

NEMESIS 101

Hawaii EMSAC

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Research Manager, NEMESIS



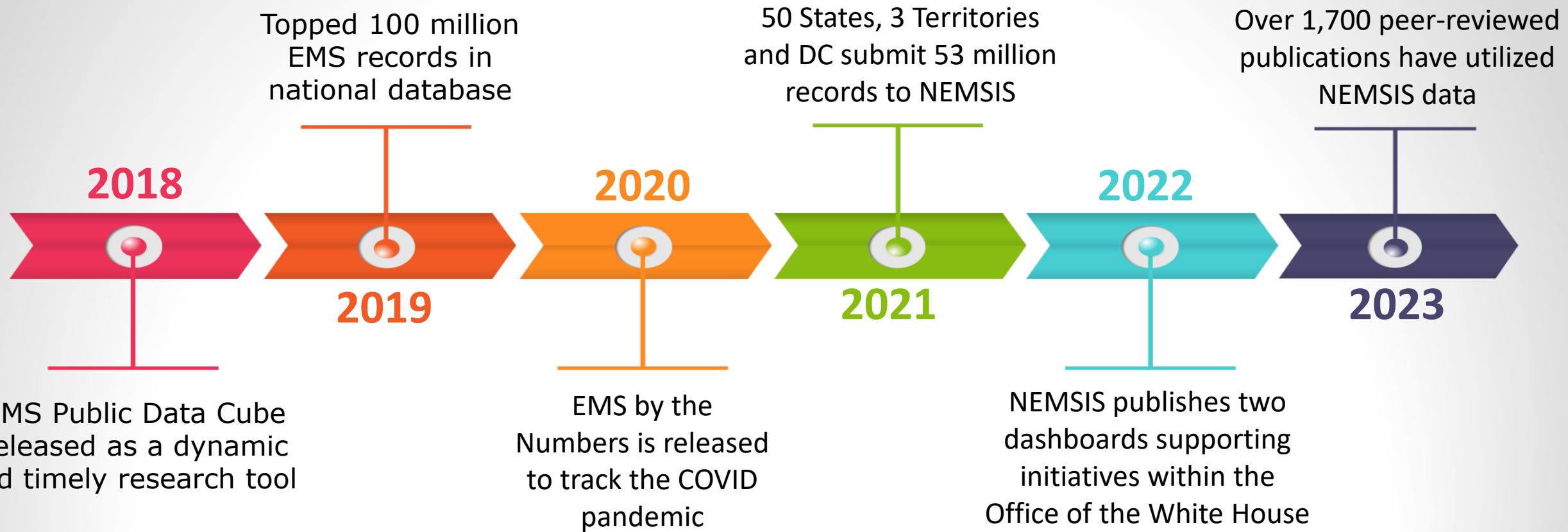
The National EMS Information System

The National EMS Information System (NEMSIS) provides standardized EMS documentation and data collection practices to facilitate the sharing of EMS data with local, state and national organizations.

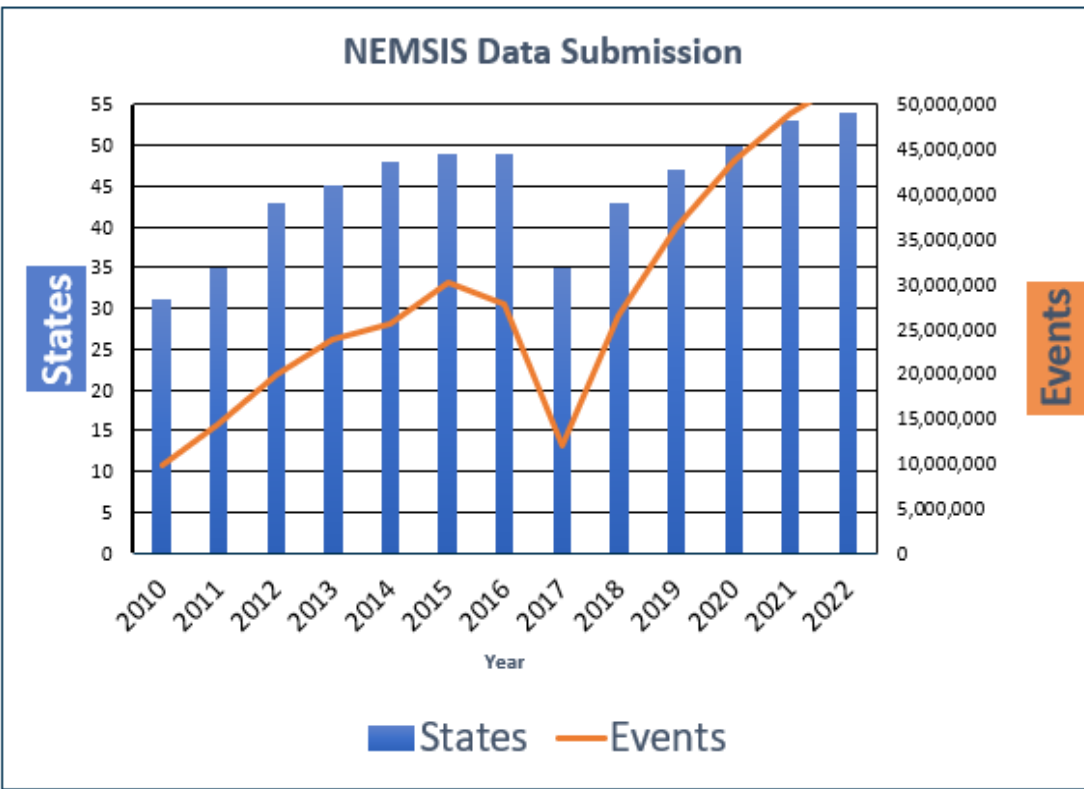
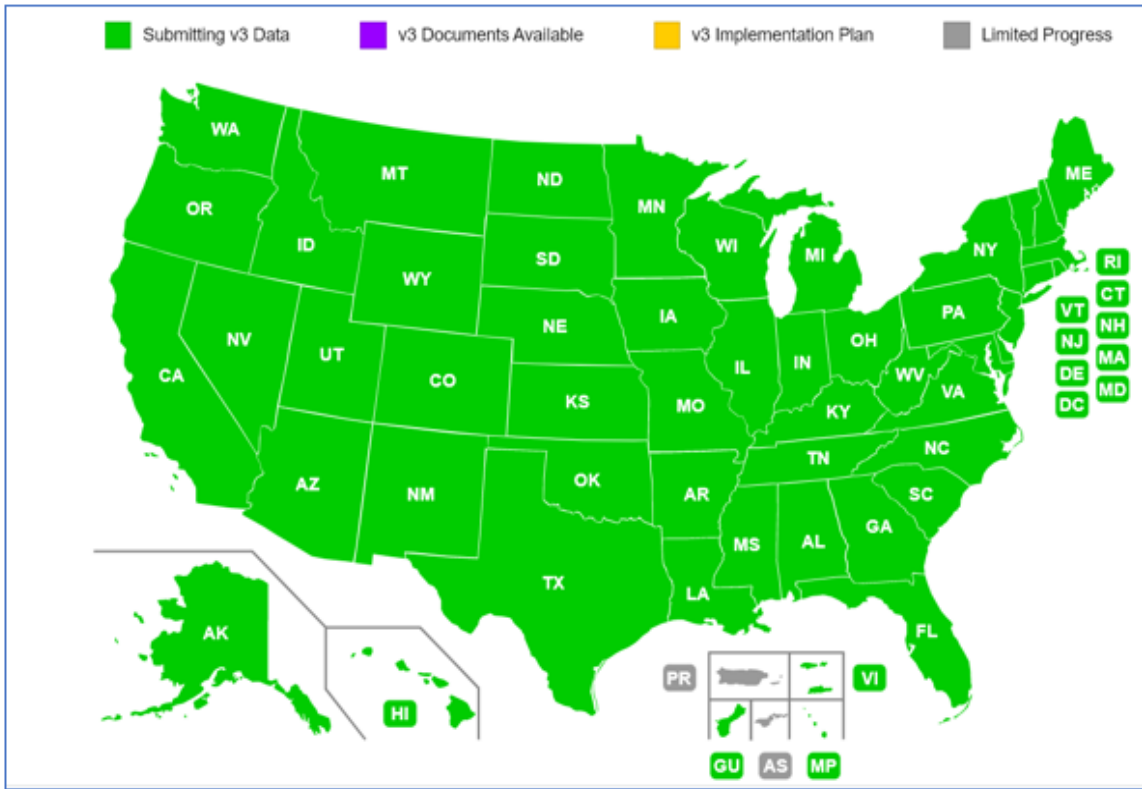


Funding:

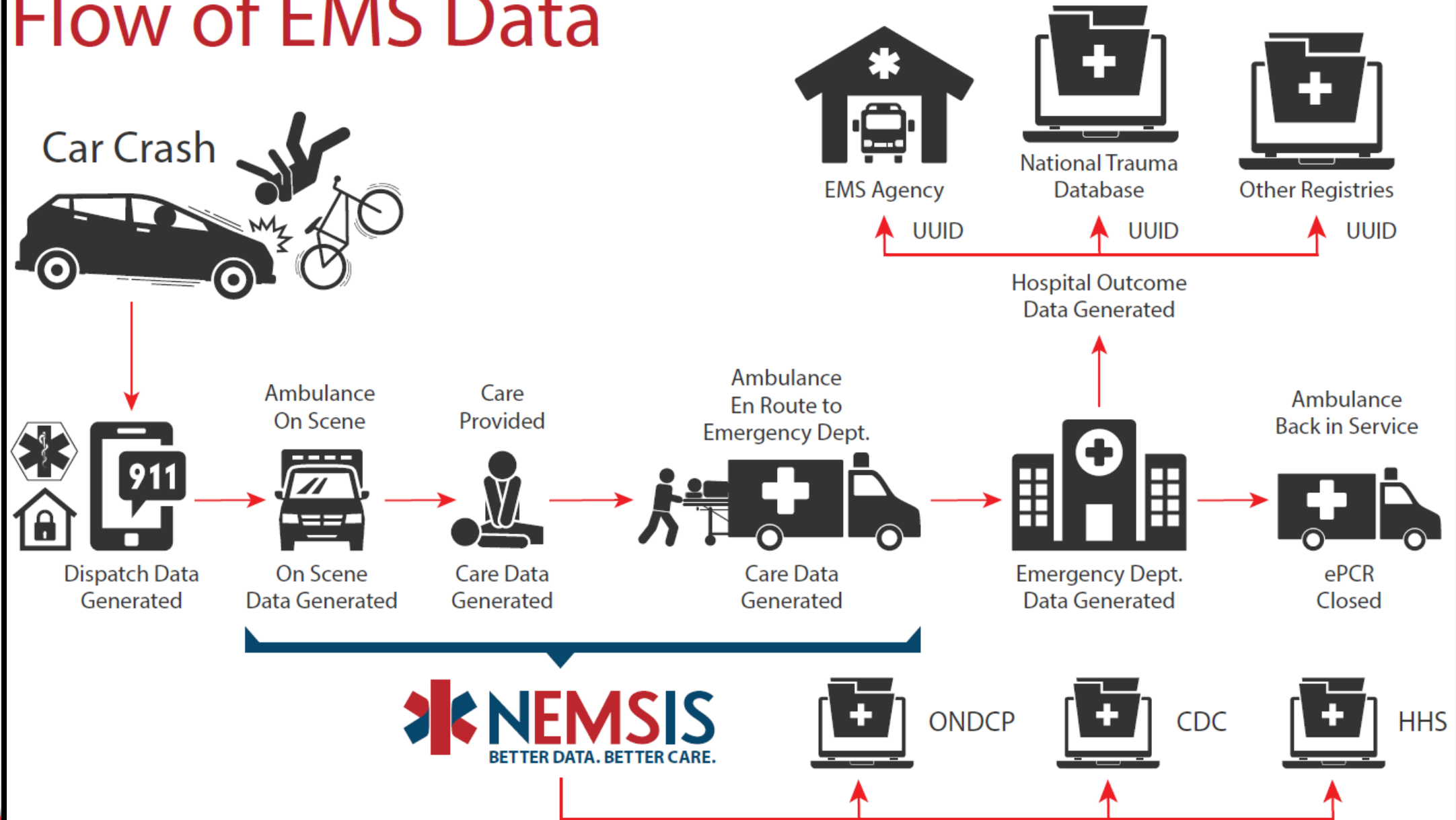




Participating States/Territories

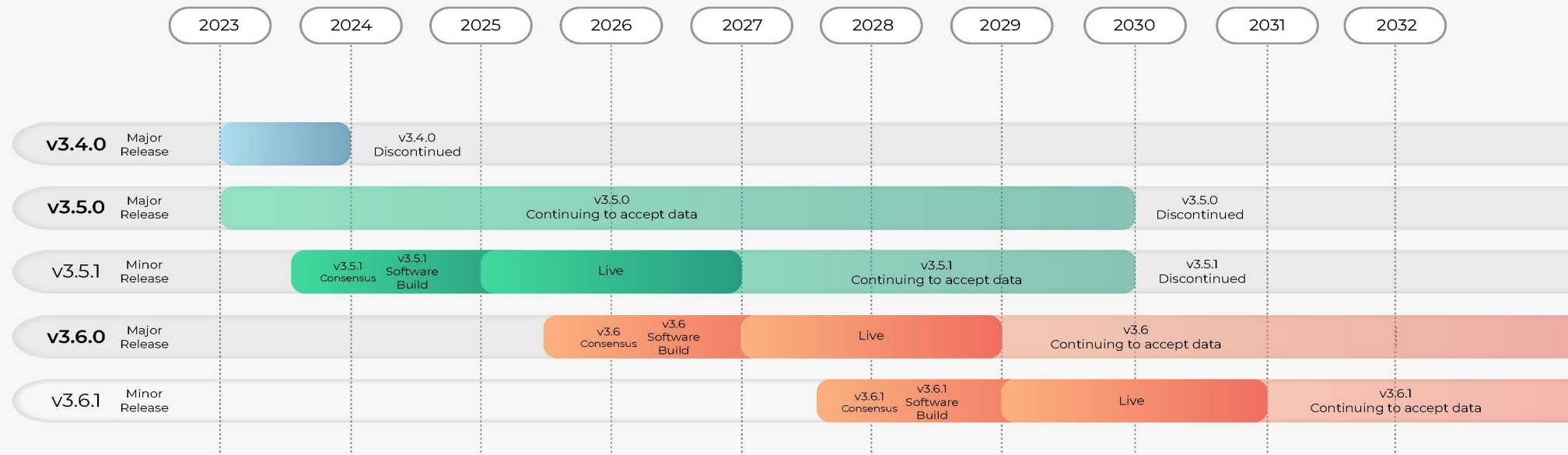


Flow of EMS Data





EMS Data Standard Version Timeline



Legend

Consensus: Stakeholders review and reach agreement on revisions.

Software Build: Software developers create and release tools for the new version.

Live: Version is complete, software is available, and data can be submitted to the TAC.

Continuing to accept data: Records in this version are accepted by the TAC.

Discontinued: Records in this version are no longer accepted by the TAC.

January 2023, supersedes previous drafts. Calendaring represents approximate start/end dates and should not be construed to represent a set schedule. Actual schedules will be developed as milestones approach.

Type of Release

Informational Release: Includes corrections to the dictionary (e.g., typos, comments, update links). The release is “backwards compatible” (e.g., ePCR record generated in v3.5.0 is valid in v3.5.1).

Minor Release: Includes changes that are more permissive to the data standard (e.g., new optional elements or changing an error to a warning). The release is “backwards compatible”.

Major Release: Includes changes that may be more restrictive (e.g., upgrading an element from state or optional to national). This release is NOT “backwards compatible” to the previous version.

Critical Patch: Corrects security or functionality that seriously compromises the daily function of the standard. Released as needed.

Moving forward with NEMSIS V3.5.0

Fewer National Required Elements

The number of elements required to be completed has been reduced. States and agencies may add other required data elements.

Revised Call Dispositions

The disposition of a call is now organized into 4-5 elements that allows more flexibility for various types of EMS response and increases the accuracy of documentation.

Harmonization with CARES

By aligning NEMSIS and CARES (Cardiac Arrest Registry to Enhance Survival) elements, redundant data collection and the need for custom fields is dramatically reduced.

Updated Defined Lists

NEMSIS compliant software vendors are required to offer much condensed lists of codes for cause of injury, EMS impressions, patient symptoms, medications, incident location, and procedures.

Expanded Meanings of Pertinent Negatives

Pertinent Negatives (PN) can be added with a recorded clinical value and/or without a value.

EMS Providers

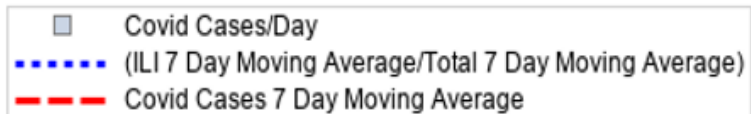
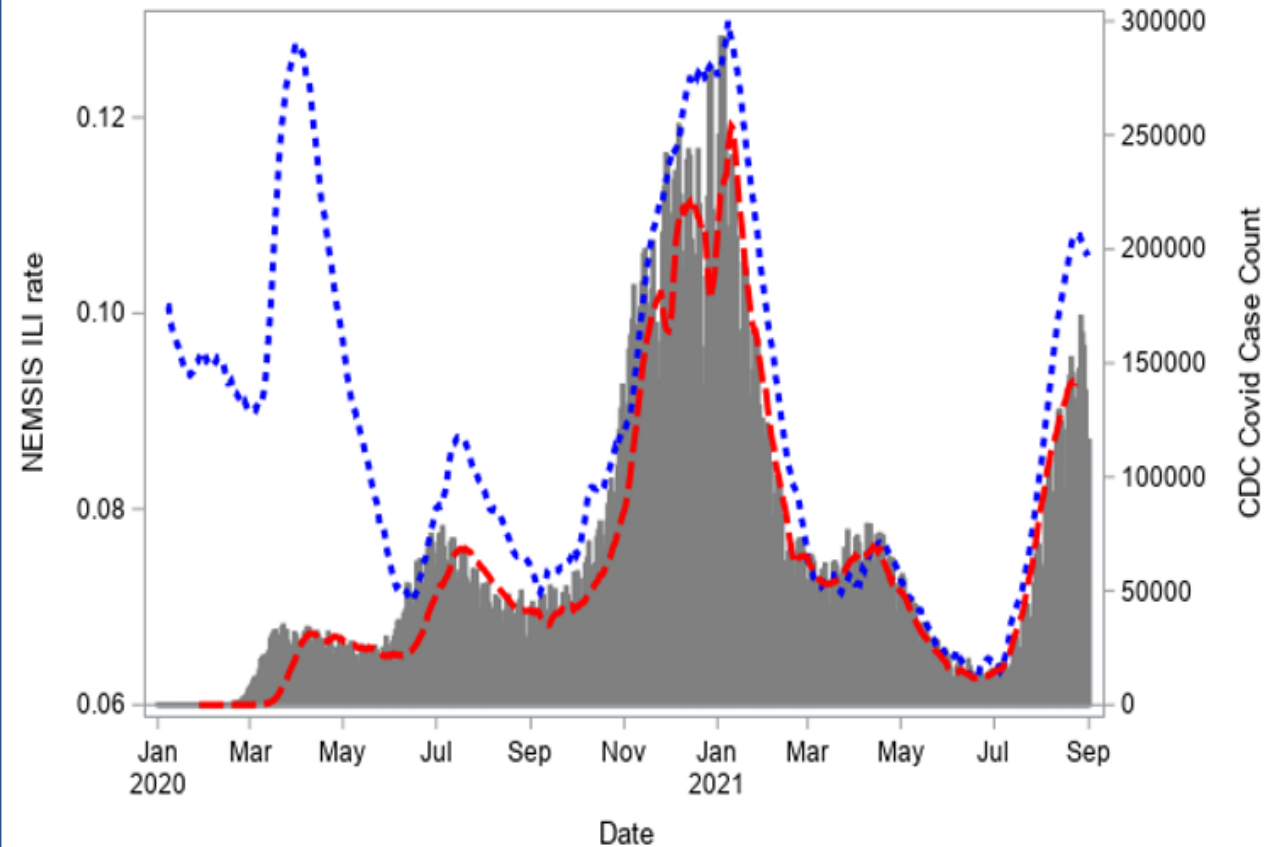
- “Too many data elements!” (National are mandatory)
- “ICD-10-CM – Too complicated!” (18 elements)
- “Elements are confusing!” (eDisposition.12)

