



FUSION OVERVIEW

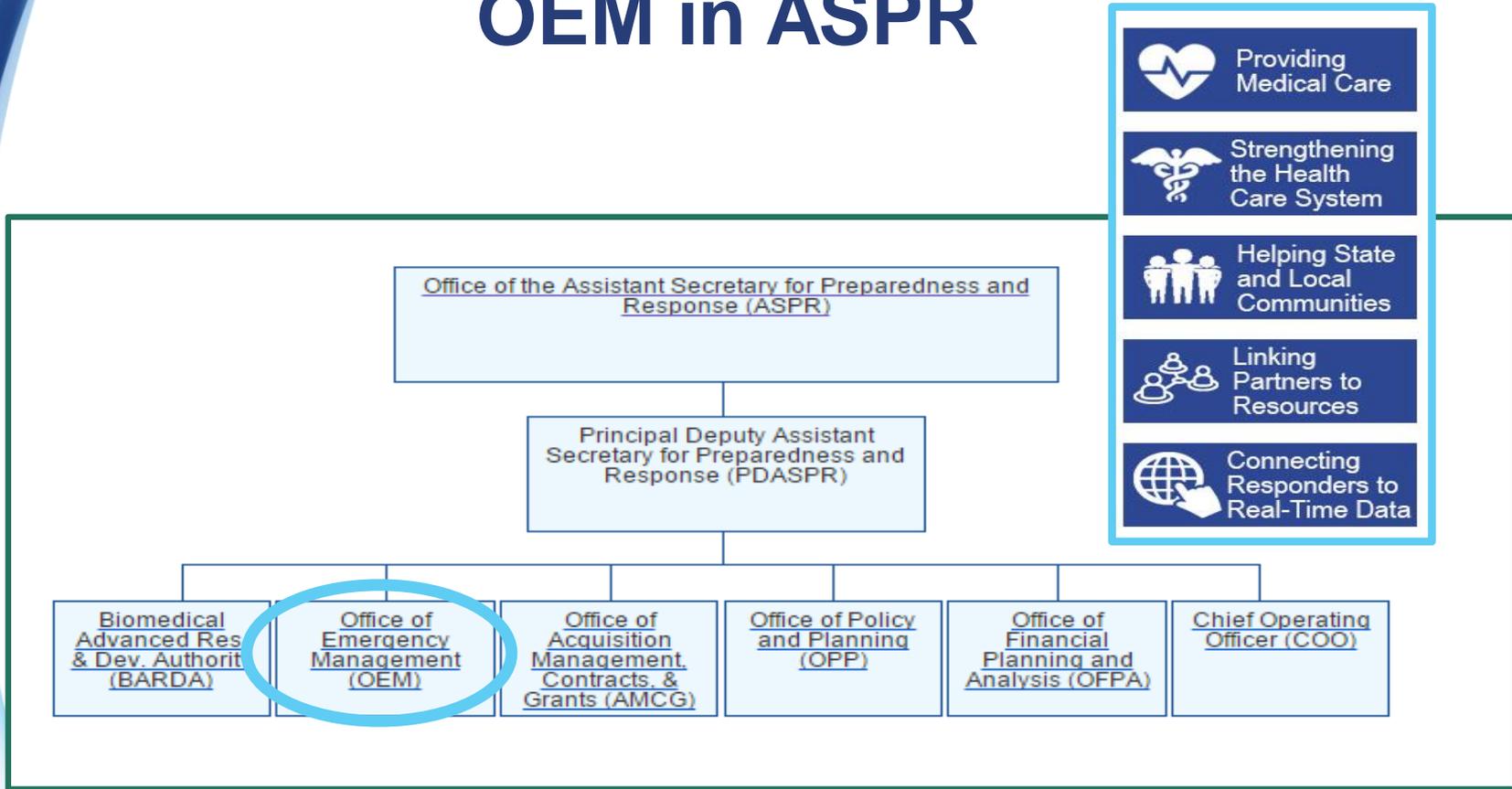
November 17, 2017



Outline

- Fusion's role in HHS/ASPR/OEM and mission
- Organizational structure
- Data and analytics tools and capabilities

OEM in ASPR





Mission, Vision & Keys to Success

Fusion Mission

Provide outstanding, innovative analytical decision support for OEM & ASPR leadership, while serving as a model for other Federal, state, and local entities.

Fusion Vision

Be one step ahead of a disaster through identification of emerging issues and anticipation of decision support needs.

Fusion Success

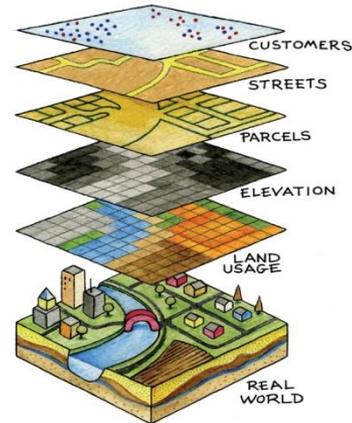
Utilize multiple internal and external data sources
Integrate data to enhance situational awareness and inform decision making
Ensure Fusion tools, capabilities & products are understood & accessible

Fusion Organizational Structure

Data & Analytics
(D&A) Branch



Geographic Information Systems
(GIS) Branch



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Fusion Tools & Capabilities

GIS/GeoHEALTH Platform

Fusion Analytics

Data Sharing

Now Trending



GeoHEALTH

PLATFORM

U.S. Department of Health & Human Services



Alerts - Weather



Earthquakes



Federal Data



Flooding

Better Planning · Enhanced Situational Awareness · Faster Response · Complete Recovery

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To Follow HHS on social media:     

For other resources, please see the following:



