

Introduction to NEMESIS

National EMS Advisory Council

February 2021

OVERVIEW OF NEMESIS

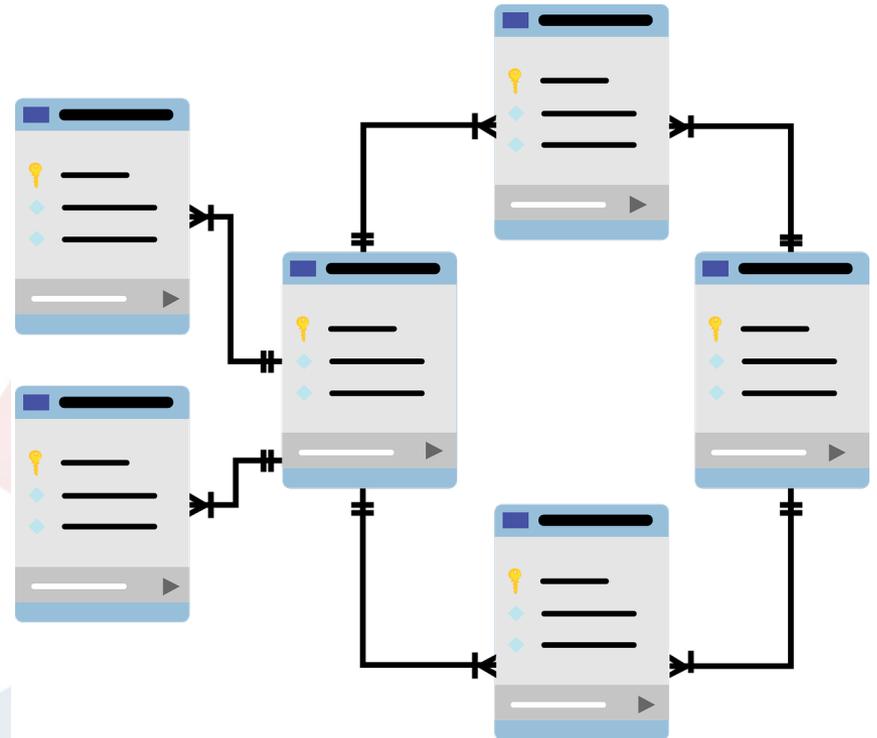
What is NEMSIS?

NEMSIS is the National Emergency Medical Services Information System supported by National Highway Traffic Safety Administration, Office of Emergency Medical Services.



What is NEMESIS?

National Database stores EMS data from States and Territories. It is the largest database of emergency medical service activations in the US with 10s of millions of records collected, stored, and shared each year.



NEMESIS Data

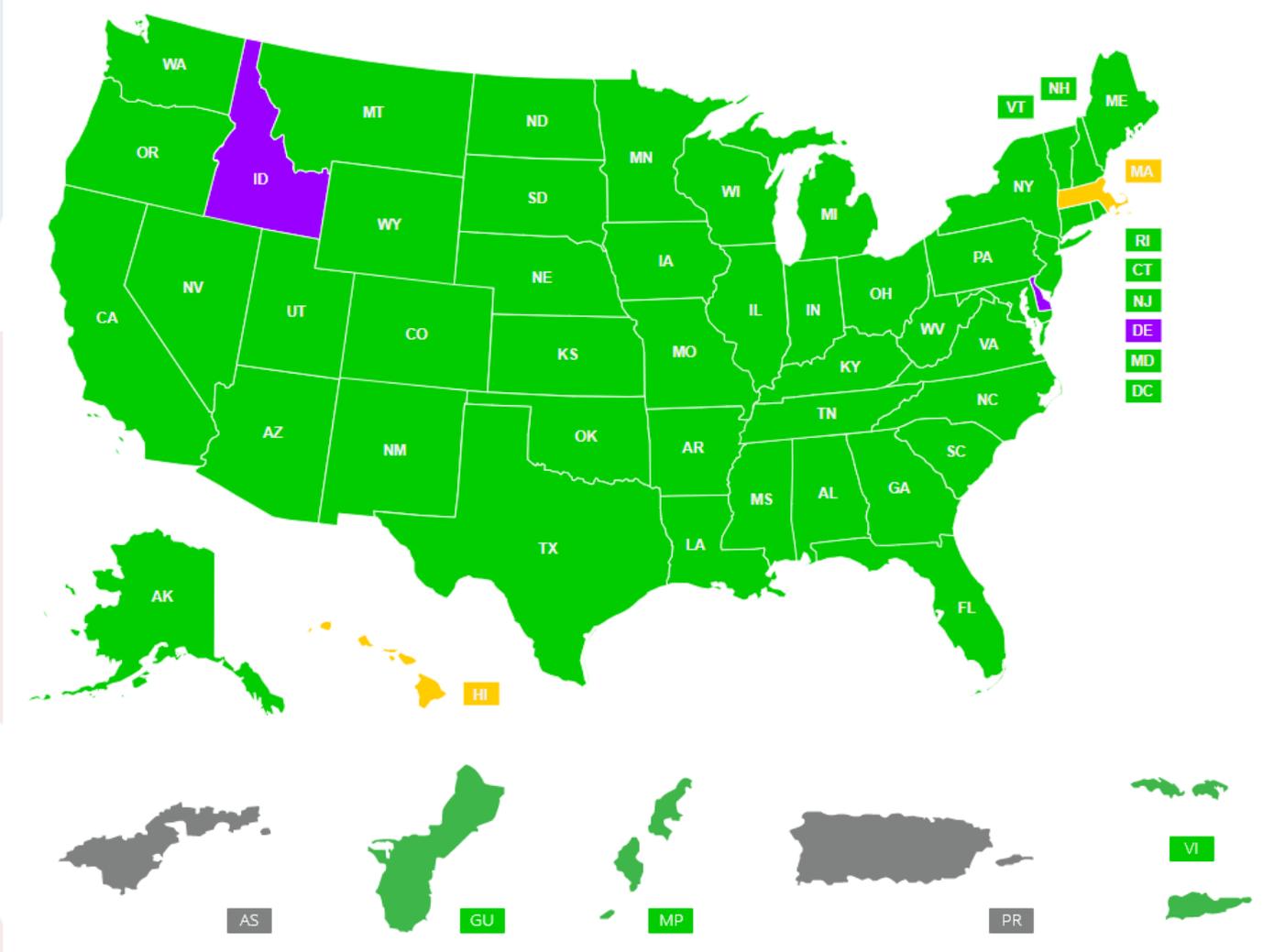
Statistical Year	Reporting States ¹	Reporting Agencies ²	Number of Events	Treated and Transported 9-1-1 Response ²
2009	26	1,673	5,767,090	3,367,668
2010	31	3,529	9,874,748	4,874,061
2011	35	5,395	14,371,941	7,701,605
2012	43	6,415	19,831,189	10,733,925
2013	45	8,183	23,897,212	12,595,958
2014	48	8,785	25,835,729	13,769,286
2015	49	10,137	30,206,450	15,729,516
2016	49	9,993	29,919,652	15,361,777
2017	35	4,016	7,907,829	4,233,046
2018	43	9,599	22,532,890	10,675,178
2019	47	10,062	34,203,087	17,089,547
TOTALS			224,347,817	116,131,567