State Users

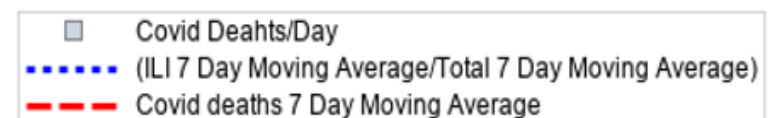
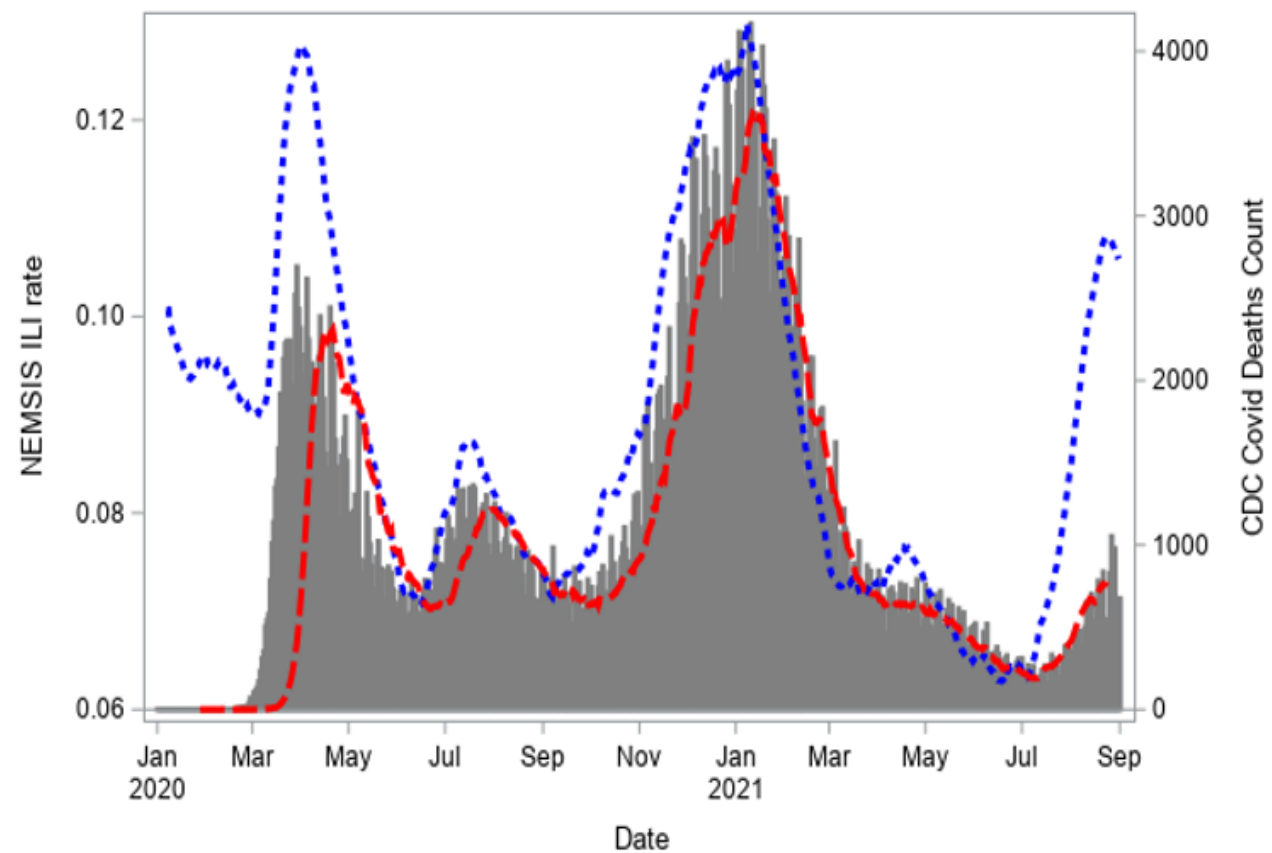
- “Can’t track resubmissions, personnel, resources!”
- “Can’t share/exchange data with hospitals or HIEs!”

NEMSIS: Community COVID Surveillance

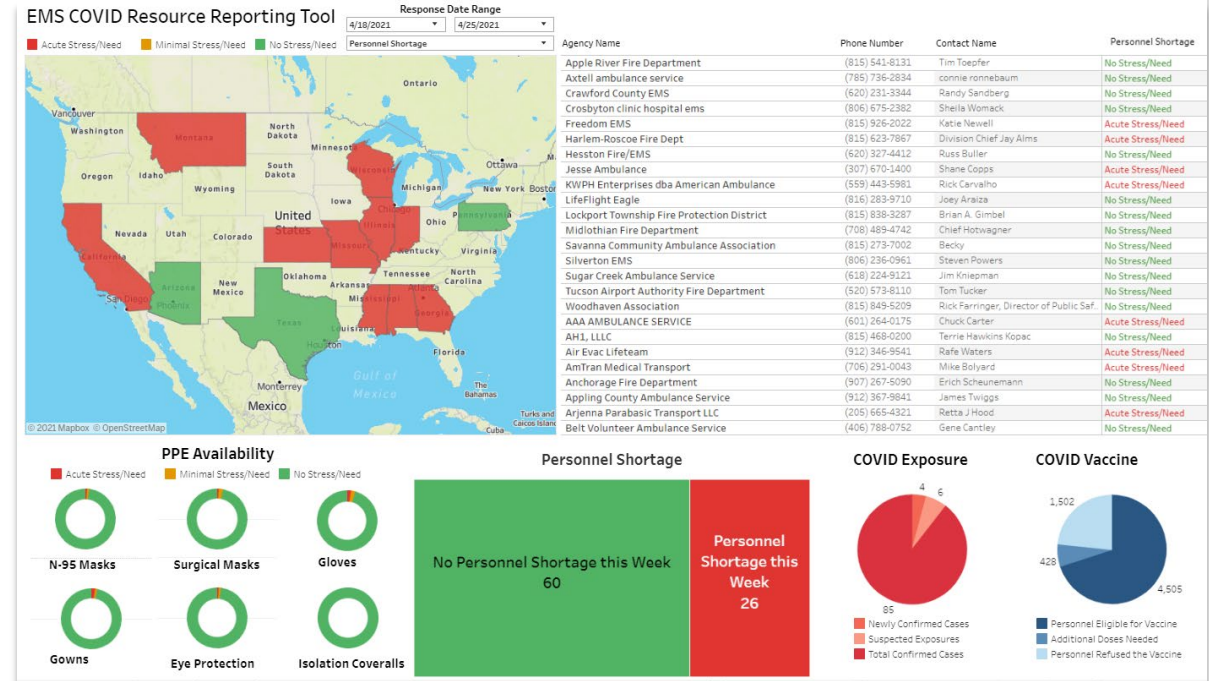
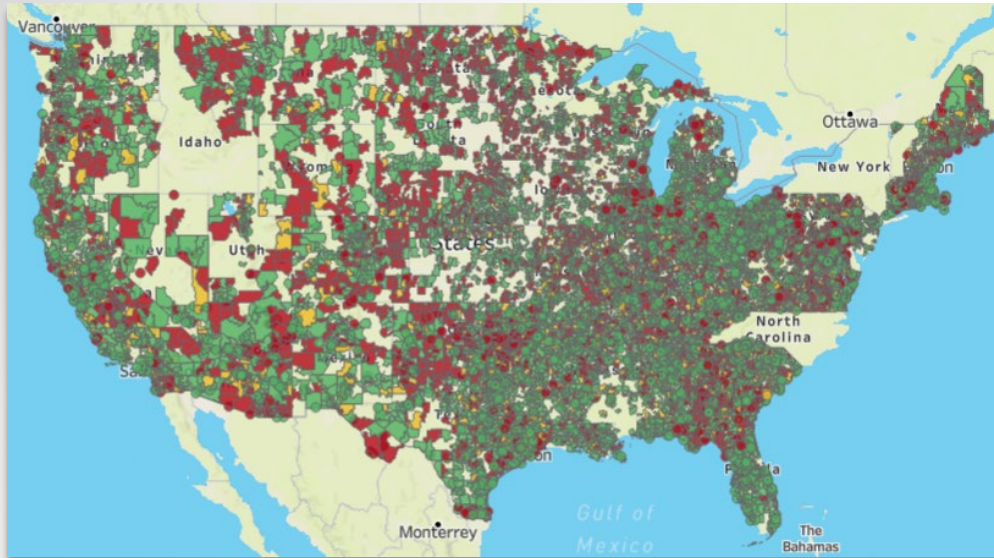
CDC Covid Cases vs NEMSIS ILI rate