Health and Human Services



PHE.gov



HHS GIS Program



ASPR Portal



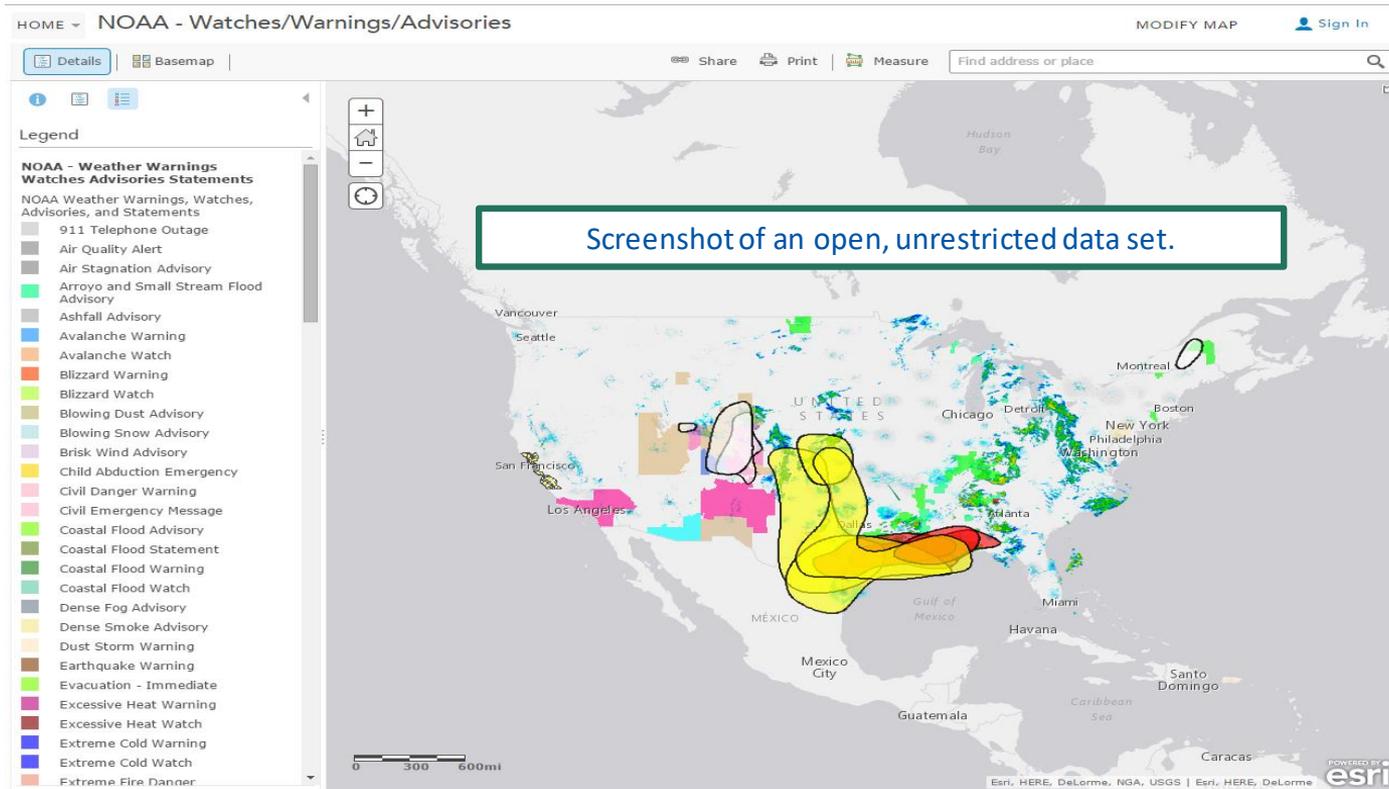
Contact Us

GeoHEALTH Functionality

<https://geohealth.hhs.gov>

- Integrates data and models:
 - Open source, dynamic data easily added and displayed
 - Data and models (CBRN plume, hurricane wind swath/surge) can be layered together to geospatially identify areas of concern
 - Ability to load/view local data (CSV, TXT, KML, etc.)
 - Several open data sets; no account required
- Ability to share dynamic maps
- Develop pre-configured maps by event type
- Functions on all types of devices (iOS, Android, PC)
- Continually adding innovative applications and data sets

NOAA Real-Time Data Service in GeoHEALTH



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Healthcare Infrastructure Layer

Home ▾ My Map

New Map

Details Add Basemap Analysis

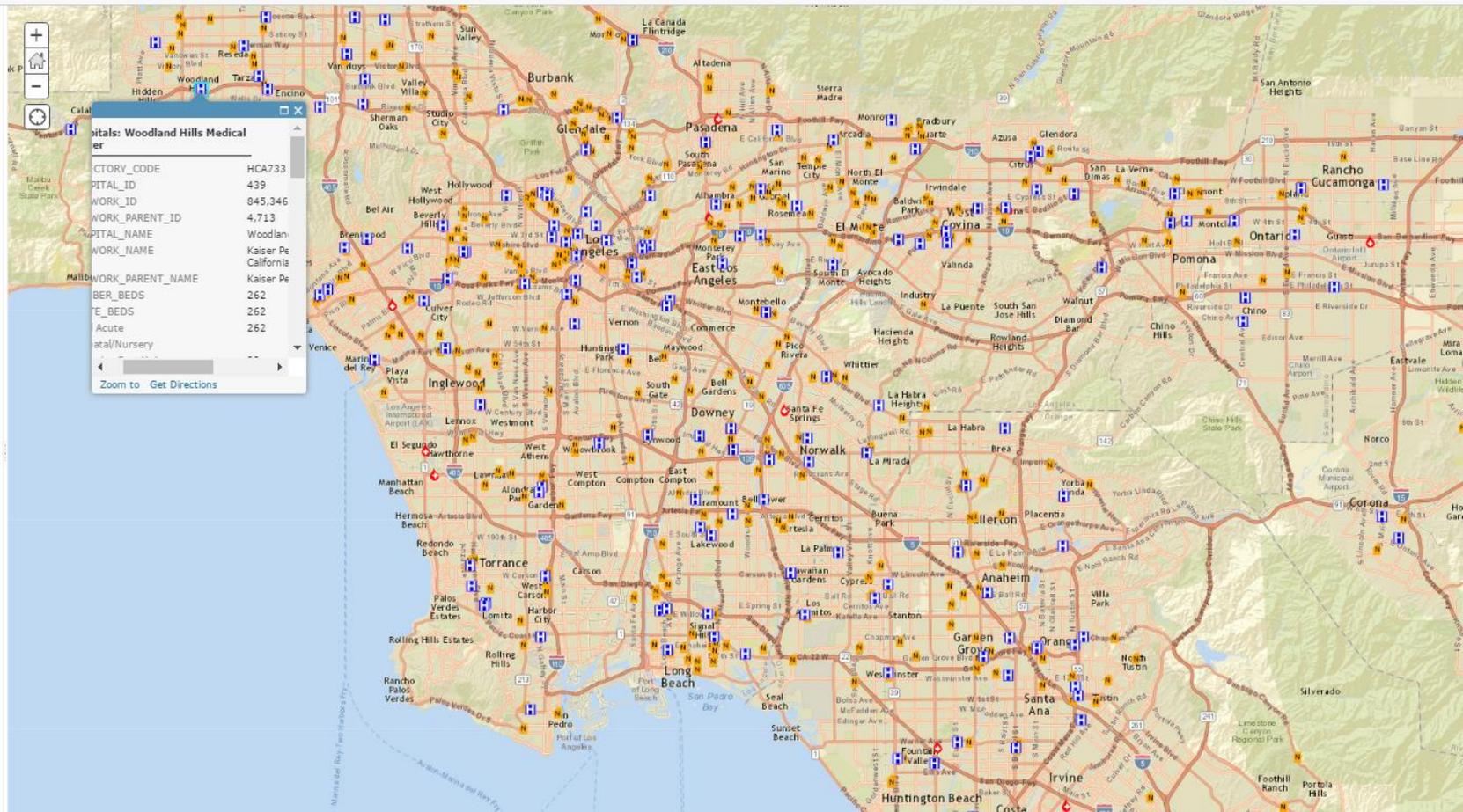
Save Share Print Directions Measure Bookmarks Find address or place

About Content Legend

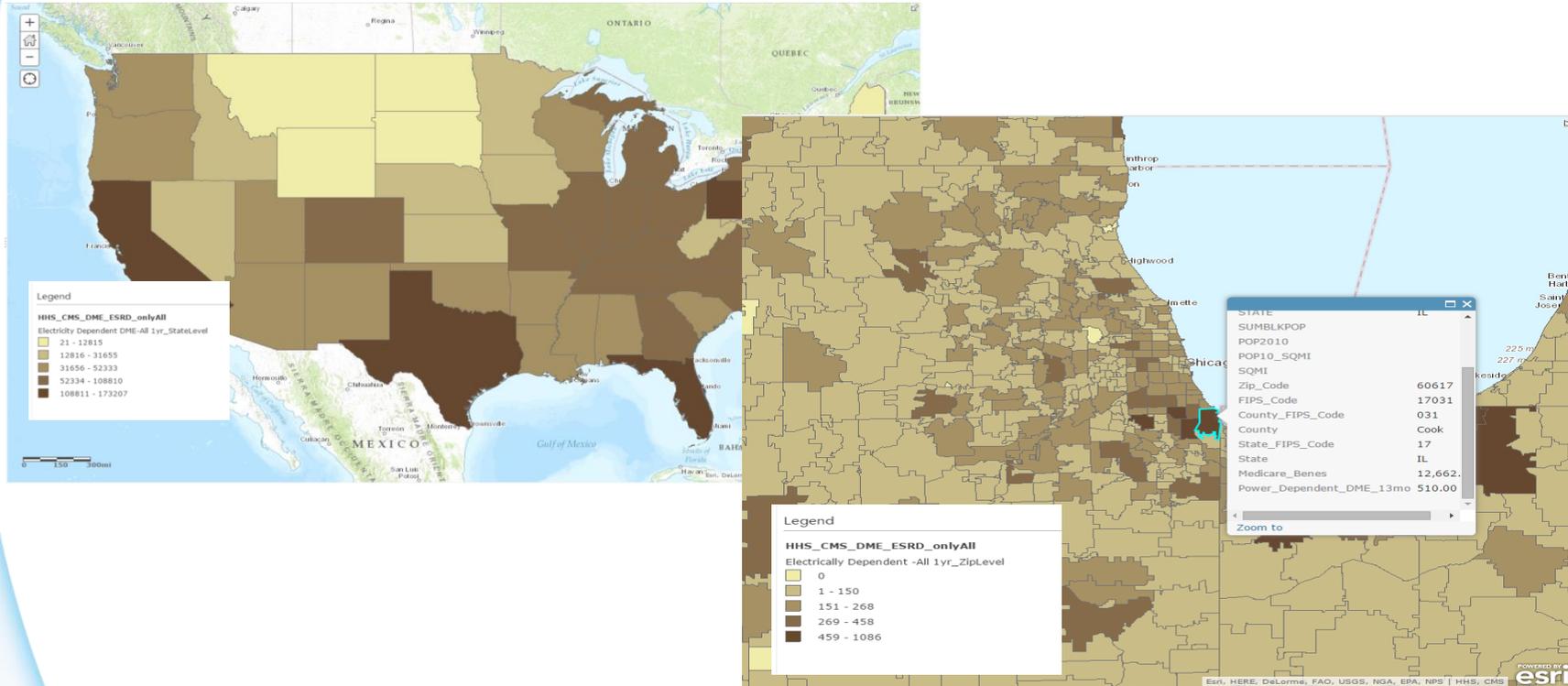
Legend

- HHS - Health Infrastructure
- Hospitals
- Nursing Homes
- Trauma Center Level - Adult
 - Level I Trauma Center
 - Level II Trauma Center
 - Level III Trauma Center
- Trauma Center Level - Pediatric
 - Level I Pediatric Trauma Center
 - Level II Pediatric Trauma Center
- Burn Centers
- Blood Centers