¹ Number of reporting states and territories of the United States.

² Only including the events that are 9-1-1 calls, treated and transported by EMS.

EMS Activations for 2020 = 50,137,718 (as of 1/28/2021)

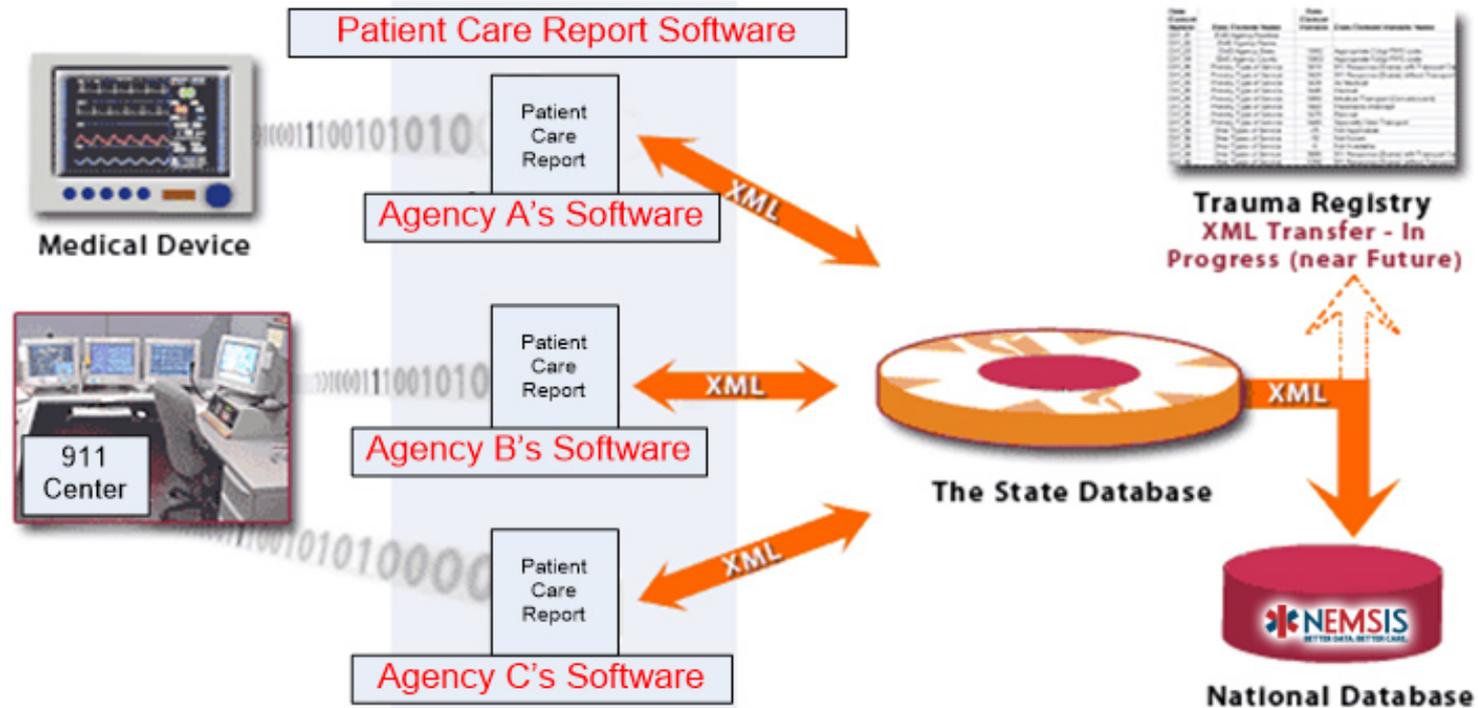
Contributing States



DATA FLOW

Data Flow

THE PORTABILITY OF DATA - the  **NEMESIS** STANDARD.
BETTER DATA. BETTER CARE.

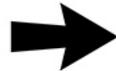


Data Flow (Continued)