CDC Covid Deaths vs NEMSIS ILI rate



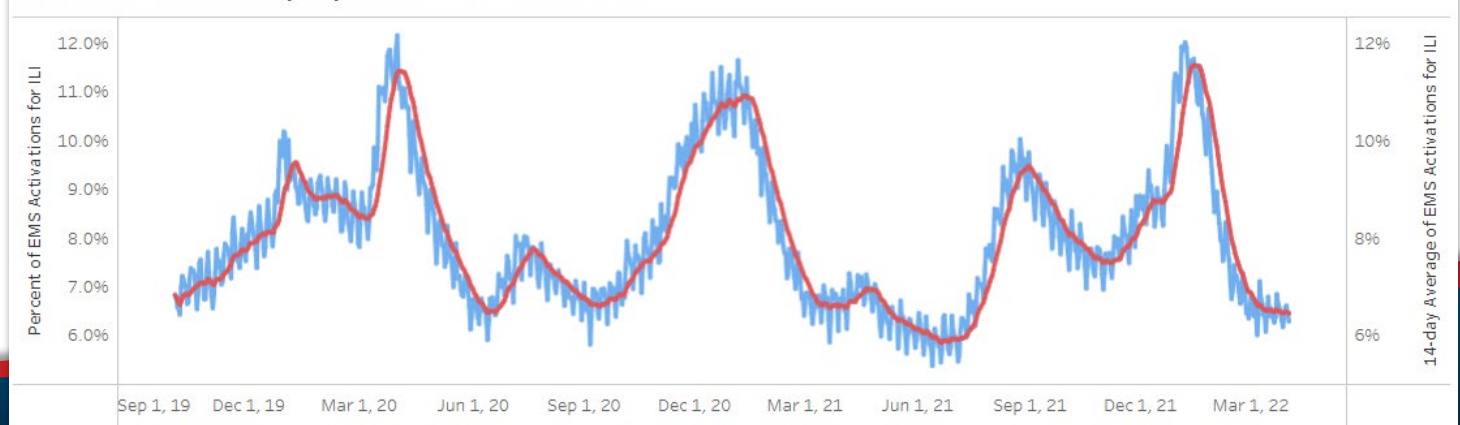
COVID: NEMSIS Resources



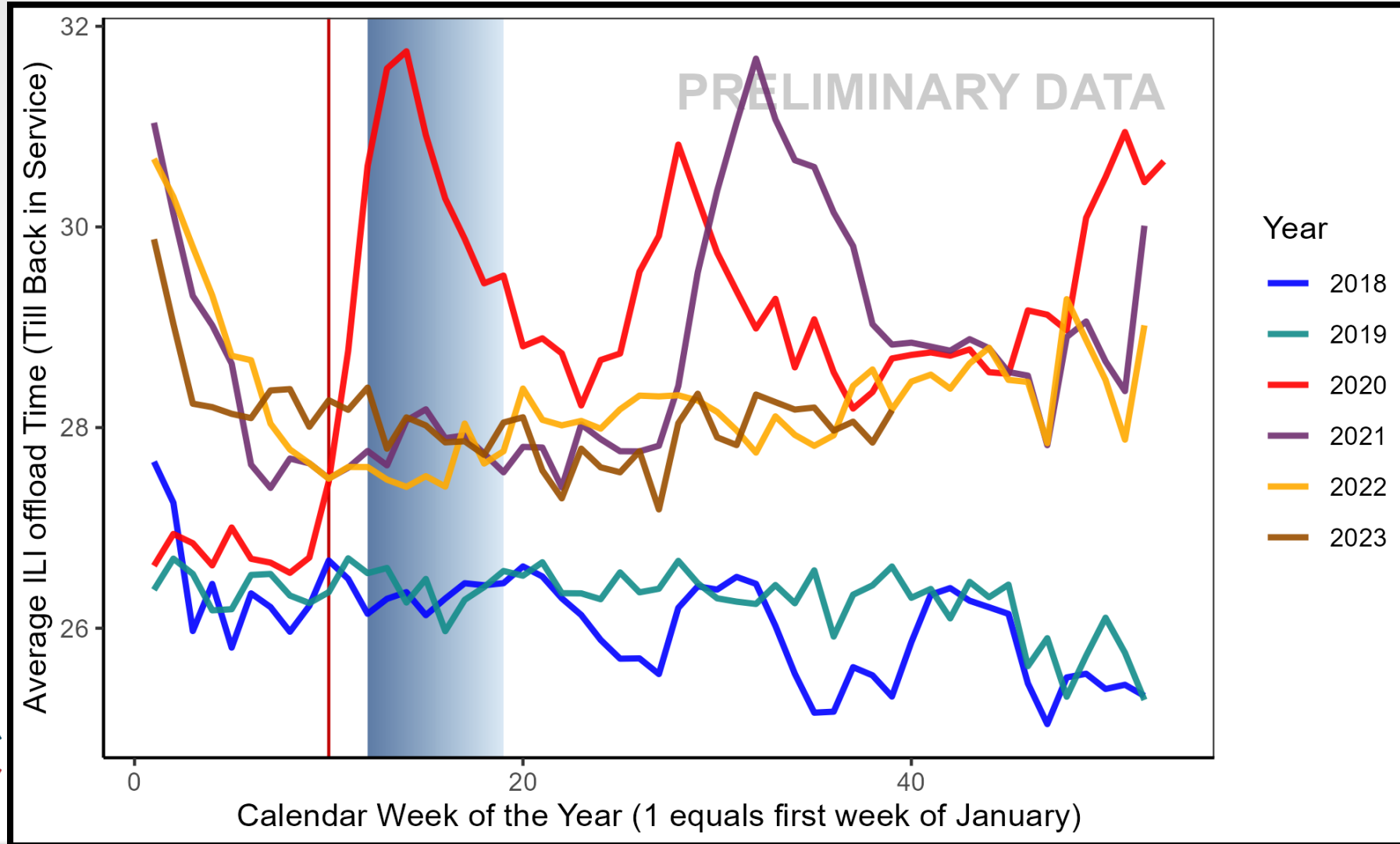
State off-load time tracking
State ILI tracking
State COVID/PPE tracking



Trend of ILI Activations by Day



Average ILI Offload Time





Non-Fatal Opioid Overdose Surveillance Dashboard

May 29, 2022 – May 28, 2023

EMS Data Updated On: June 17, 2023

Select Time Period: Rolling 365 Days Select Jurisdiction: (All) Select Level of Geographic Detail: Counties Select an Overdose Measure: Rate of Nonfatal Opioid Overdose MVC-Related Non-Fatal Opioid Overdoses 2,692

Average EMS Time to Patient
Rolling 365 Days
9.9 minutes
% Change
+2.1%

Number of Opioid Overdoses
Rolling 365 Days
213,547
% Change
-2.3%

Rate of Nonfatal Opioid Overdose per 100k Population
Rolling 365 Days
64.8
% Change
-2.3%

Average Number of Naloxone Administrations per Overdose
Rolling 365 Days
1.0
% Change
+1.9%

Patients Not Transported to a Medical Facility
Rolling 365 Days
22.0%
% Change
+7.3%

Top Jurisdictions

Rate of Nonfatal Opioid Overdose

District of Columbia

New Hampshire

Vermont

Connecticut

Alabama

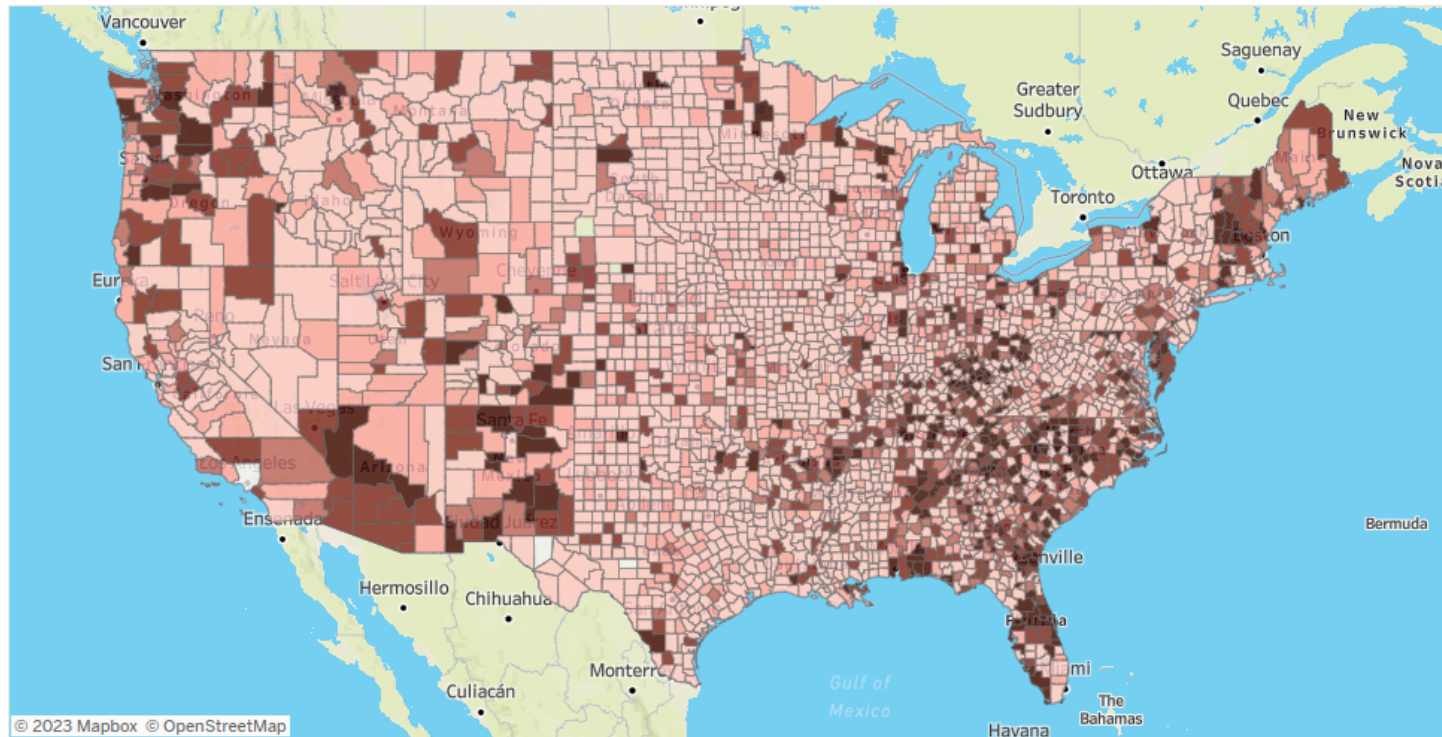
New Mexico

Washington

Illinois

Kentucky

Oregon



No/Limited Data Available
Zero or Much Lower Than Average
Lower than Average
Near National Average
Higher than Average
Much Higher than Average