Hospitals: Woodland Hills Medical Center	
FACTORY_CODE	HCA733
PITAL_ID	439
WORK_ID	845,346
WORK_PARENT_ID	4,713
PITAL_NAME	Woodland Hills
WORK_NAME	Kaiser Pa California
WORK_PARENT_NAME	Kaiser Pa California
BER_BEDS	262
TE_BEDS	262
Acute	262
atal/Nursery	--



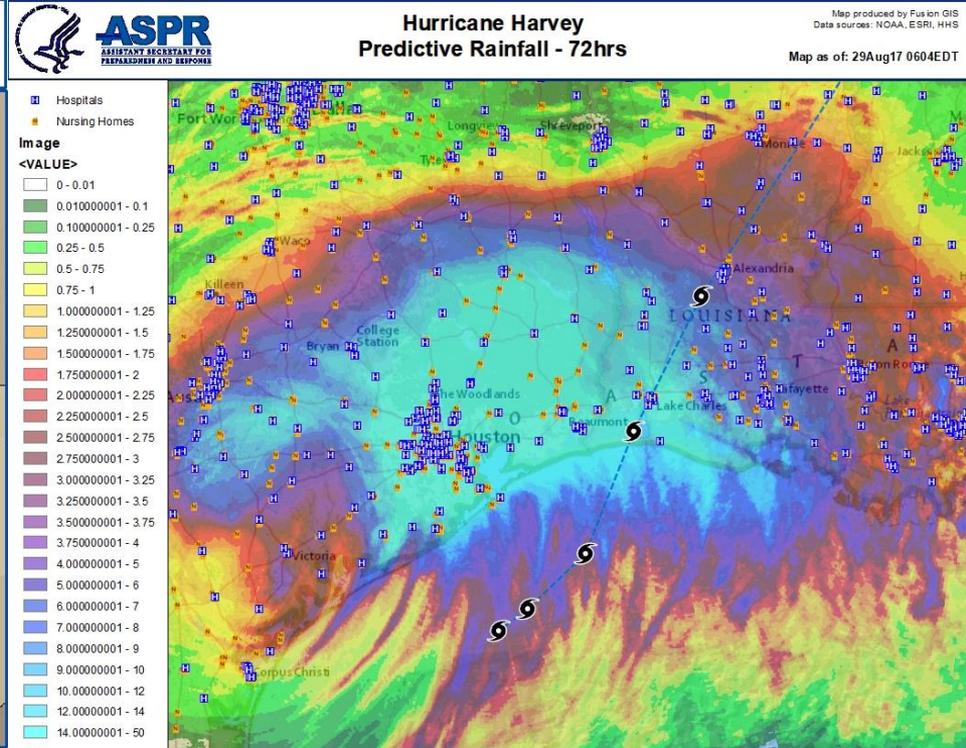
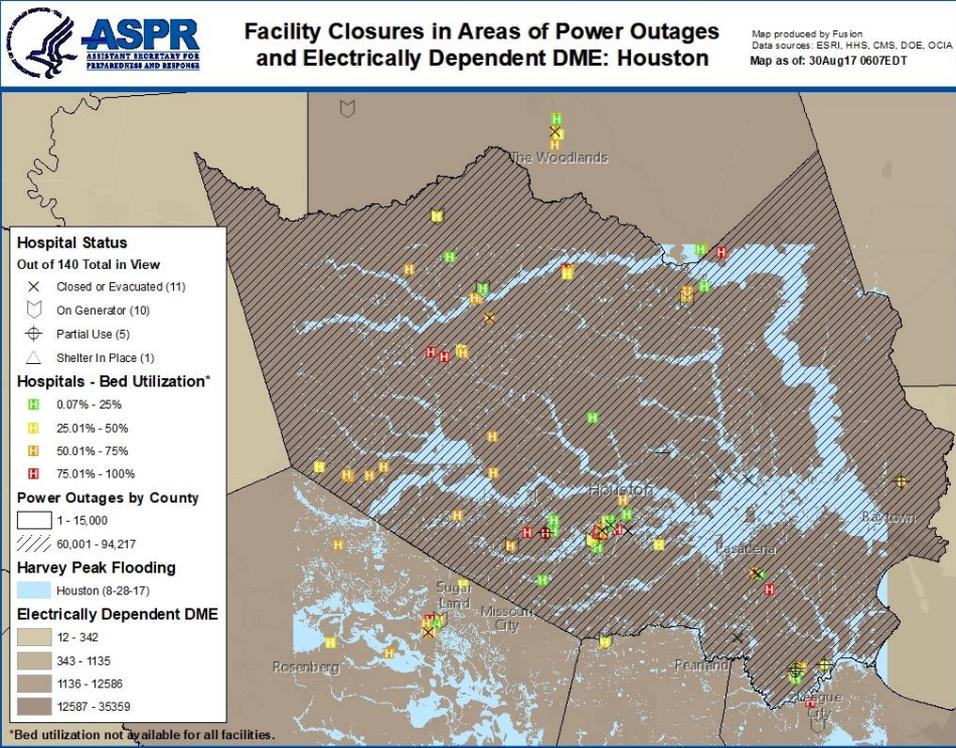
Durable Medical Equipment (DME) Data in GeoHEALTH