Health Information Exchange



EMS Agency



State Office of EMS



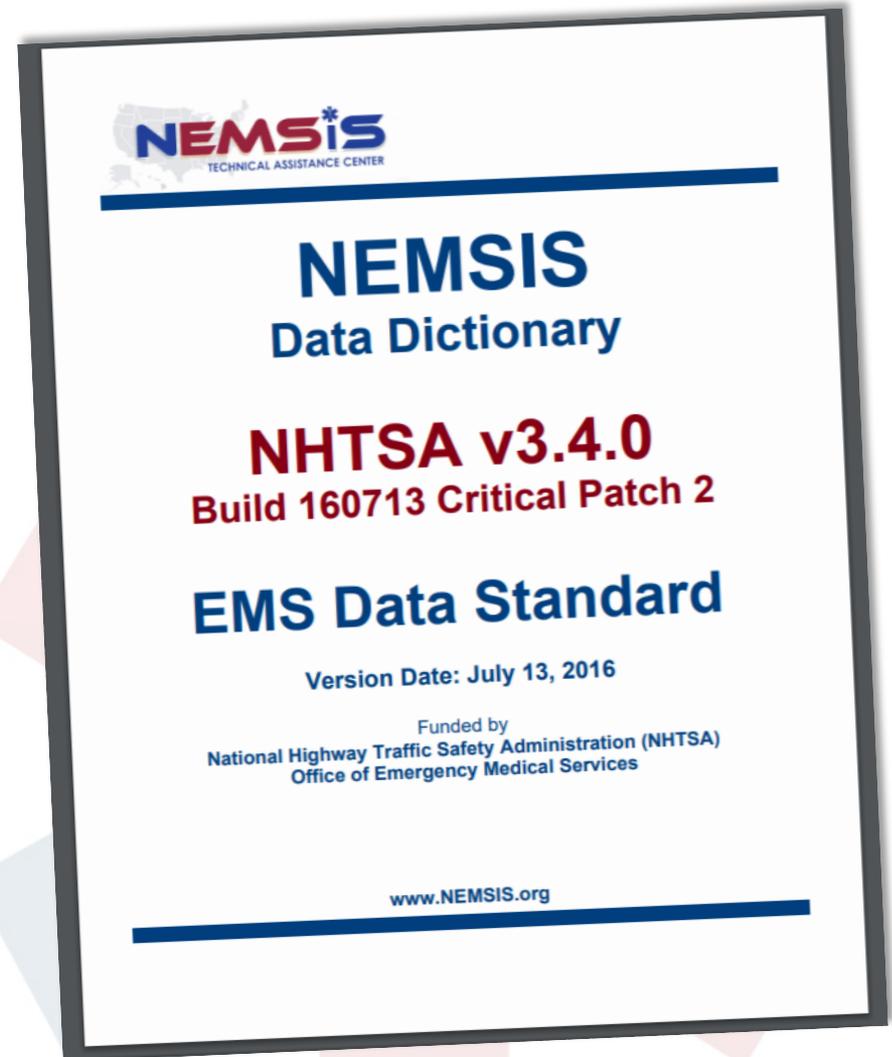
National EMS Database

Collected Data Elements



Data Elements

- Includes 596 data elements that can be implemented by an EMS system
- 165 of those are national elements



Timeliness of Data

Submissions

Count of Submissions	2,105,991
Count of Submissions Accepted	2,006,195
Count of Submissions Rejected	99,796
Count of Submission Errors	99,955

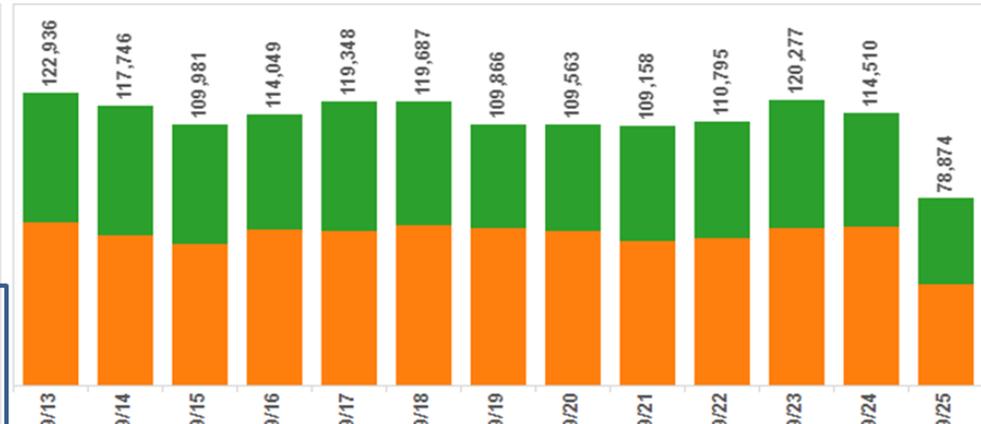
Submissions Accepted vs Rejected



Patient Care Reports (PCR) Processed

Count of Activations	1,456,790
Count of Activations with Violations	817,025
Count of Violations for all Accepted Activations	2,271,721
Violations Per Activation	1.6
Average Activations per Accepted File	1.1
Count of PCRs Resubmitted	154,734
Submission Lag 25% (hours)	28.1
Submission Lag 50% (hours)	89.8
Submission Lag 75% (hours)	332.4

PCRs Processed With & Without Schematron Warnings



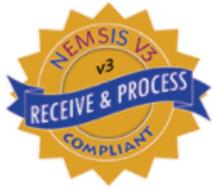
NEMESIS STAKEHOLDERS

Software Vendors



Compliant Software for EMS Agencies

*States May Maintain An Approved List of Software



Compliant Software for State Systems

*States May Maintain An Approved List of Software

NEMESIS works with a long list of vendors who provide the software states and agencies use to collect the PCR data.

State Data Managers

NEMESIS provides regular support to help state data managers facilitate the movement of their data



Researchers

Researchers make use of the NEMESIS data to look for trends and other findings in EMS

2020

Qualls, C., Hewes, H., Mann, N. C., Dai, M., & Adalgais, K. (2020). **Documentation of Child Maltreatment by Emergency Medical Services in a National Database.** *Prehospital Emergency Care*, 1-7. DOI: <https://doi.org/10.1080/10903127.2020.1817213>

Miller, M.L., Lincoln, E.W. & Brown, L.H. (2020) Development of a **Binary End-of-Event Outcome Indicator for the NEMESIS Public Release Research Dataset,** *Prehospital Emergency Care*, DOI: <https://doi.org/10.1080/10903127.2020.1794435>

Chan HK, Okubo M, Callaway CW, Mann NC, Wang HE. **Characteristics of adult out-of-hospital cardiac arrest in the National Emergency Medical Services Information System.** *JACEP Open*. 2020;1-8. <https://doi.org/10.1002/emp2.12106>

Lerner, E.B., Newgard, C.D. and Mann, N.C. (2020), **Effect of the Coronavirus Disease 2019 (COVID-19) Pandemic on the United States Emergency Medical Services System: A Preliminary Report.** *Acad Emerg Med*. Accepted Author Manuscript. <https://doi.org/10.1111/acem.14051>

Miller KEM, James HJ, Holmes GM, Van Houtven CH. **The effect of rural hospital closures on emergency medical service response and transport times.** *Health Services Research*. 55(2), pp. 288-300 <https://onlinelibrary.wiley.com/doi/abs/10.1111/1475-6773.13254>

National & Federal Partners

CDC Data Hub

FARS

Fatality Analysis Reporting System



CARES

CMS



APPLICATION OF NEMESIS DATA

NEMESIS Data Are Used For:

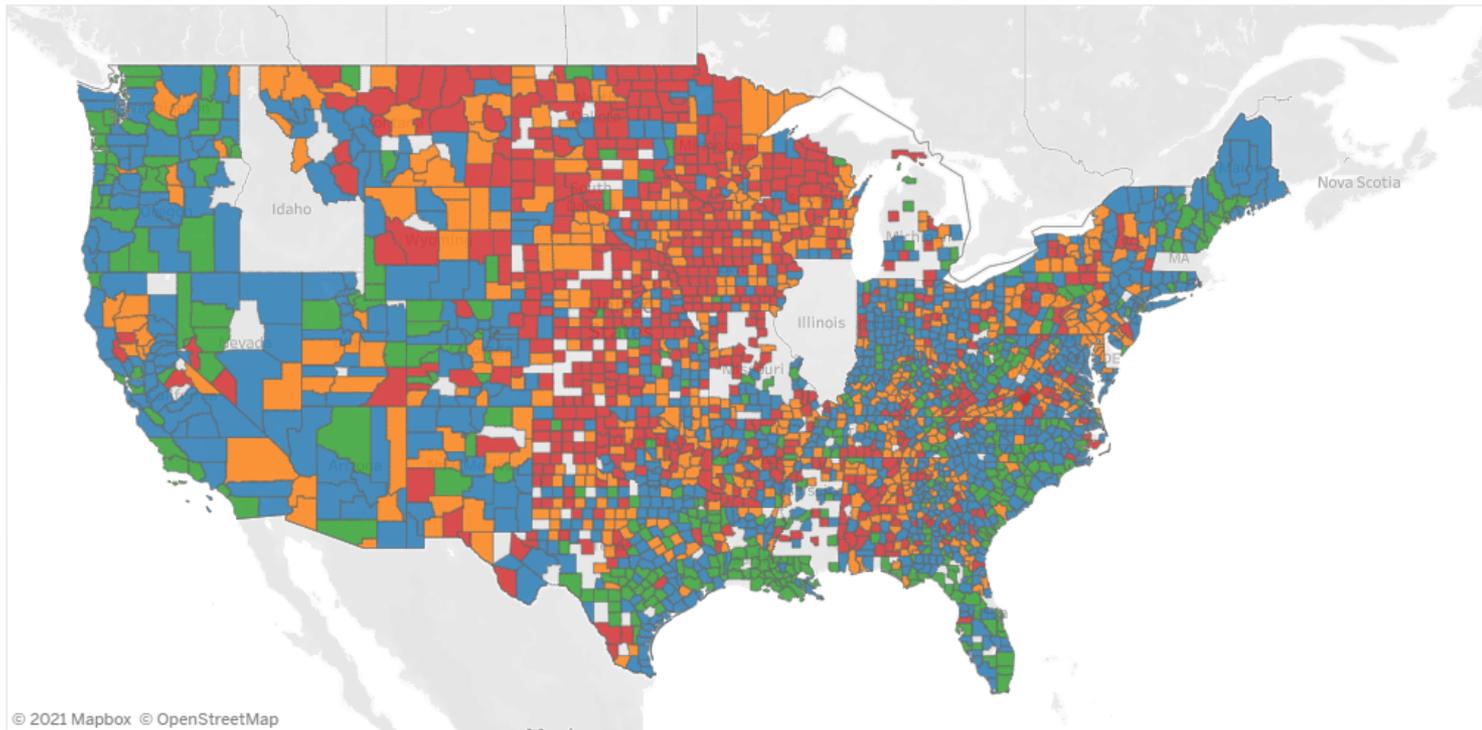
- Public Health Surveillance
- EMS Resource Allocation
- Evaluation of Clinician Performance
- EMS System Performance
- Academic Research
- Clinical Research
- Public Health Research

Tracking Patients with “Influenza-like” Symptoms

Geography

Heat Map of ILI-Related Activations over the Total Number of EMS Activations

- Less than 6%
- Between 6% and 11%
- Between 11.1% and 15%
- Greater than 15%



Tracking Patients with “Influenza-like” Symptoms

National Influenza-Like Illness (ILI) Surveillance Dashboard

ILI Activations: 2,699,867

Unit Notified By Dispatch Date: 10/1/2019 Incident State: (All)

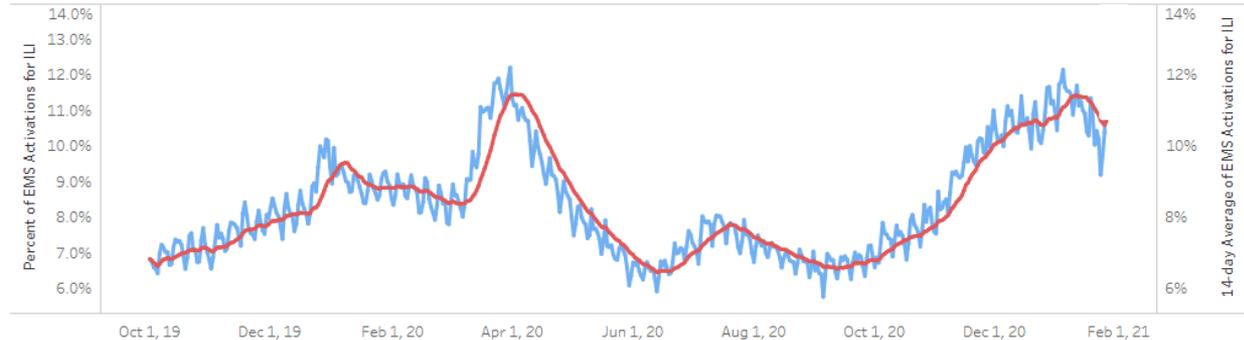
Day and Time

Day of Week and Time of Day

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
6 AM - 12 PM	9.3%	9.6%	9.2%	9.1%	9.1%	9.0%	8.9%
6 PM - 12 AM	8.0%	8.0%	7.8%	7.8%	7.6%	7.3%	7.3%
12 AM - 6 AM	7.6%	9.0%	8.7%	8.4%	8.5%	8.3%	7.7%
12 PM - 6 PM	8.1%	8.4%	8.1%	8.1%	8.0%	7.8%	7.6%

