>
<td>metronidazole</td>
<td>difficulty breathing</td>
<td>Active</td>
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<tr>
<td>ALLERGIES</td>
<td>Macrolide Antibiotics Group</td>
<td>nausea</td>
<td>Active</td>
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#### MEDICATIONS

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<tr>
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<th>Start Date</th>
<th>Route</th>
<th>Dose</th>
<th>Status</th>
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<tr>
<td>Abilify, [RxNorm:352309]</td>
<td>20150102000000</td>
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<td></td>
<td>Active</td>
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<td>Crestor, [RxNorm:899749]</td>
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<td>Suzraid, [RxNorm:213337]</td>
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<td>Dilantin, [RxNorm:855871]</td>
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<td></td>
<td>Active</td>
</tr>
</tbody>
</table>

#### PROBLEMS

1. Alteration in Mood[Status-Active]

#### SOCIAL HISTORY

<table>
<thead>
<tr>
<th>Social History Element</th>
<th>Description</th>
<th>Effective Dates</th>
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</thead>
<tbody>
<tr>
<td>Smoking Status</td>
<td>Current Light Tobacco Smoker</td>
<td>-</td>
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</table>

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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
HHS emPOWER INITIATIVE

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

The Results
- 191 of the 611 individuals were visited within 5 hours
- 93% had the medical equipment
Similar results were achieved in a 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:

- 2.4% were enrolled in the city’s special needs registry
- 1.3% were in the electric company’s registry
- 41% did not have an emergency plan
- 55% would need assistance in an emergency

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

<table>
<thead>
<tr>
<th>State/territory</th>
<th>Counties</th>
<th>ZIP Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geographic Area</td>
<td>Beneficiaries</td>
<td>Electricity Dependent Beneficiaries</td>
</tr>
<tr>
<td>Alabama</td>
<td>808,876</td>
<td>53,124</td>
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<tr>
<td>Alaska</td>
<td>81,873</td>
<td>2,796</td>
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<td>American Samoa</td>
<td>2,534</td>
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<td>Arizona</td>
<td>1,129,879</td>
<td>58,105</td>
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<td>Arkansas</td>
<td>575,040</td>
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<td>California</td>
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<td>Colorado</td>
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<td>Connecticut</td>
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<tr>
<td>Delaware</td>
<td>109,076</td>
<td>7,562</td>
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</table>
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**
Restricted to public health authorities and relevant partners

**emPOWER Emergency Response Outreach Individual Dataset**
Secure, restricted to authorized public health authorities
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

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

Examples of Where the Program has been Used

**Nevada**
Informing life-saving outreach during severe flooding

**California**
Addressing gaps and providing life-saving resources for 600 evacuees

**Illinois**
Coordinating within the region for local-level power outage planning

**New York**
Informing power restoration decisions during a severe wind storm

**Florida**
Conducting outreach to over 40,000 at-risk individuals during a hurricane
The HHS emPOWER Program enables cross-sector integration and coordination at every level and across all systems for emergency preparedness, response, and recovery.
**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

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

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

“There are 255 electricity-dependent Medicare beneficiaries in 79606”

…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:

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@ThomasNOV on Twitter

• Please be sure to complete online session evaluation!