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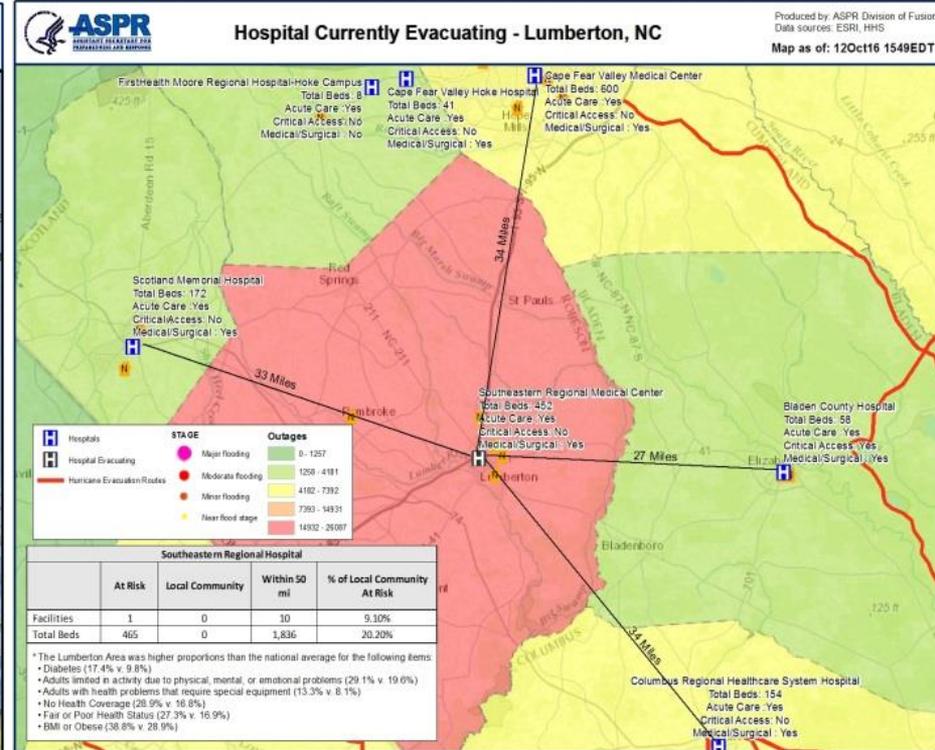
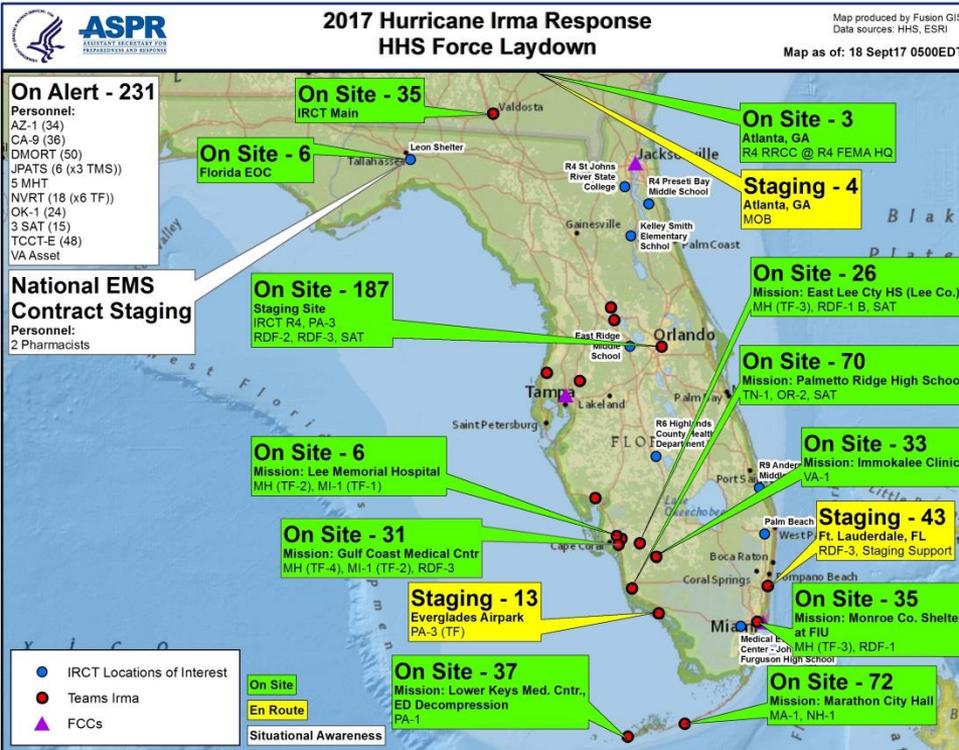
Facility Closures, Power Outages, DME

Healthcare Infrastructure and Predicted Rainfall



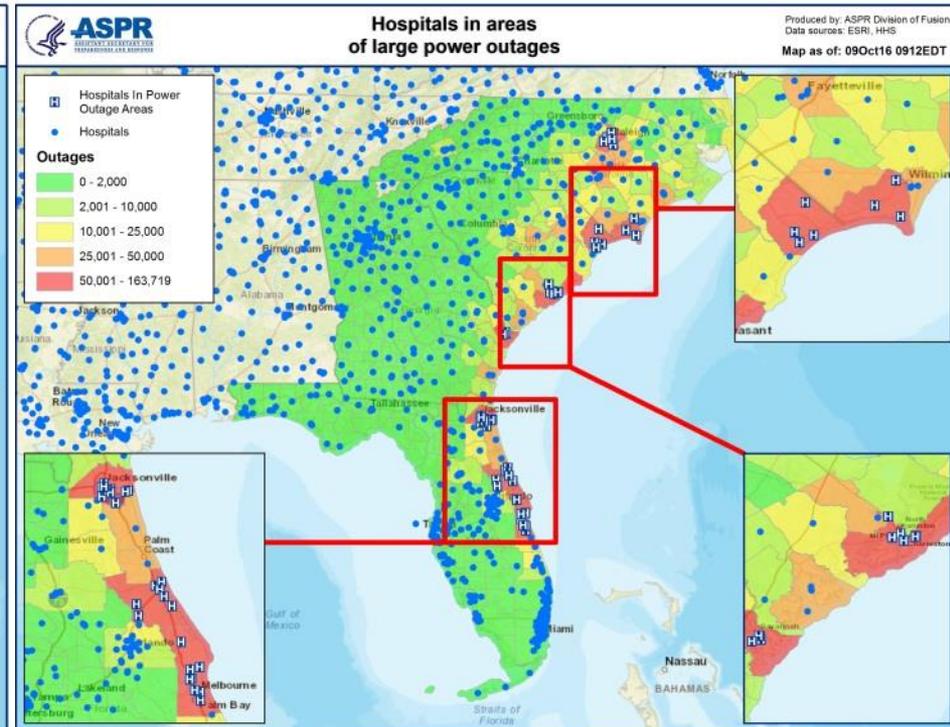
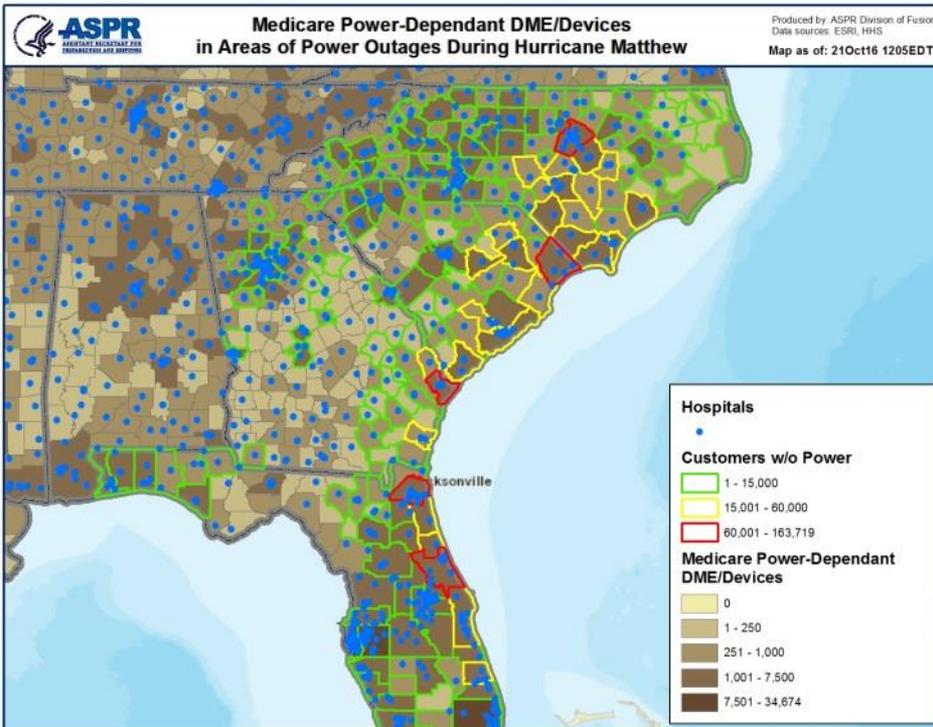
HHS ASPR Irma Force Laydown