Trend Over Time

Trend of ILI Activations by Day ■ % ILI Activations ■ 14-day Avg



EMS Agencies: PPE Shortages/COVID-Related Stress

EMS COVID Resource Reportin... COVID Exposure PPE Supply

EMS COVID Resource Reporting Tool

Response Dates From: 10/18/2020 To: 1/27/2021

Last 15 weeks

■ Acute Stress/Need
 ■ Minimal Stress/Need
 ■ No Stress/Need

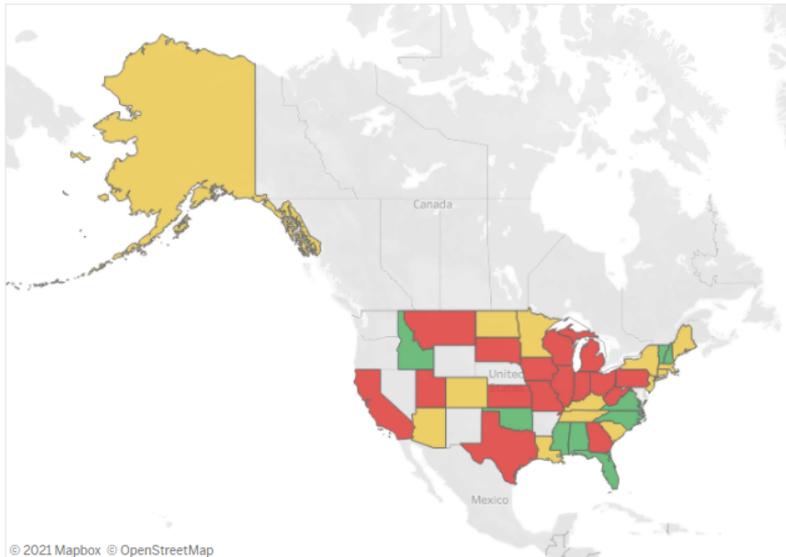
PPE Availability

Agency Name

Phone Number

Contact Name

PPE Availability



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No Stress/Need
No Stress/Need
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Minimal Stress/Need
No Stress/Need
Minimal Stress/Need
Minimal Stress/Need
Acute Stress/Need
Minimal Stress/Need
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PPE Availability

