

Introduction to NEMESIS

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The National EMS Information System

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

COLLECT – CLEAN – STORE – SHARE

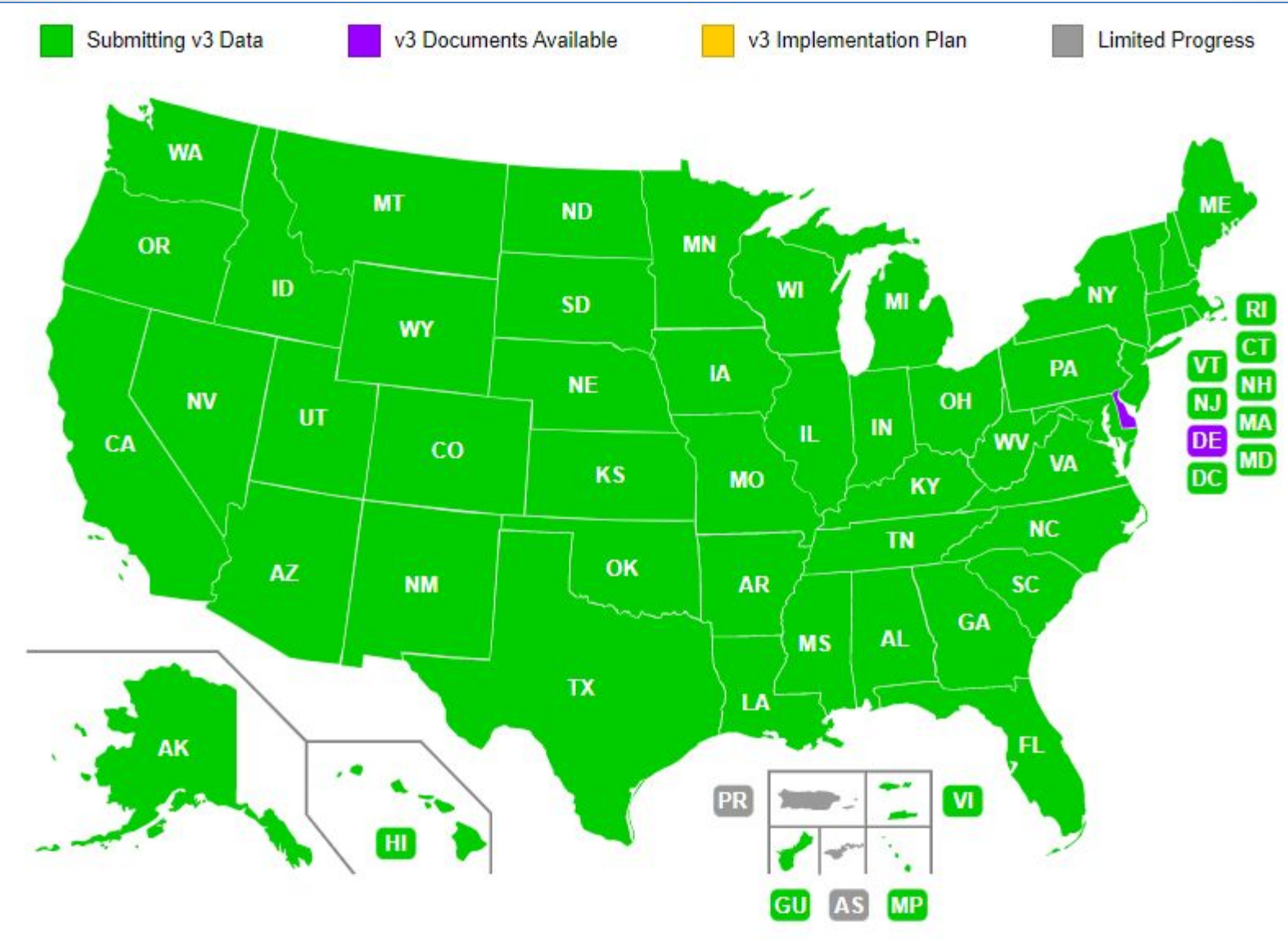


Core Components of NEMSIS

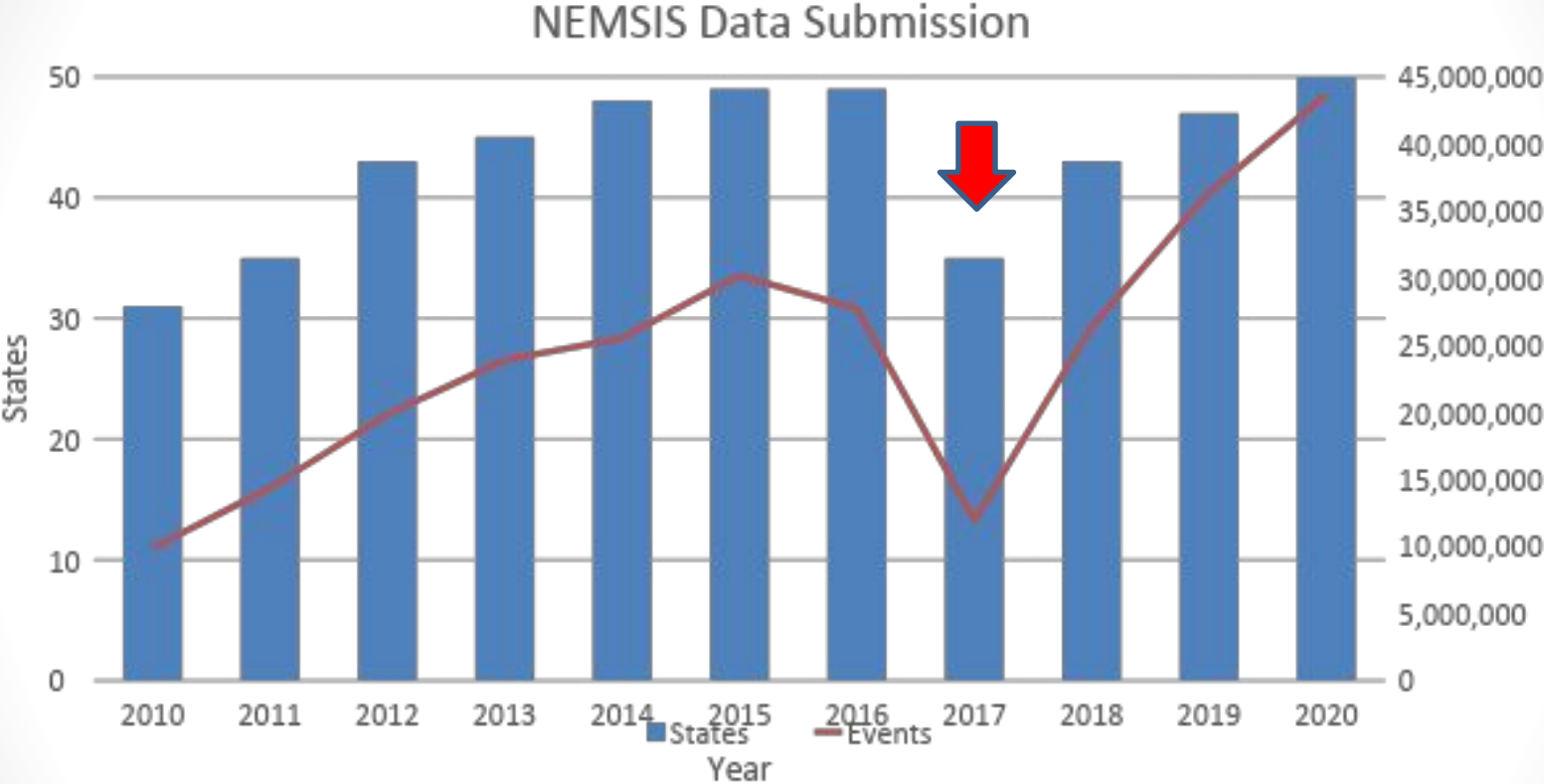
- **Documentation standard** for EMS response and care