Evacuating Hospital & Surrounding Hospitals



DME Data & Power Outages

Hospitals in Large Power Outage Areas



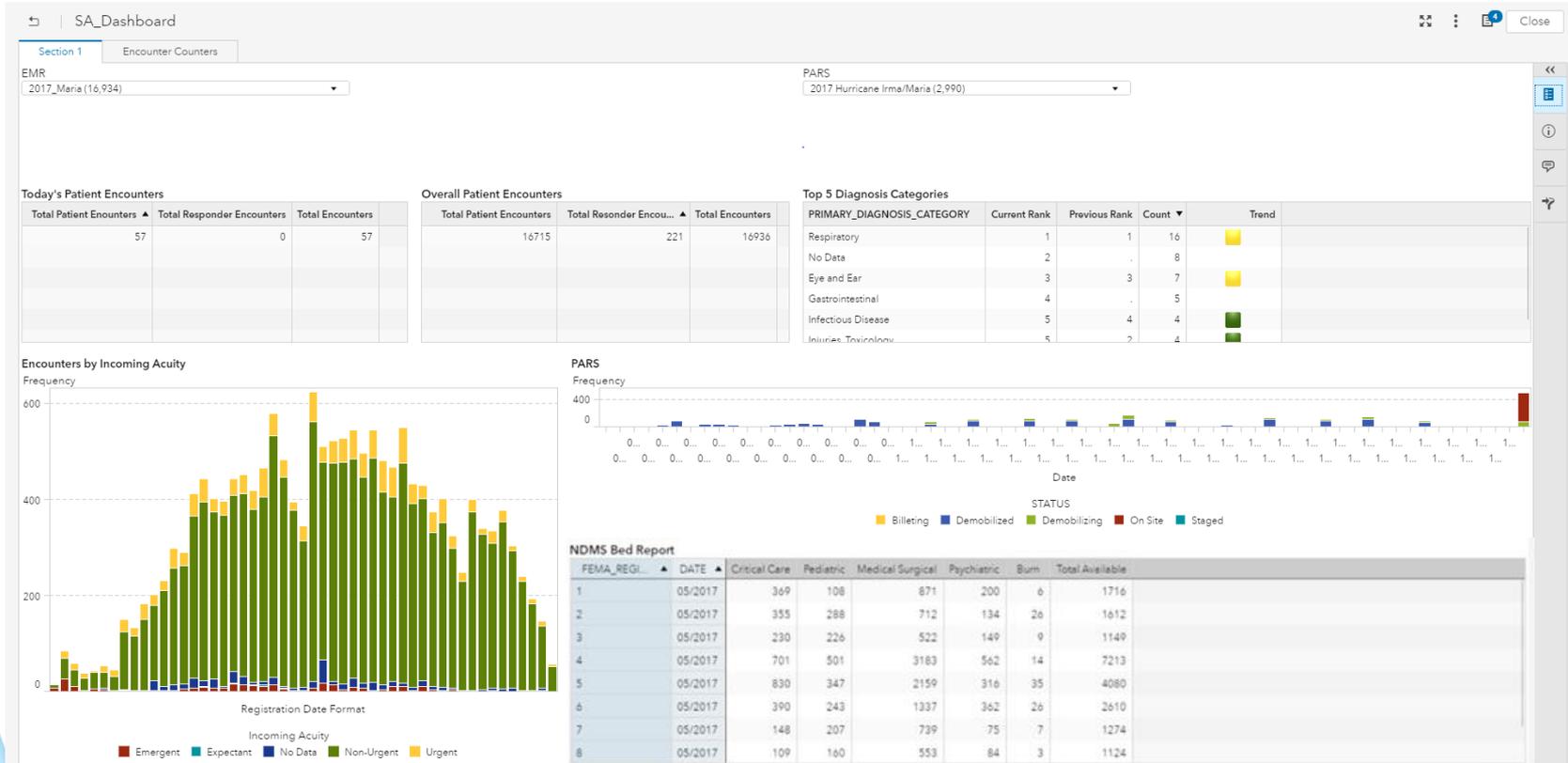
Total Vulnerability Score for SVI with Lead Levels Flint, MI



Fusion Analytics

- Web-based analytic dashboards allow users (HHS) to view real-time information 24/7
- Utilizes Statistical Analysis Software (SAS); capable of reading in information electronically from other databases (SQL, Oracle, etc)
- Information is processed within the SAS environment and is shared online through data dashboard displays over a secure web portal.
- Visualization of OEM data: EMR, logistics caches, personnel accountability