■ Acute Stress/Need
 ■ Minimal Stress/Need
 ■ No Stress/Need



N-95 Masks



Surgical Masks



Other Respirators



Elastomeric Devices



Gloves



Eye Protection



Isolation Coveralls

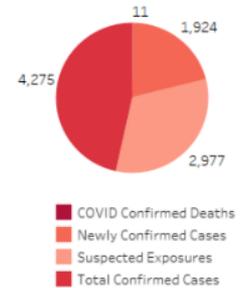


Gowns

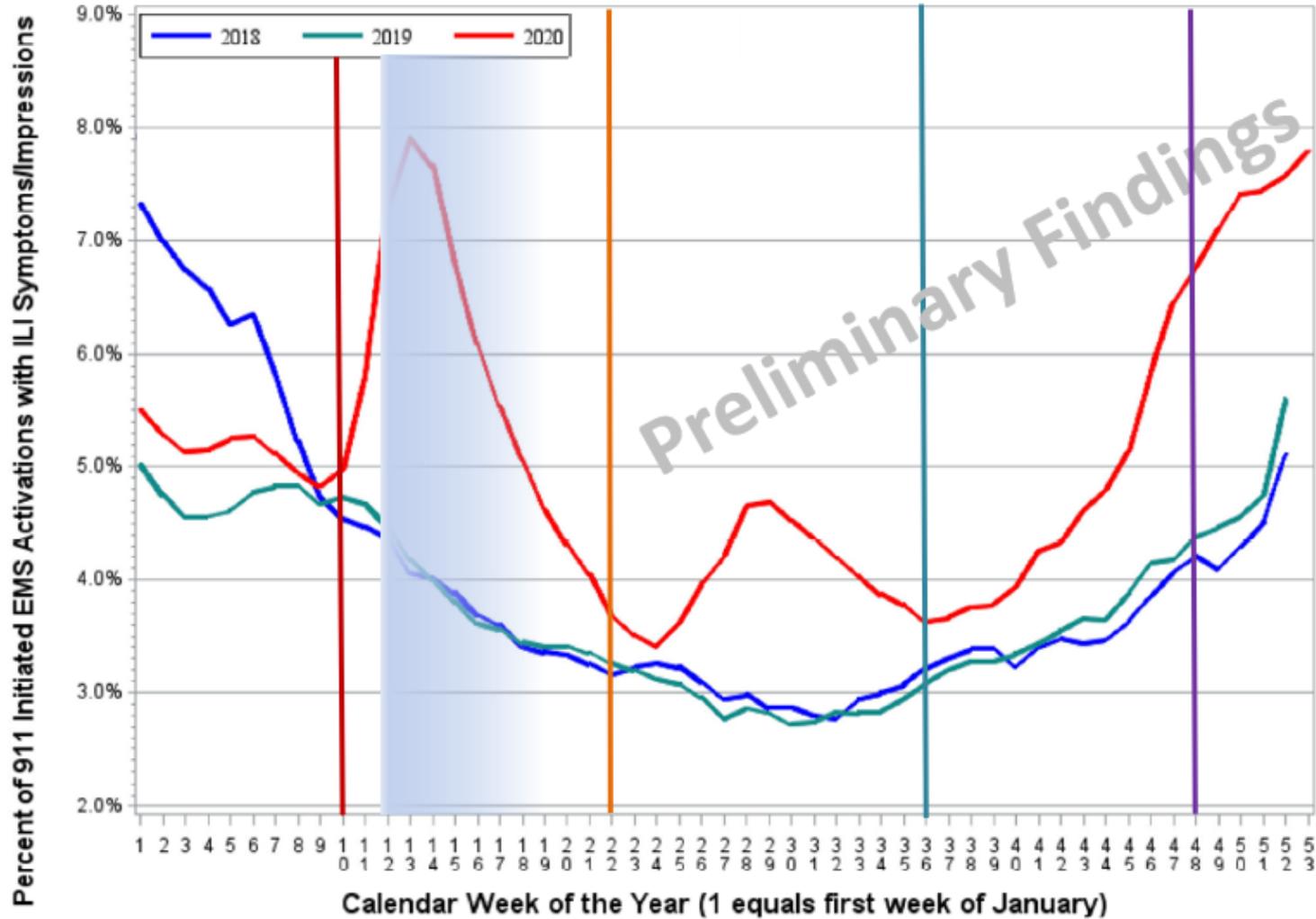
Personnel Shortage



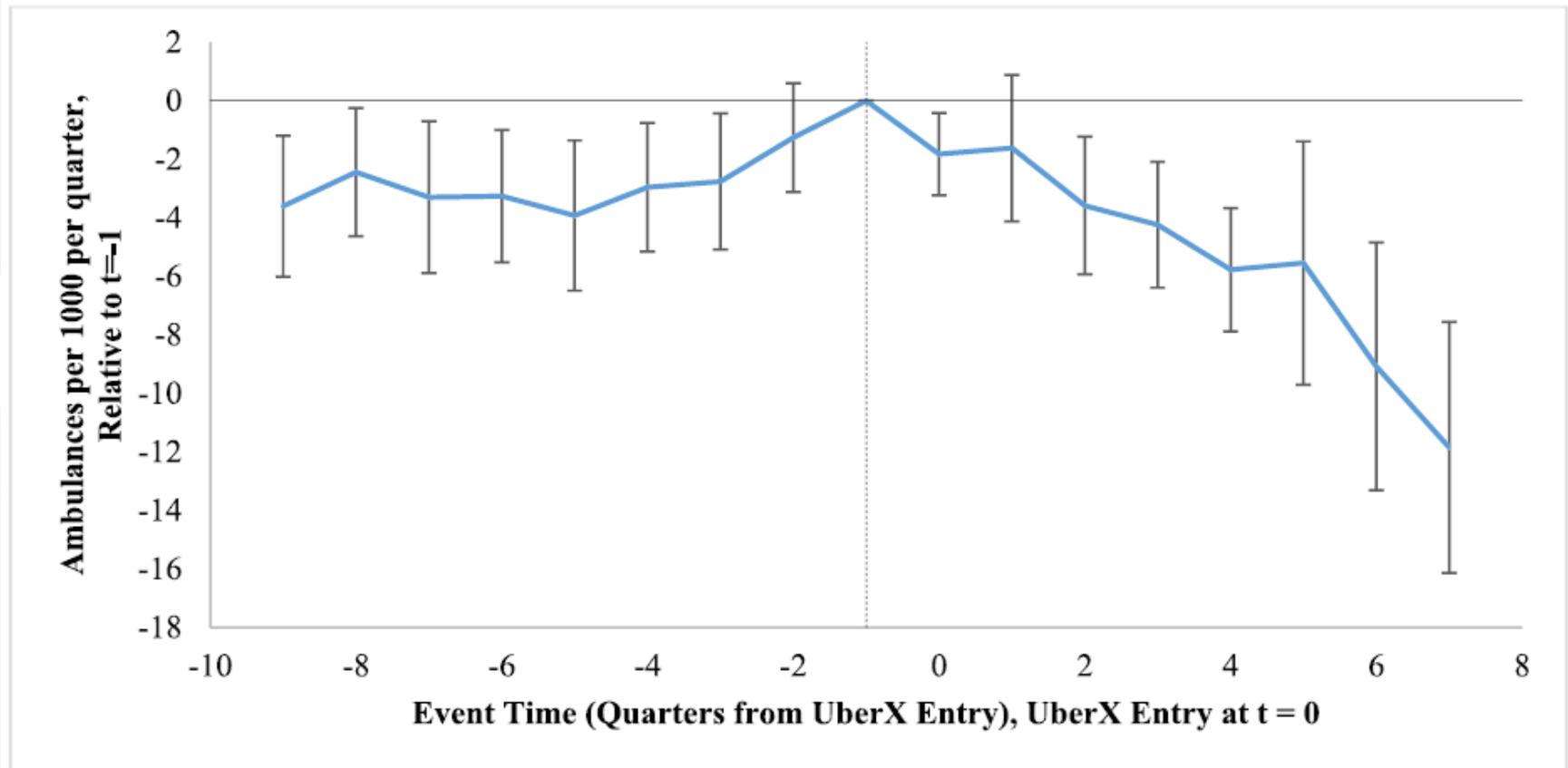
COVID Exposure



Tracking ILI: Major Events/Holidays



Introduction of Ridesharing



WAYS TO INTERACT WITH THE DATA

Public vs. Restricted Data

Public Data

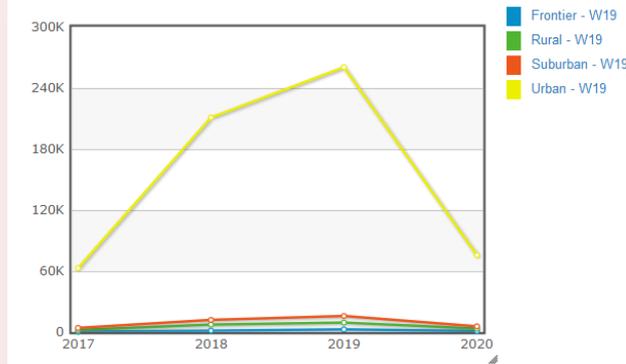
- Available to anyone
- Aggregated data
- Excludes:
 - State level data
 - County level data
 - Zip code level data
 - Agency specific data

Restricted Data

- Available to those with restricted access
- Requires AD account login information
- Includes:
 - State level data
 - County level data
 - Zip code level data
 - Agency specific data