Top Counties

Rate of Nonfatal Opioid Overdose

Menominee, Wisconsin

Roanoke (city), Virginia

Mahnomen, Minnesota

Walker, Alabama

Jasper, South Carolina

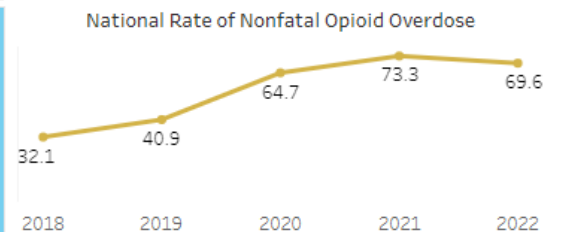
Portsmouth (city), Virginia

Powell, Kentucky

Swain, North Carolina

Campbell, Tennessee

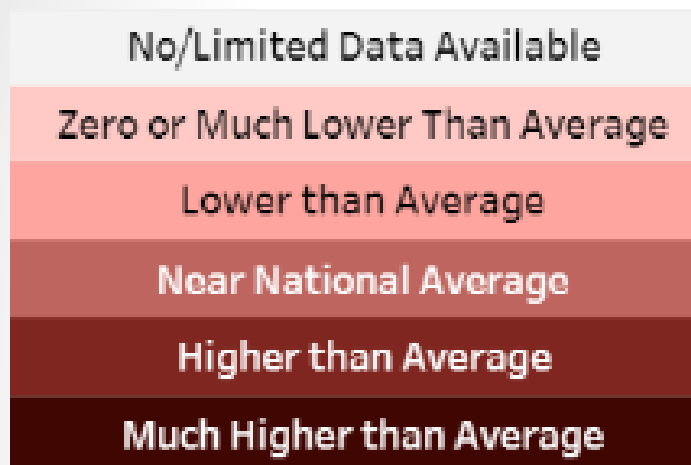
Bristol (city), Virginia



Hawaii Rate of Nonfatal Opioid Overdose

(Rolling 28 days, Sept. 25-Oct. 22, 2023)

Zero or Much Lower Than Average



September 2, 2023 – September 15, 2023
Dashboard Updated On: September 18, 2023 (Updated Weekly)

Select Time Period
Previous 14 Days

Select Level of Geographic Detail
Counties

Select to View Specific State/District/Territory
(All)

Select Heat-Related Measure
Rate of Heat-Related EMS Activations

National Statistics

Average EMS Time to Patient

12.7 minutes % Change -3.6%

Number of Heat-Related EMS Activations

2,512 % Change -53.0%

Rate of Heat-Related EMS Activations per 100K Population

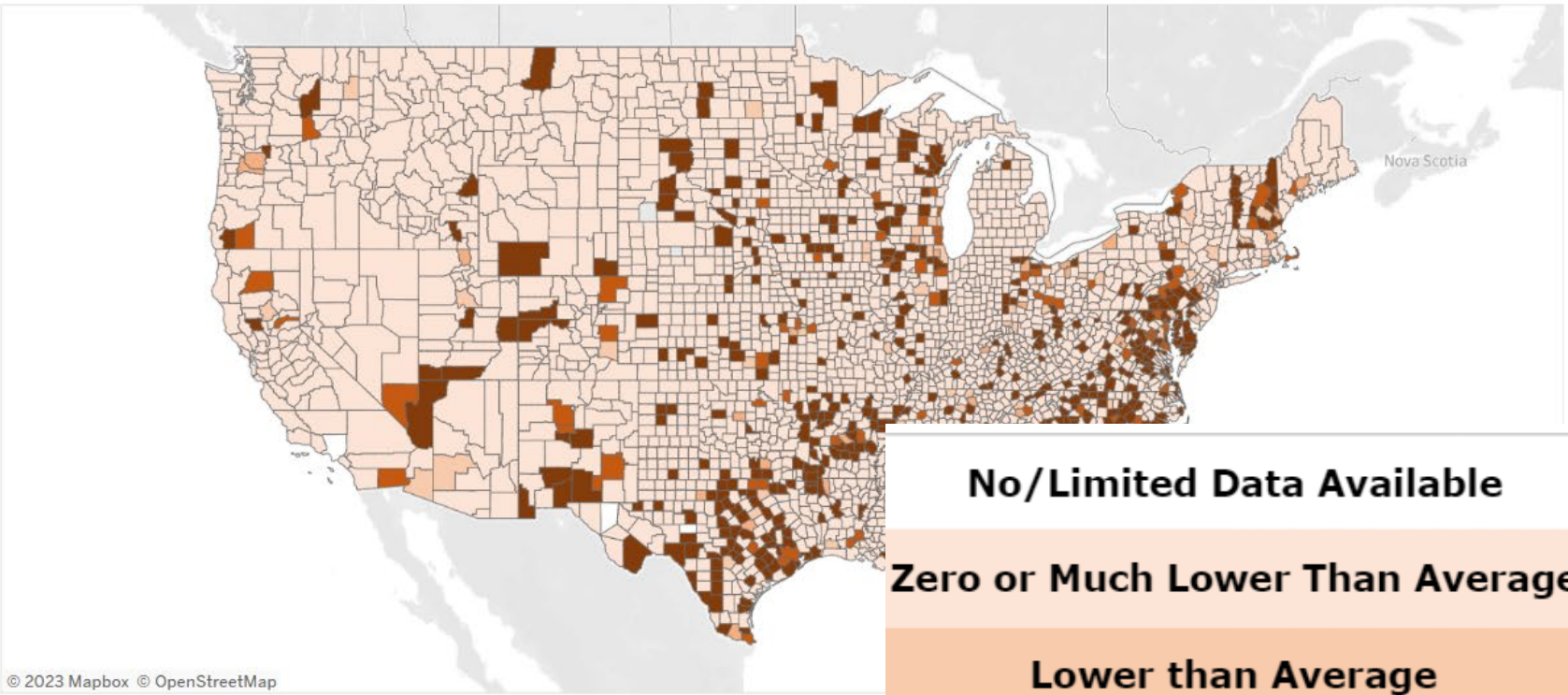
0.8 % Change -53.0%

Number of Heat-Related Deaths Among EMS Activations

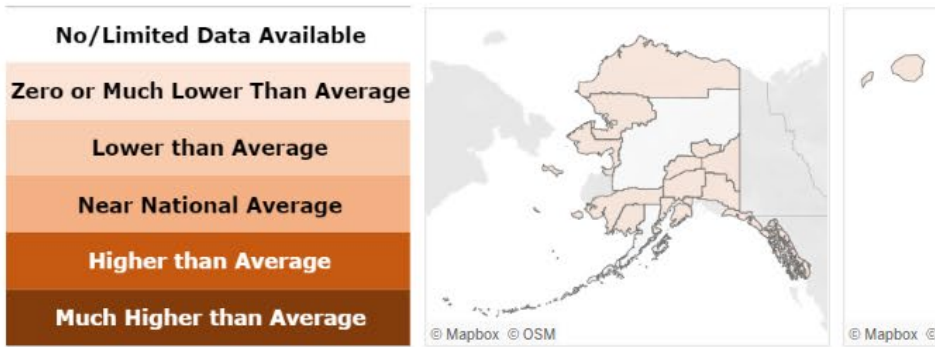
1.0 % Change -94.1%

Patients Transported to a Medical Facility

59.6% % Change -40.4%



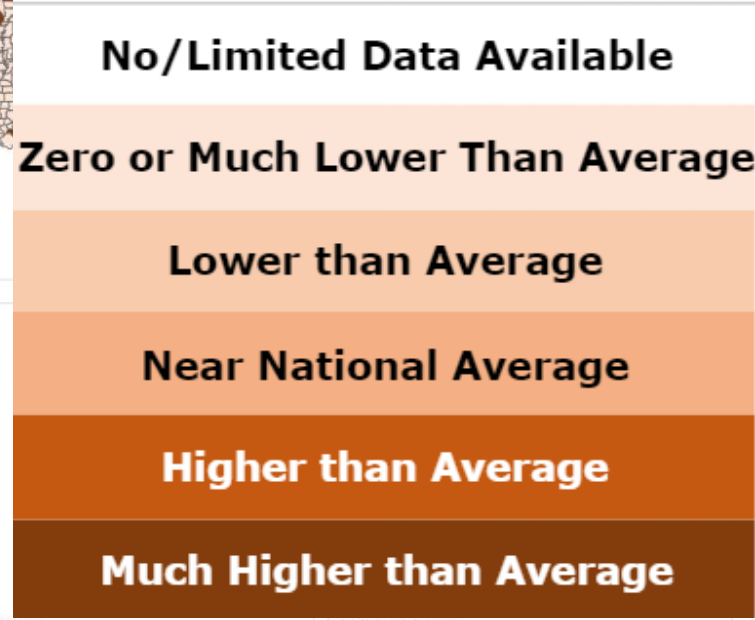
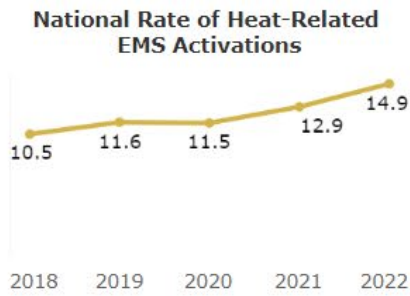
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Top Jurisdictions
Rate of Heat-Related EMS Activations