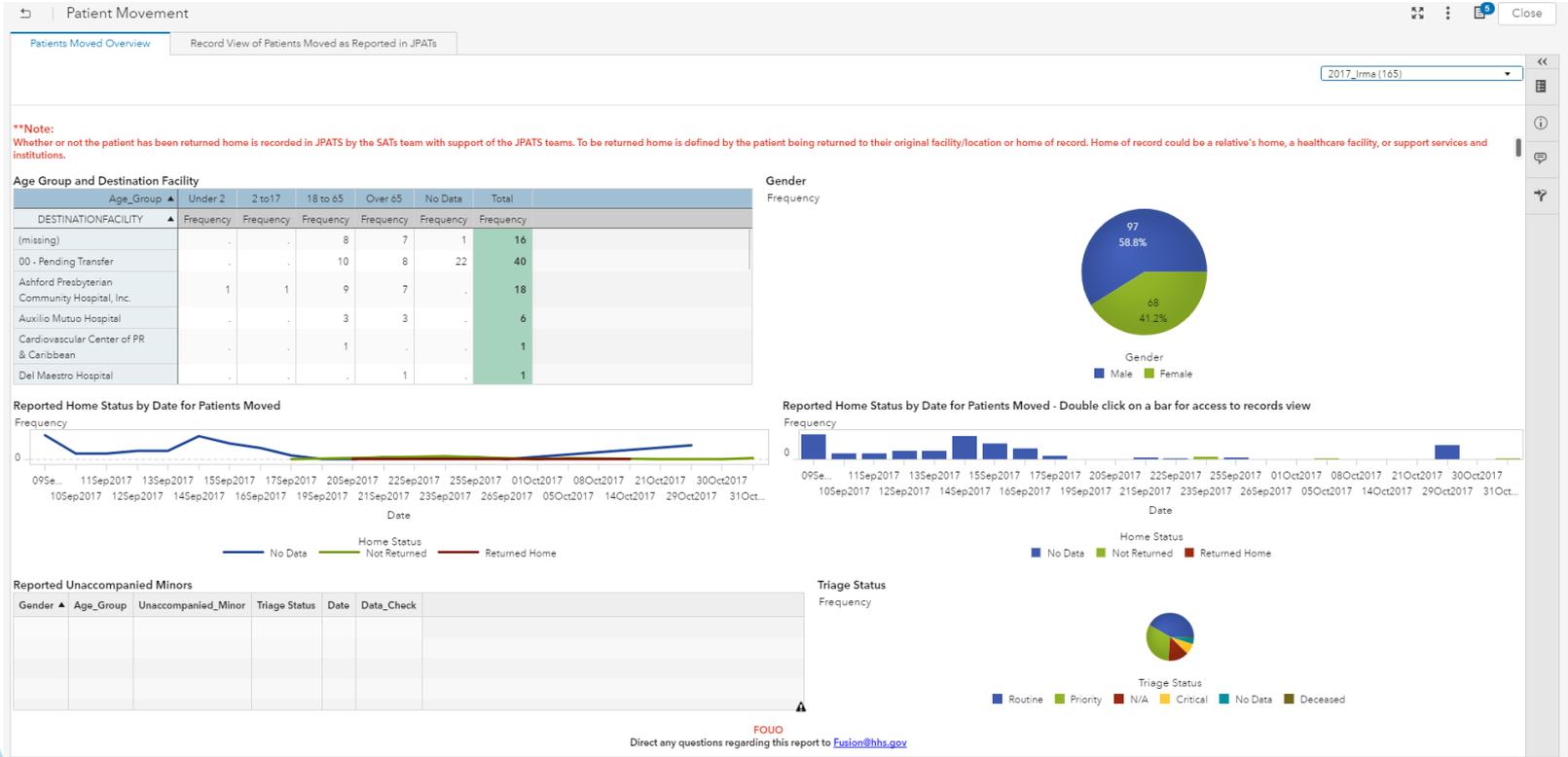
Situational Awareness (SA) Dashboard



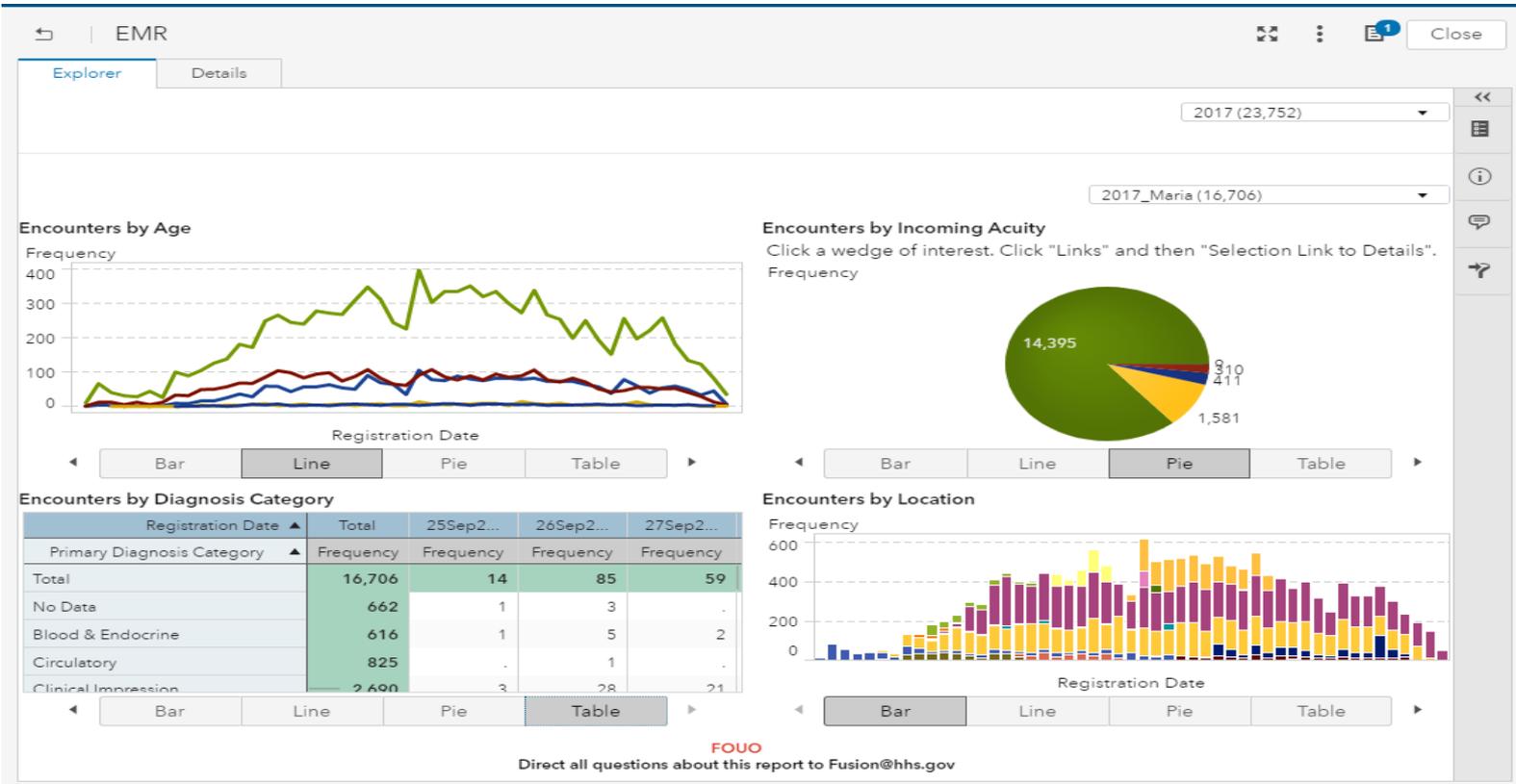
Operations Dashboard



Patient Movement



Electronic Medical Records (EMR)

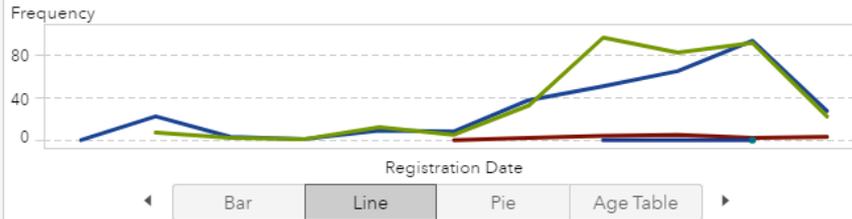


EMR – 2017 Irma Data View

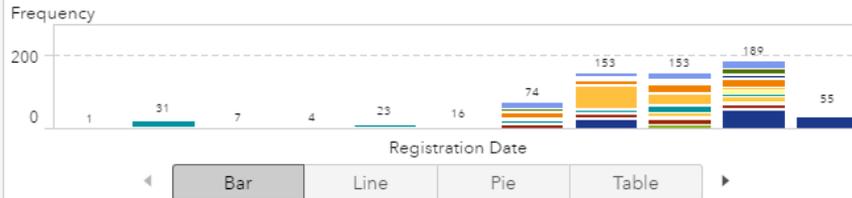
2017 (706) ▼

2017_Irma (706) ▼

Encounters by Age

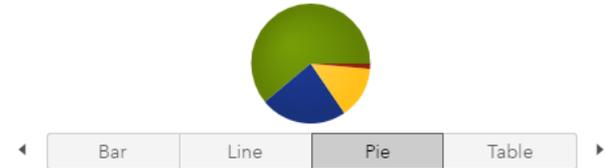


Encounters by Diagnosis Category



Encounters by Incoming Acuity

Click a wedge of interest. Click "Links" and then "Selection Link to Details".
Frequency



Encounters by Location

Registration Date ▲	ep2...	15Sep2...	16Sep2...	17Sep2...	18Sep2...	Total
Location Name ▲	quency	Frequency	Frequency	Frequency	Frequency	Frequency
Marathon, FL (City Offices)	46	41	31	40	8	172
Palmetto_EMRSA024	26	6	42	48	5	127
Ray Pottorf ES_SA015	2	4	2	5	.	89

Bar Line Pie Table

FOUO

Direct all questions about this report to Fusion@hhs.gov

State Data Sharing

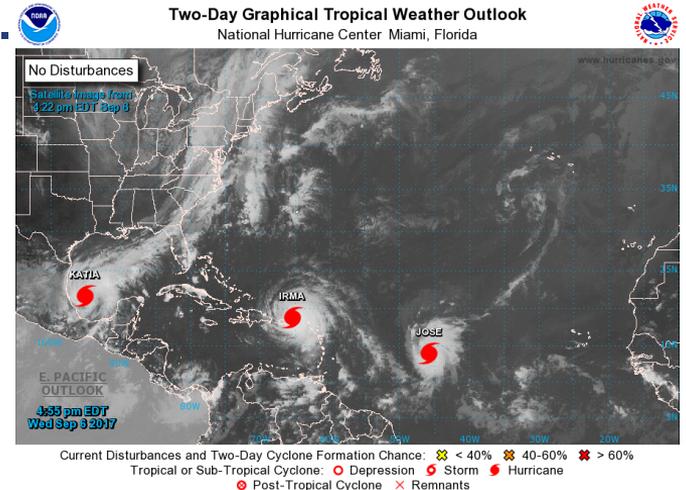
- DMAT teams bring Electronic Medical Record (EMR) kits with them and set them up on-site
- Patient information collected including demographics, registration date, primary diagnosis, chief complaint, discharge date, etc.
- Information is sent electronically to a database housed in Washington DC
- Fusion analyzes de-identified records from the database and creates visualizations and reports for senior leadership

State Data Sharing Cont'd

- Prior to 2012, ASPR would share a static report with state/local partners.
- In 2012, a collaboration was started between ASPR and Florida Department of Health. Through a secure file share, ASPR shared de-identified records into Florida's ESSENCE system for the 2012 Republican National Convention.
- This resulted in Florida receiving near real-time data
- But this was an agreement with one state, what about the many other states and territories?

ASPR/CDC Collaboration

- In 2016, ASPR and CDC started exploring how to send DMAT de-identified EMR data into BioSense platform
- After delays due to ASPR upgrading our system, we were finally ready to test the connection.
- Then the hurricanes started...





CDC BioSense

- Through a secure file transfer, ASPR sends the de-identified electronic medical record data to the BioSense platform
- BioSense platform processes the data and makes it available to the appropriate state and local jurisdiction
- Allows states and locals to see the data in near real-time
- Does not require separate data sharing agreements between ASPR and each state



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Harvey Patient Encounters

- Harvey: 5,359
- Most patients were seen at the George R. Brown Convention Center in Houston
- HHS supported state-run shelters with medical personnel
- Texas DOH was able to access the EMR data through BioSense platform
- Worked with TX DOH to help identify trends in the shelters and reportable diseases

Irma Patient Encounters

- Irma: 2,735
- Most patients seen at the Marathon, FL. This was an ER Decompression mission in the Florida Keys
- HHS provided support to ER Decompressions (Florida Keys and USVI), shelter support, and support to evacuated dialysis patients from USVI.
- DMAT teams moved in quicker than EMR kits arrived in the field. Data was a mix of electronic submissions and limited detail paper record entries

Maria Patient Encounters

- Maria: Over 28,000 HHS encounters in PR and USVI as of 13NOV17
- Very limited comms and internet access. Satellite phones spotty as well.
- Some teams able to set up EMR kits and some never had connectivity
- Missions include ER Decompression, Federal Medical Shelter support, Community Outreach, and Patient Movement
- Enormous federal government response, particularly with medical components (HHS, DOD, VA)