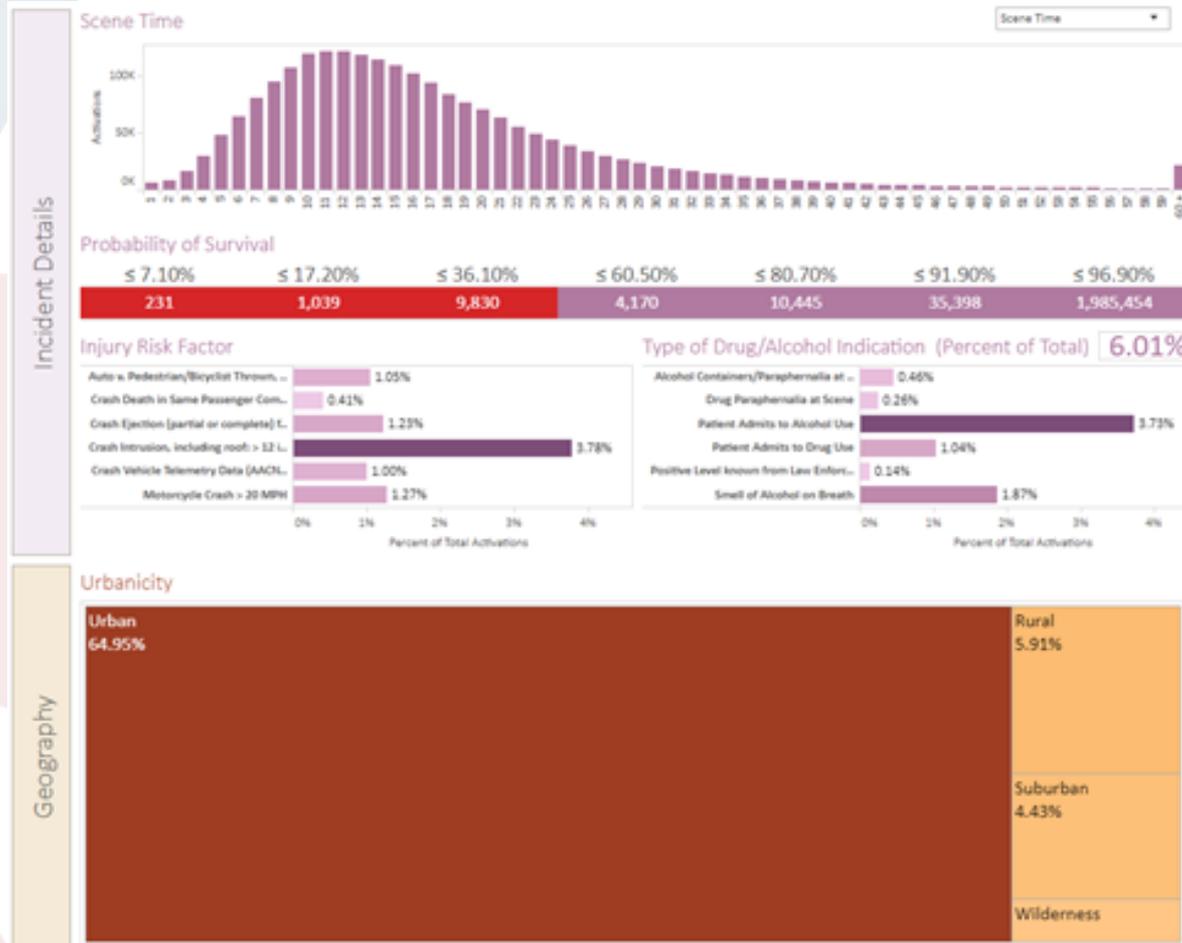
Public Cube

- Accessible to everyone
- Login information found on the nemesis.org website



		2017	2018	2019	2020
Geographic Region of Destination.Urbanicity	Injury Information - Injury Cause ICDs.ICD 10	Count of Events	Count of Events	Count of Events	Count of Events
Frontier	W19	207	1,215	2,488	767
Rural	W19	1,886	7,176	9,212	3,223
Suburban	W19	3,927	11,828	15,674	5,482
Urban	W19	62,779	210,918	260,435	75,526

Data Dashboards



Public-Release Research Datasets



2020 Mid-Year
Public-Release
Research Dataset
Now Available

Request for Data Release Extension

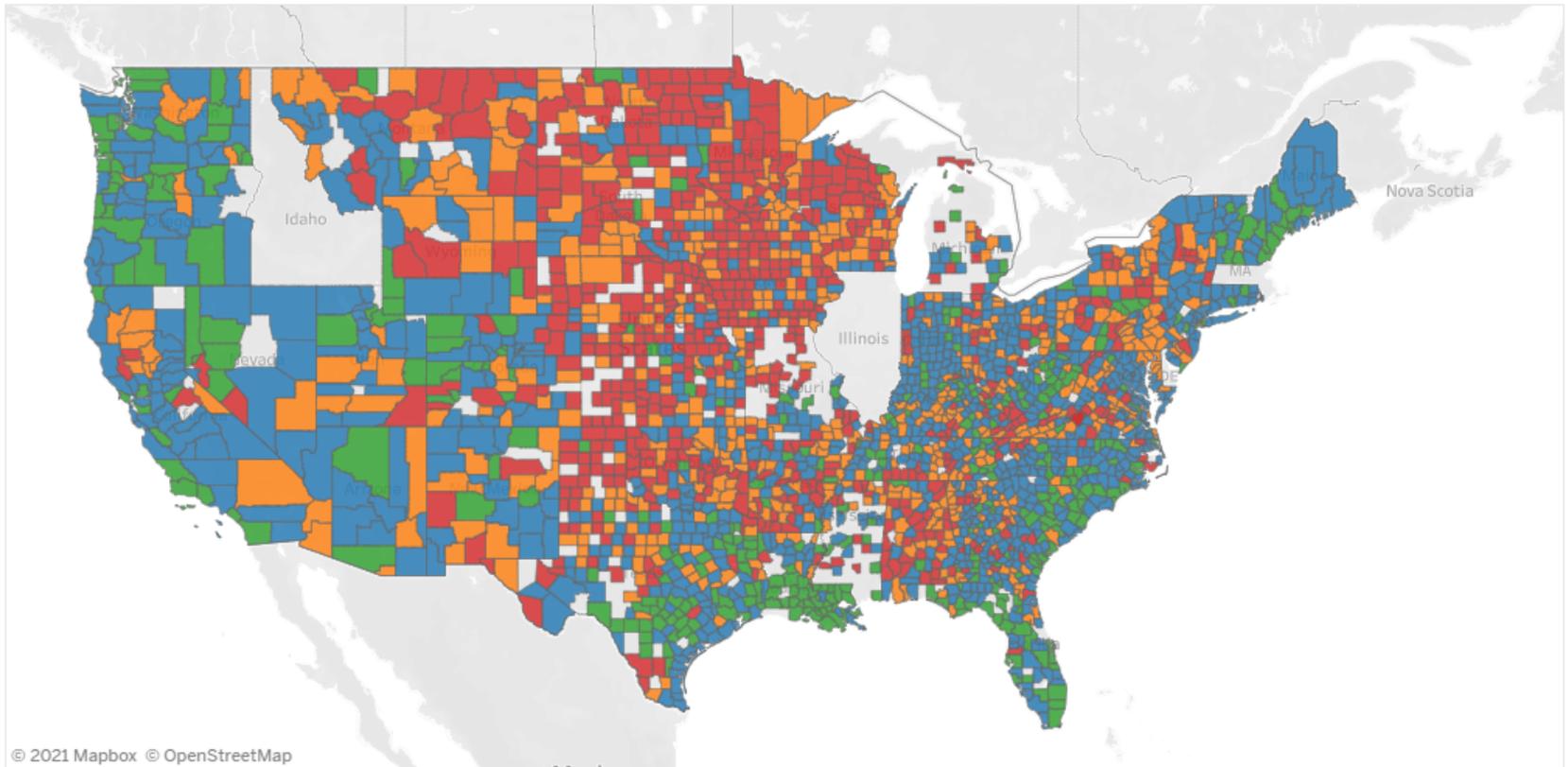
- Incident Location
 - eScene.21 – Incident County
- Patient Demographic Information
 - ePatient.15 – Age
 - ePatient.13 - Gender
- Patient Complaint
 - eDispatch.01 - Complaint Reported by Dispatch
 - eSituation.11 - Provider's Primary Impression
 - eSituation.12 - Provider's Secondary Impressions
 - eInjury.01 - Cause of Injury
- Patient Symptoms
 - eSituation.09 - Primary Symptom
 - eSituation.10 - Other Associated Symptoms
- EMS Response
 - eTimes.03 - Unit Notified by Dispatch Date/Time
 - eDisposition.12 – Incident/Patient Disposition