- District of Columbia
- Vermont
- New Hampshire
- Virginia
- South Dakota
- Arkansas
- North Carolina
- Florida
- Texas
- Alabama

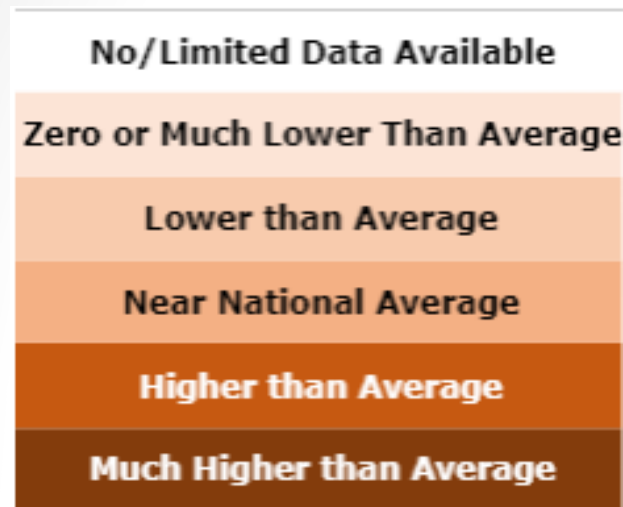
Top Counties
Rate of Heat-Related EMS Activations

- Williamsburg (city), Virginia
- Kidder, North Dakota
- Buffalo, South Dakota
- La Salle, Texas
- Corson, South Dakota
- Haakon, South Dakota
- Highland, Virginia
- Wells, North Dakota
- Hamilton, Kansas
- Jackson, South Dakota

Hawaii Heat-Related EMS Activation Surveillance Dashboard

(Previous 30 Days, Oct.12-Nov. 10, 2023)

Zero or Much Lower Than Average



Hawaii
Specific Data
available to
State Level
Officials



State V3 Motor Vehicle Crash Dashboard

11/14/2022 to 11/9/2023

Data Set Size

Motor Vehicle Crashes: 5,403

EMS Agencies: 8

States & Territories: 1

Type

(All)

Incident/Patient Disposition

(All)

Urbanicity

(All)

NHTSA Region

Region 9

Submitting State

HI

Unit Dispatch Date

11/14/2022

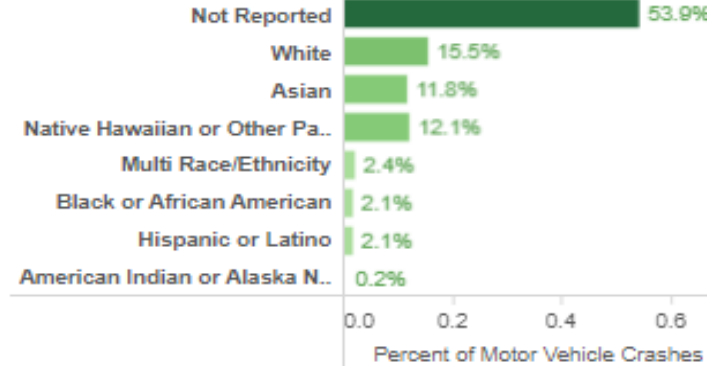
11/9/2023

Demographics

Age and Gender

Age Range (A..	Gender			
	Fem..	Male	Mal..	Oth..
0-4 Years	0.1%	0.1%	0.0%	0.0%
10-14 Years	2.5%	2.9%	0.0%	0.0%
15-19 Years	4.0%	4.3%	0.0%	0.0%
20-24 Years	5.6%	6.8%	0.0%	0.0%
25-29 Years	3.9%	4.9%	0.0%	0.0%
30-34 Years	3.7%	4.7%	0.0%	0.0%
35-39 Years	3.2%	4.4%	0.0%	0.0%
40-44 Years	3.4%	3.7%	0.0%	0.0%
45-49 Years	2.7%	3.5%	0.0%	0.0%
50-54 Years	2.7%	3.5%	0.0%	0.0%
55-59 Years	2.5%	3.7%	0.0%	0.0%
60-64 Years	2.7%	4.0%	0.0%	0.0%
65-69 Years	2.6%	3.1%	0.0%	0.0%
70-74 Years	2.1%	2.5%	0.0%	0.0%
75-79 Years	1.5%	1.4%	0.0%	0.0%
80-84 Years	1.0%	0.8%	0.0%	0.0%
85-89 Years	0.4%	0.5%	0.0%	0.0%
90-94 Years	0.2%	0.2%	0.0%	0.0%
95-99 Years	0.0%	0.0%	0.0%	0.0%
100+ Years	0.0%	0.0%	0.0%	0.0%
Unknown	0.0%	0.0%	0.0%	0.0%

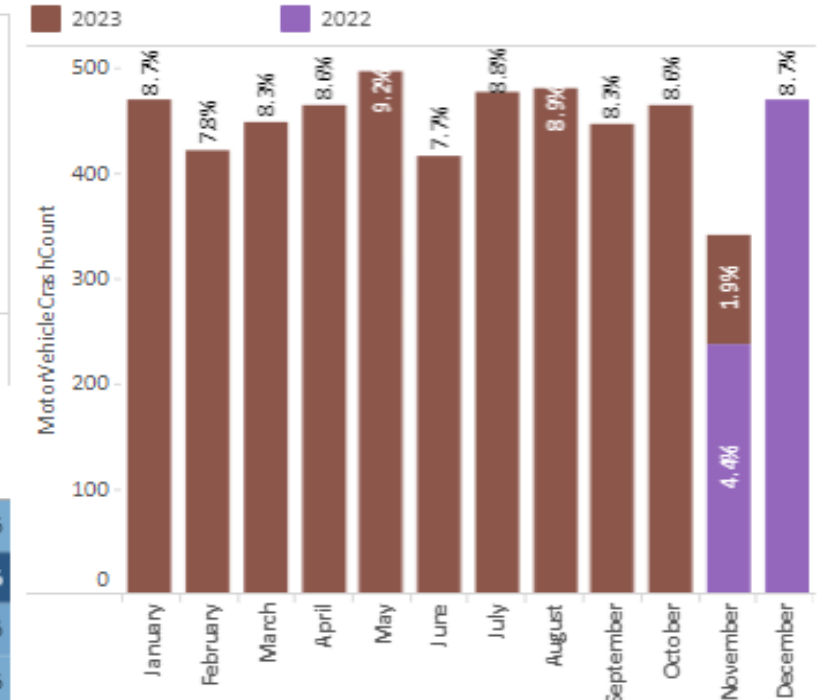
Race



Dispatch Time

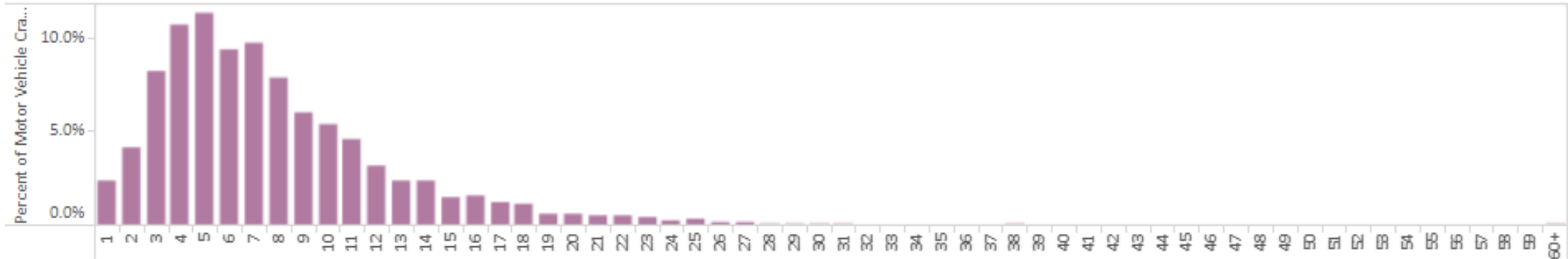
	Sun	Mon	Tue	Wed	Thu	Fri	Sat
12am to 6am	14.7%	13.0%	15.2%	13.9%	14.6%	14.1%	14.4%
6am to 12pm	20.0%	11.2%	9.5%	12.4%	12.0%	12.2%	22.7%
12pm to 6pm	12.6%	11.6%	13.3%	15.5%	17.2%	14.8%	15.0%
6pm to 12am	15.2%	11.8%	15.2%	13.8%	14.3%	15.2%	14.5%