Condition Trends Over Time

U.S. Department of Health & Human Services

Public Health Emergency

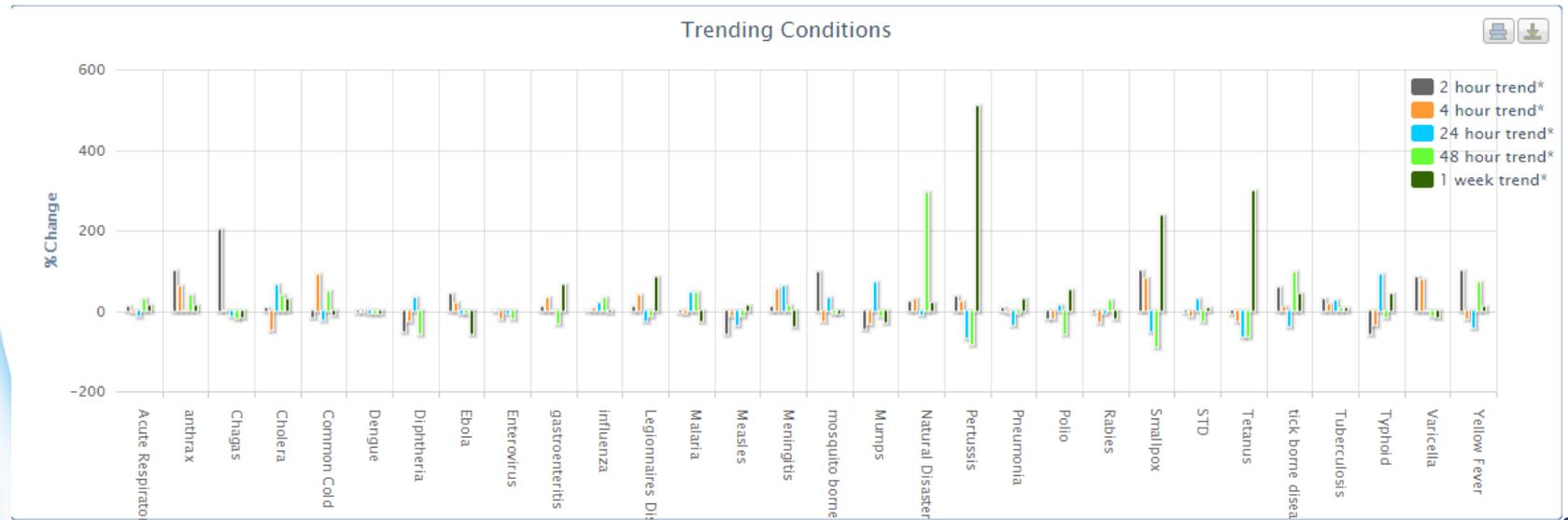
NowTrending.HHS.gov

Trends ▾

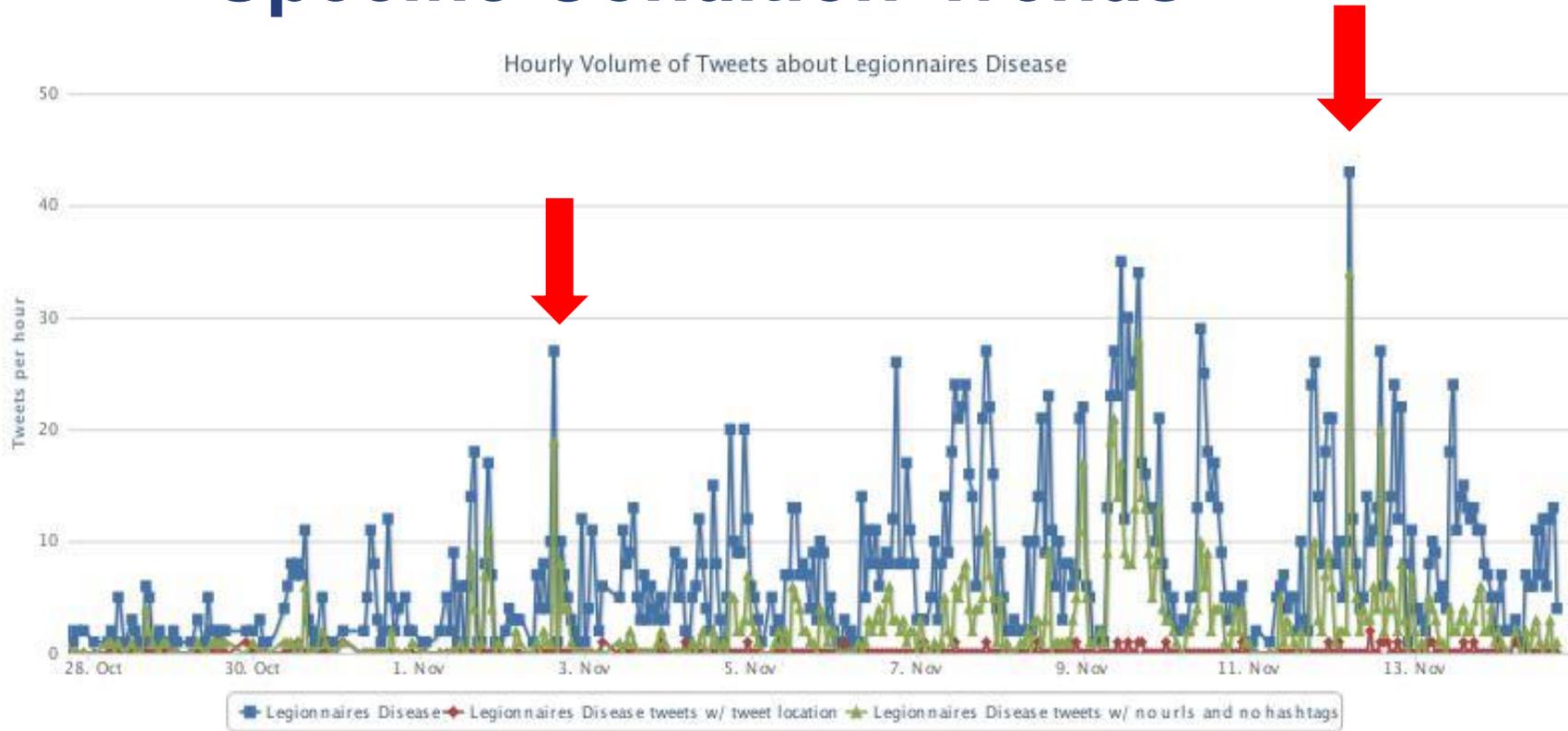
by condition ▾

by location ▾

Conditions Trends Analysis



Specific Condition Trends



View of Tweets

U.S. Department of Health & Human Services

 Public Health Emergency

NowTrending.HHS.gov

Trends ▾ by condition ▾ by location ▾

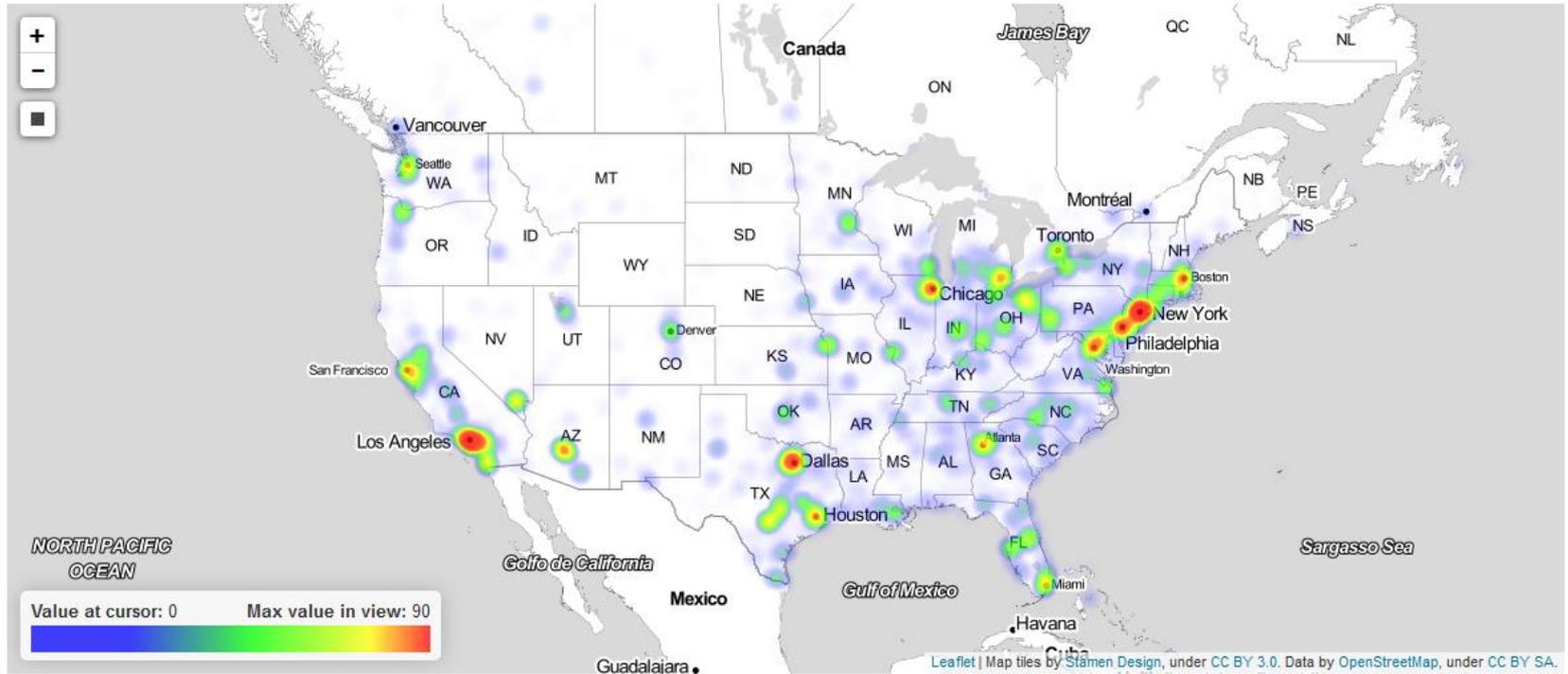
Populating tweets in the table below may take a few moments as we search the database for your query

Search:

Timestamp ▲	From ◆	Text ◆	Location Data ◆	Condition Match ◆	Qualifier Match ◆
2017-11-12T05:00:29.364Z	emergencyglobal	BH-20171112-60557-USA : Legionella / North-America / USA [Dead: 0, Infected: 0, Affected: 0] Disneyland has shut d..... https://t.co/5OJTf3z8oc	Profile Location: worldwide	Legionella	has
2017-11-12T05:00:40.624Z	WorldALERTS247	BH-20171112-60557-USA : Legionella / North-America / USA [Dead: 0, Infected: 0, Affected: 0] Details: https://t.co/ZIs60S6qk3	Profile Location: Philippines	Legionella	
2017-11-12T05:04:41.551Z	marac00per	Disneyland shuts cooling towers after Legionnaires' cases Legionnaires Disease #LegionnairesDisease https://t.co/XAJFoQ02K	Profile Location: FL, Miami	Legionnaires Disease	
2017-11-12T05:15:06.617Z	jandwayne	I really like saying "legionellosis" for some weird reason. https://t.co/PyuLHT2AoA	Profile Location: 42 Wallaby Way, Sydney	legionellosis	son
2017-11-12T05:17:21.341Z	NewsUpdate24Int	BH-20171112-60557-USA : Legionella / North-America / USA [Dead: 0, Infected: 0, Affected: 0]: https://t.co/iEZRUBuTXF - RSOE EDIS - EBHWM ...	Profile Location: Norway	Legionella	