Request for Data Release Extension

Geography

Heat Map of ILI-Related Activations over the Total Number of EMS Activations

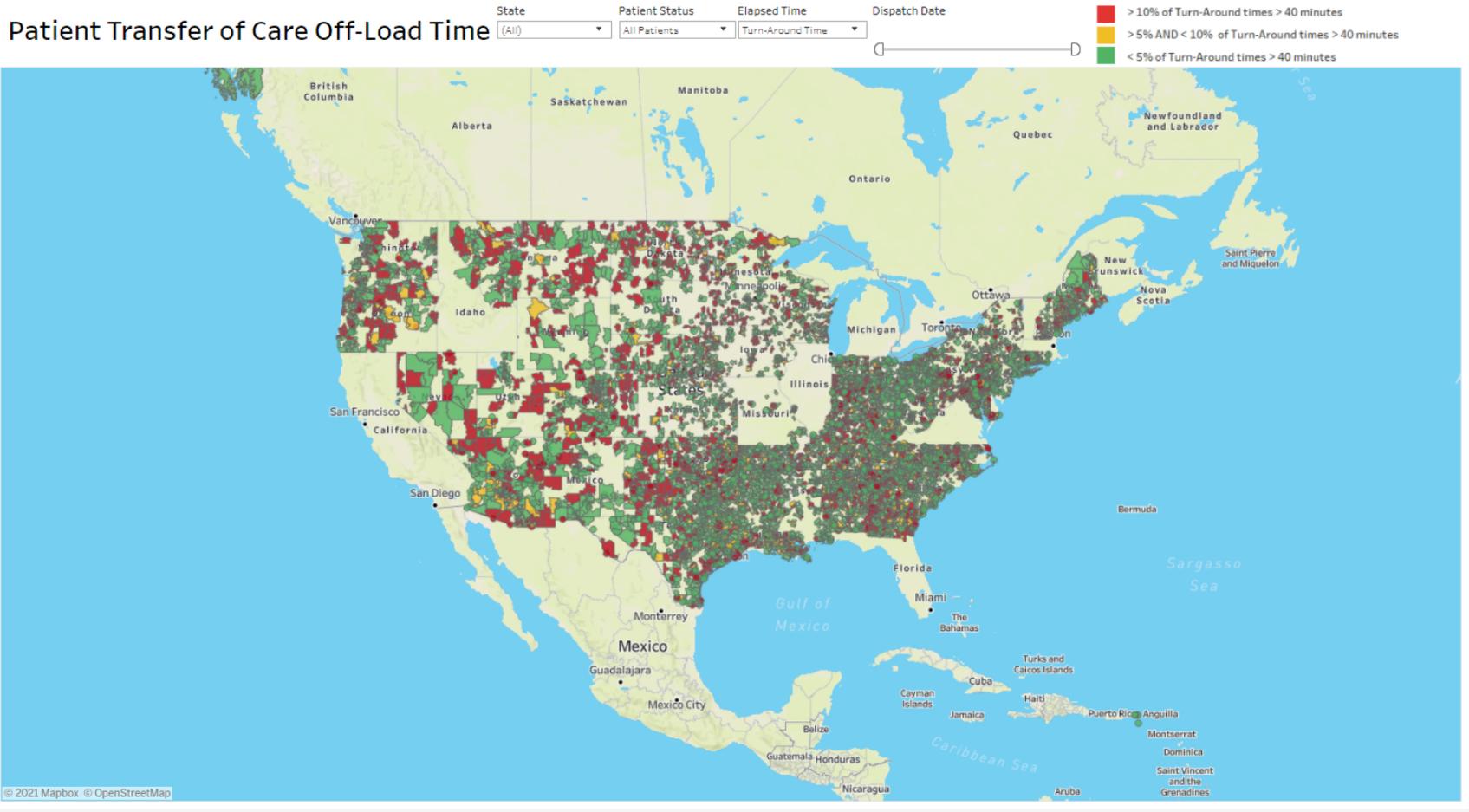
- Less than 6%
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- Greater than 15%



Request for Additional Data Release

- Incident Location
 - eScene.19 – Incident ZIP Code
- Hospital Location
 - eDisposition.07 - Destination ZIP Code
- Patient Demographic Information
 - ePatient.15 – Age
 - ePatient.13 - Gender
- Patient Complaint
 - eDispatch.01 - Complaint Reported by Dispatch
 - eSituation.11 - Provider's Primary Impression
 - eSituation.12 - Provider's Secondary Impressions
 - eInjury.01 - Cause of Injury
- Patient Symptoms
 - eSituation.09 - Primary Symptom
 - eSituation.10 - Other Associated Symptoms
- EMS Response
 - eTimes.03 - Unit Notified by Dispatch Date/Time
 - eTimes.11 - Patient Arrived at Destination Date/Time
 - eTimes.12 - Destination Patient Transfer of Care Date/Time
 - eTimes.13 - Unit Back in Service Date/Time
- eDisposition.12 - Incident/Patient Disposition

Request for Additional Data Release



Questions?

- For additional information please contact:

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