Dispatch Month and Year

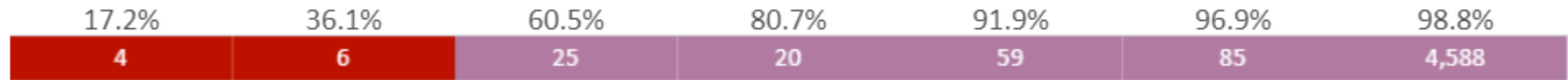


Scene Response Time

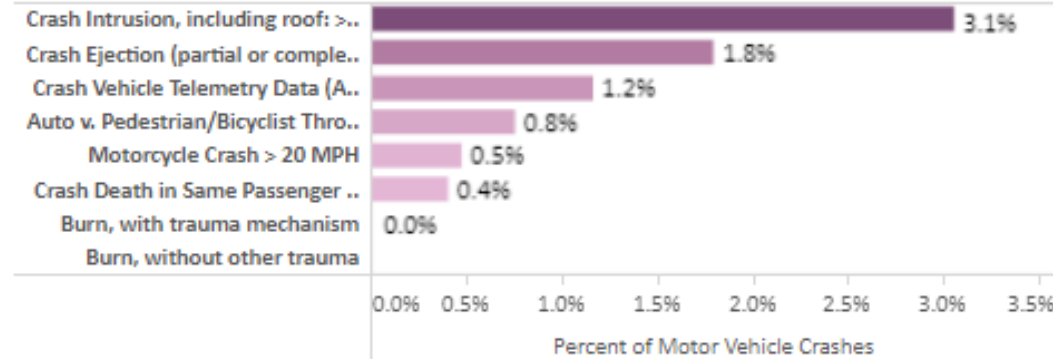
Scene Response Time ▼



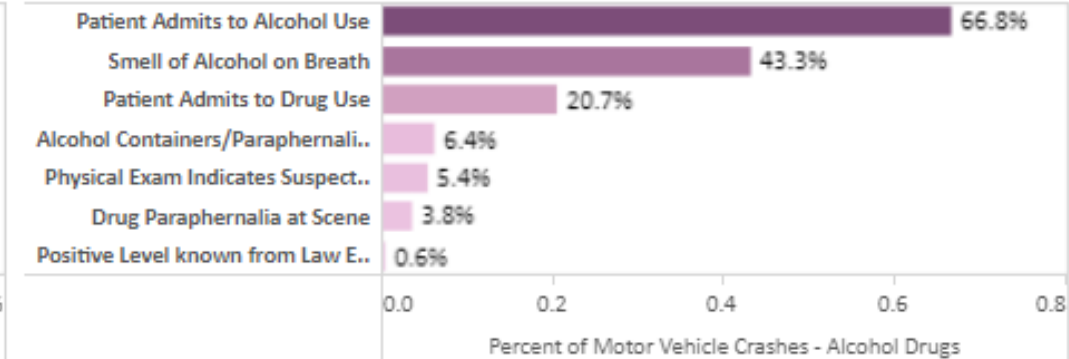
Probability of Survival



Injury Risk Factor



Type of Drug/Alcohol Indication (Percent of Total) 13.7%



Rate of Motor Vehicle Crashes to All Activations by Incident County

Geography

Green represents less than 1.5 standard deviations from the mean, hover over to see more details.

© 2023 Mapbox © OpenStreetMap

View: Original

Watch

Share

✓ Keep Only ☐ Exclude

View Data...

Incident County, State: **Hawaii**

FIPS: 15001

Number of Motor Vehicle Crashes:

872

Number of NEMSIS Activations:

18,468

Rate of Motor Vehicle Crashes (per 1,000 Activations): **47.2**

NEMESIS Publications

National Characteristics of Emergency Medical Services in Frontier and Remote Areas

Landon R. Mueller MS, John P. Donnelly MSPH, Karen E. Jacobson BA, NREMT-P, N. Clay Mann PhD, MS & Henry E. Wang MD, MS

Procedures Performed by Emergency Medical Services in the United States

Jettin N. Carlson MD, MS, Christopher Korns DO, N. Clay Mann PhD, MS, Karen E. Jacobson BA, NREMT-P, Mengtao Dai MS, Care

Articles

On Pediatric firearm incidents: it's time to decrease on-site pit. Is Use of Warning Lights and Sirens Associated With Increased Risk of Ambulance Crashes? A Contemporary Analysis Using National EMS Information System (NEMIS) Data

Henry E. Wang^a, N. Clay Mann^b, Karen E. Jacobson^b, Donald M. Yealy^c, Gregory Mears^c

^a Department of Emergency Medicine, University of Alabama at Birmingham, Birmingham, AL, United States
^b Intermountain Injury Control and Research Center, Department of Pediatrics, University of Utah School of Medicine, Salt Lake City, UT, United States
^c Department of Emergency Medicine, University of North Carolina Chapel Hill, Chapel Hill, NC, United States
^d Department of Emergency Medicine, University of Pittsburgh, Pittsburgh, PA, United States

Racial and gender disparities in violent trauma: Results from the NEMIS database

Google Scholar

NEMIS

About 1,310 results

The Cost of Emergency Medical Services Transport Patterns and Acute Care Costs Among Low-Risk

Epidemiology of Pediatric Prehospital Basic Life Support Care in the United States

Leigh Ann Diggs MPH, Manasi Sheth-Chandra PhD & Gianluca De Leo PhD, MBA

Emergency Medical Services Response to Shooting and Active Shooter Incidents, United States, 2014-2015

CHARACTERISTICS OF EMERGENCY MEDICAL SERVICES RESPONSE TO SHOOTING AND ACTIVE SHOOTER INCIDENTS IN THE UNITED STATES

Henry E. Wang, MD, MS, N. Clay Mann, PhD, MS, Karen E. Jacobson, BA, NREMT-P, Mengtao Dai, MS, Gregory Mears, MD, Kathleen Szymanski, MPH, Donald M. Yealy, MD

Emergency Medical Services Experience With Barb Removal After Taser Use By Law Enforcement: A Descriptive National Study

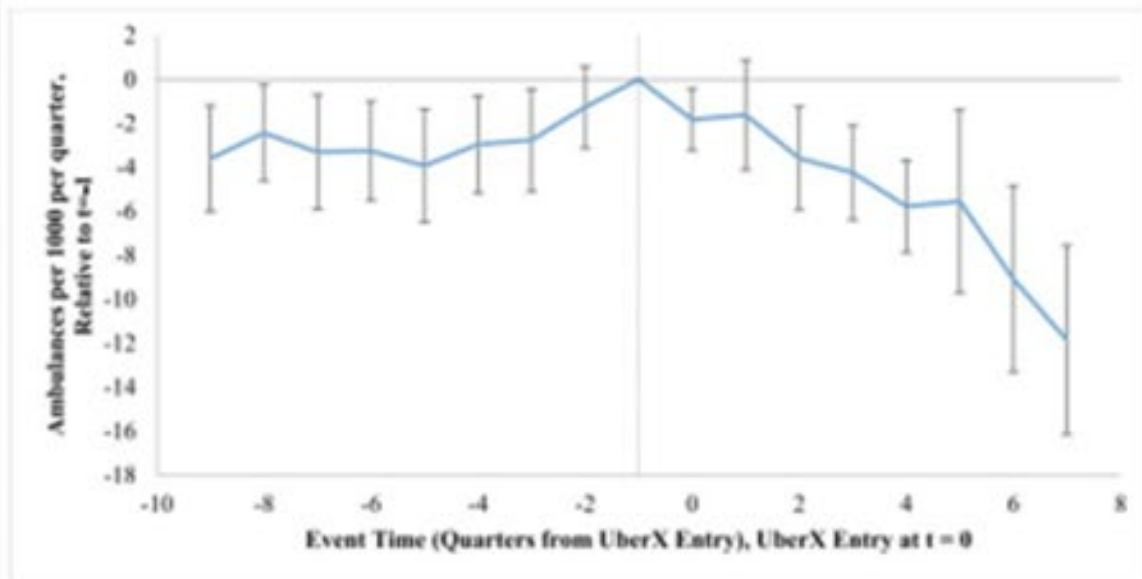
Effect of the Coronavirus Disease 2019 (COVID-19) Pandemic on the U.S. Emergency Medical Services System: A National Report

National Differences in the Quality of EMS Care for Chest Pain and Out-of-Hospital

Changes in Emergency Medical Services Before and During the COVID-19 Pandemic in the United States, January 2018-December 2020

Example of Research

Does Uber reduce ambulance volume?



Pre/Post Uber introduction study including 43 states and 766 cities.

7% decrease in the per capita ambulance rate when Uber enters a city.

Moskattel L, Slusky DJG
**Did UberX Reduce
Ambulance Volume?**
Hlth Econ, 2019;28:817-
29.