2017-11-12T05:30:57.362Z	RealEagleBites	1 DEAD, 12 sick in DISNEYLAND Legionnaires disease outbreak. County officials require Disney to close cooling towers https://t.co/nyMa98NZCU	Profile Location: California, USA	Legionnaires disease	sick

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Heat Map of Tweets



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Zoomed in Heatmap

Public Health Emergency U.S. Department of Health & Human Services

NowTrending.HHS.gov Trends ▾ by condition ▾ by location ▾

Heatmap of Acute Respiratory Illness Tweets

The heatmap below is a representation of the volume of tweets related to Acute Respiratory Illness with sensor-based geolocation data available

690 tweets are mapped (0.12% of all 553345 tweets collected about Acute Respiratory Illness from 2016-11-09 00:17:52 UTC to just a few moments ago.) Why are the remaining tweets not mapped? These have not been geolocated and are not able to be mapped at this time. ([More information is available in the FAQ](#))

The 690 tweets that are mapped are spread across 554 unique latitude/longitude pairs which have been rounded to four decimal points which is precise to 11.132 meters where it is least precise.

Switch condition being heatmapped:
Acute respiratory illness

How to select an area to analyze:
Cancel and drag to draw rectangle.

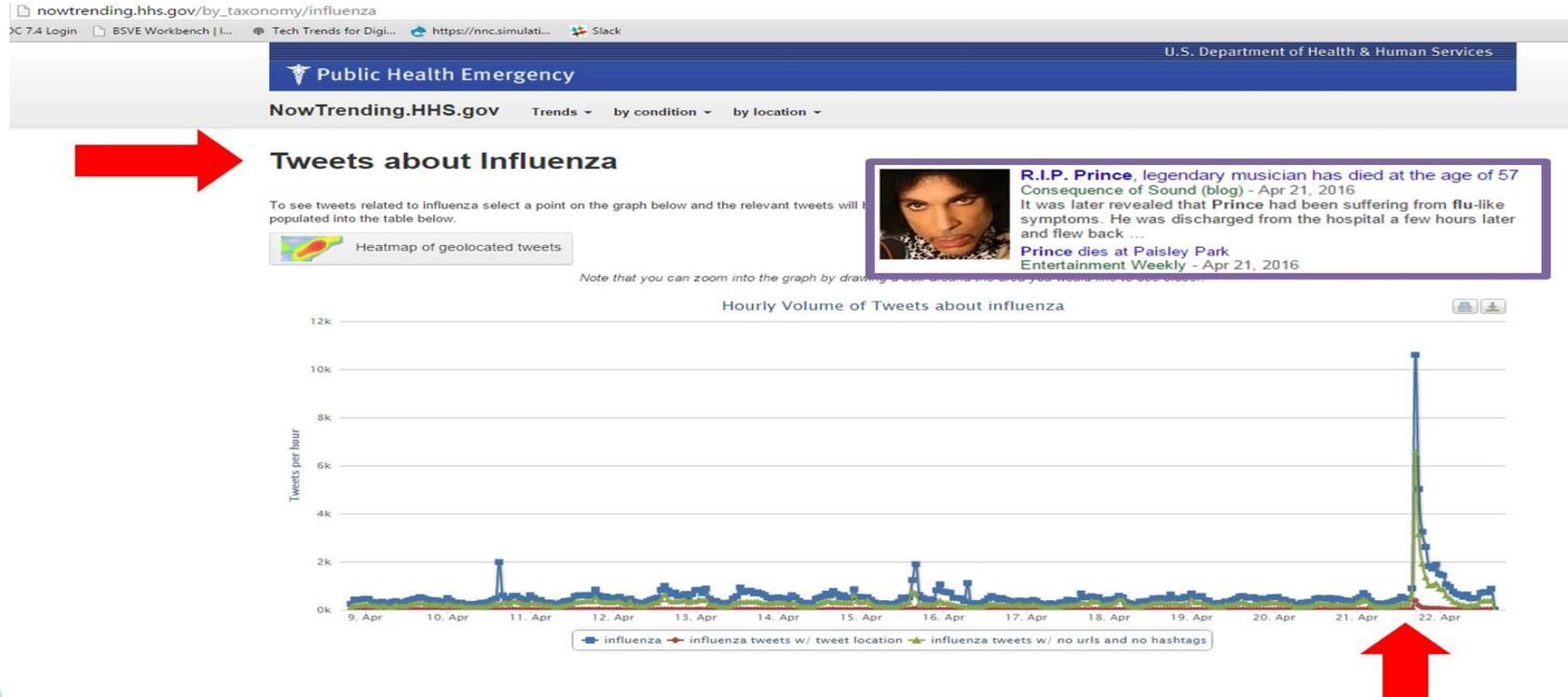
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Uses For This Site

- Look for any unusual spikes in activity
- Determine extent of public interest and information sharing on a health issue
- Use in conjunction with traditional surveillance data as an early indicator of emerging health issues
- Build a baseline of social media trend data for future analysis
- Structure public health information campaigns towards trending health topics
- Engage the public and control rumors during health events

Other Examples





Fusion
fusion@hhs.gov
GeoHealth@hhs.gov