EMS Response Time vs. Mortality

JAMA Surgery | Original Investigation

Association Between Emergency Medical Service Response Time and Motor Vehicle Crash Mortality in the United States

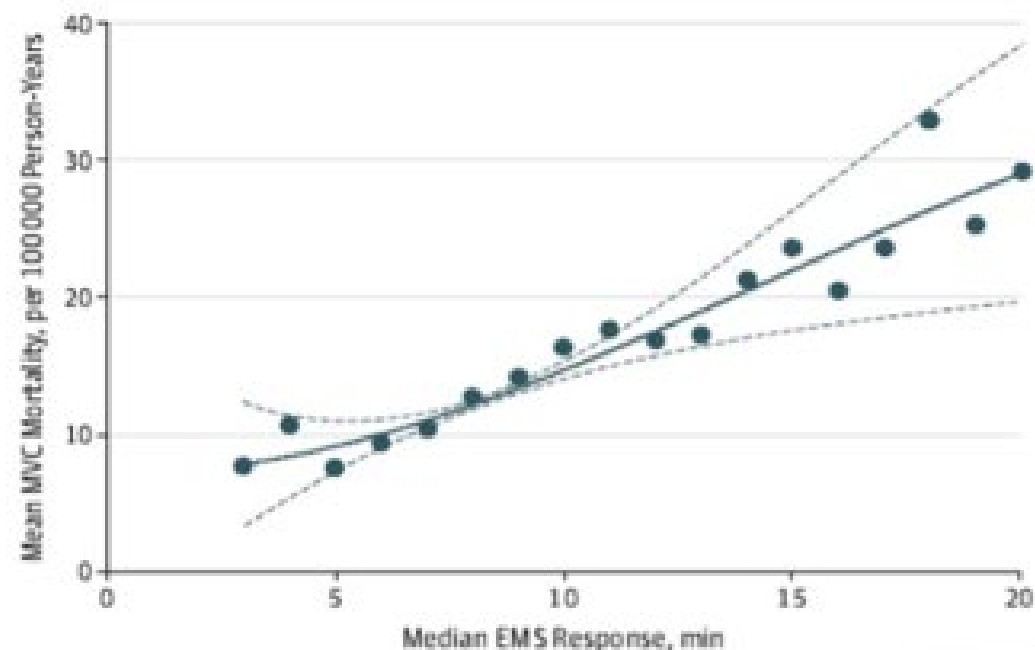
James P. Byrne, MD, PhD; N. Clay Mann, PhD, MS; Mengtao Dai, MS; Stephanie A. Mason, MD, PhD;
Paul Karanicolas, MD, PhD; Sandro Rizoli, MD, PhD; Avery B. Nathens, MD, PhD

Based on 2.2 million responses to a MVC in 2,265 counties

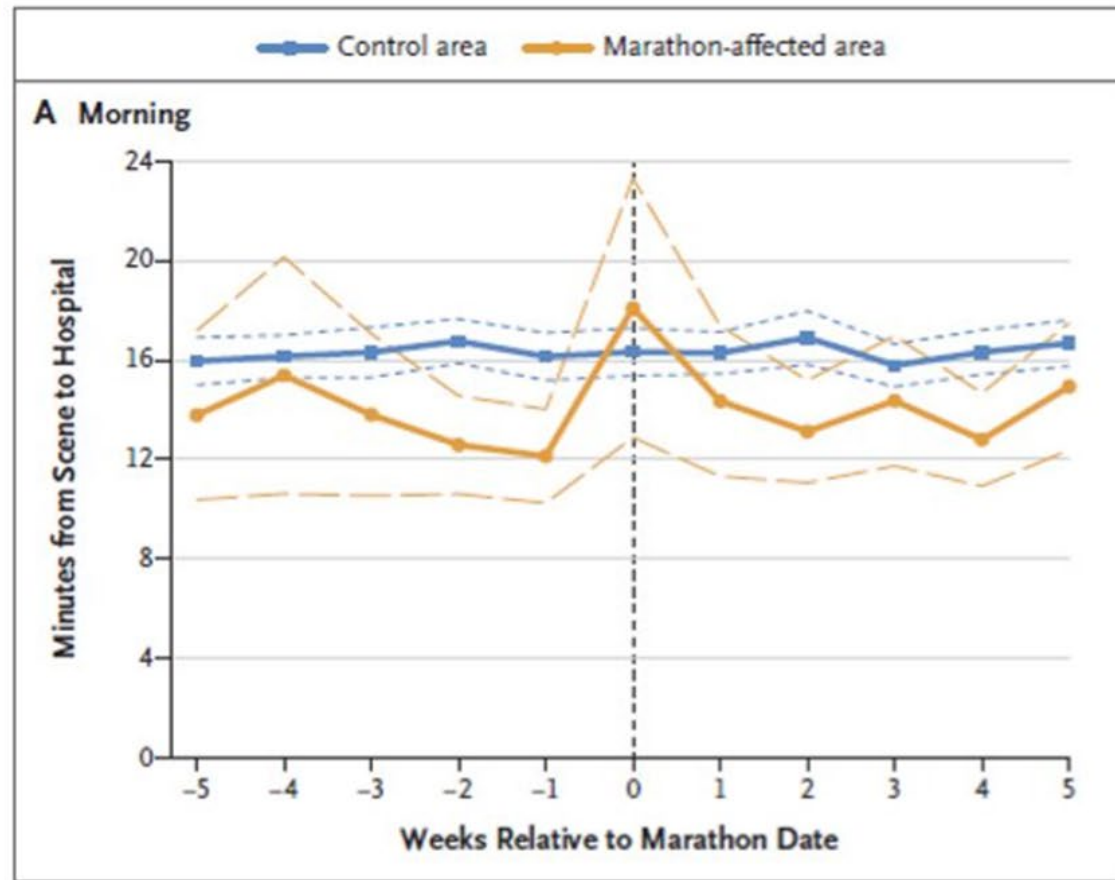
NEMSIS data linked to FARS data by County

Indicates increase in MVC mortality with every additional minute of response.

Figure 2. Crude Association Between County Median Emergency Medical Service (EMS) Response Time and County Rate of Motor Vehicle Crash (MVC) Mortality



Do neighborhoods behind street barriers for marathons receive delayed EMS care compared to neighborhoods away from the barriers?



11 largest US urban marathons

3 years

62,890 EMS activations for
>65 yrs. chest pain patients

On average, transport
times 4.4 min longer.

Jena AB, (2017). **Delays in
Emergency Care and Mortality
during Major U.S. Marathons.** N
Engl J Med, Apr 13(376), 1441-
1450.

How the Data Are Used

- By State EMS Officials
- White House and National Partners
- Policy Making
- Researchers
- Allocate Funding
- Track Deliverables for Grants
- Identify Quality Improvement Goals



EMS Interoperability Task Force

Monthly, 2nd Thursday, 11a–12:30p MT

- Dec 14

Topics:

- Feb 16: Identifying data exchange partners and establishing relationships
- Mar 9: Governmental, regulatory, and contractual environment
- Apr 13: Regulatory environment and national networks recap
- May 11: Sequence/Workflow: SAFR Design
- June 8: Sequence/Workflow
- Jul 13: Healthcare data standards
- Sep 14: Technical standards and profiles to use in data exchanges
- Oct 12: Data elements to be shared and parsed
- APIs
- Patient identification and record matching



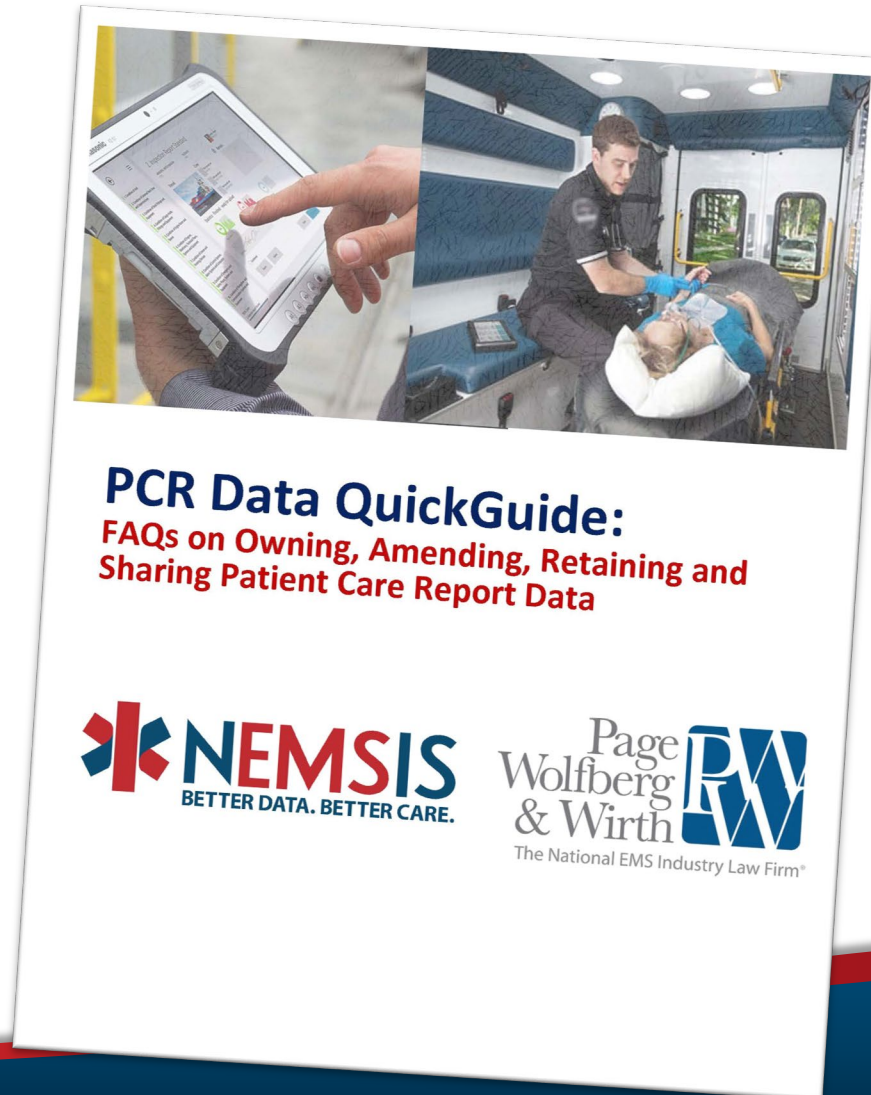
YouTube Playlist



PCR Data QuickGuide

Topics Include

- Legal Status of PCRs
- Amending PCRs
- Retention of PCRs
- Transferring PCR Data



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Twitter: <http://www.twitter.com/NEMSISTAC>



LinkedIn: <https://www.linkedin.com/company/nemesis>



YouTube: <https://www.youtube.com/c/NEMSISTAC>



For More Information:

www.NEMESIS.org

Support Desk: support@nemesis.atlassian.net

Lauri Lunde, lauri.lunde@hsc.utah.edu