- **Data definitions** for point of care data collection
- **Compliance testing** for EMS ePCR software
- **Interoperability** and exchange standards
- **National EMS Database**



Participating States/Territories

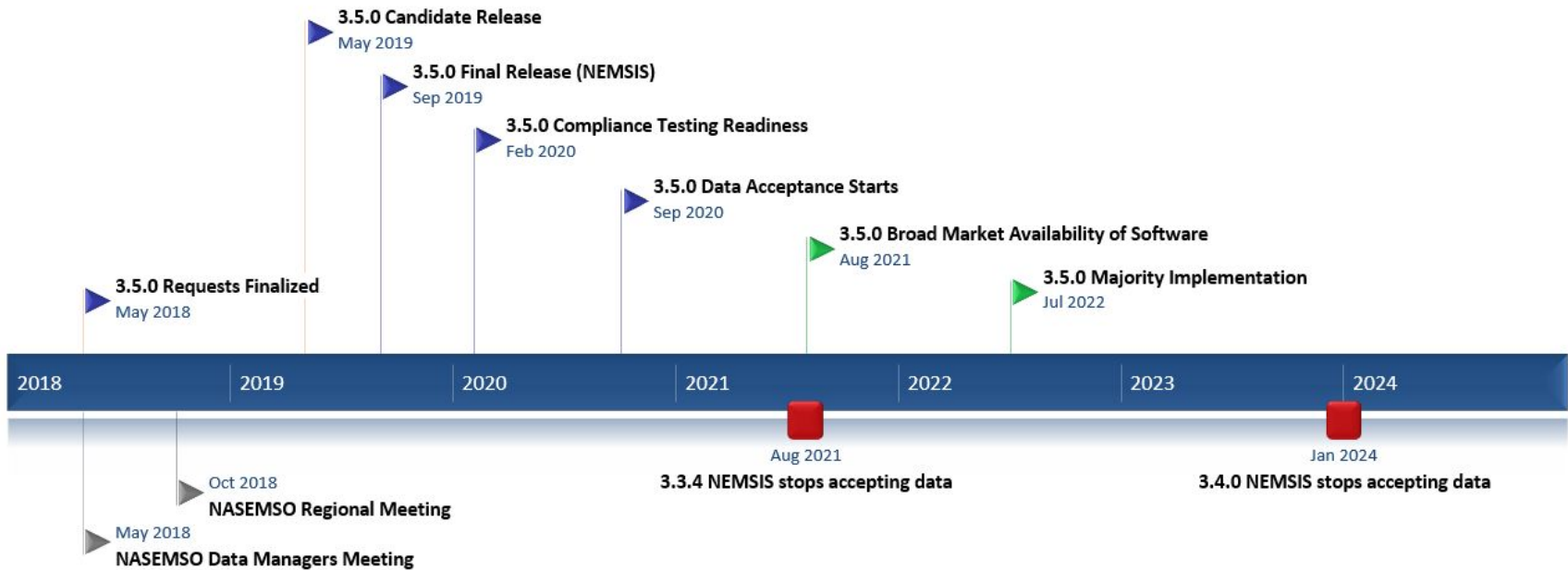


State Participation and Submissions



Versioning Timeline

NEMSIS Versioning Schedule



Updated October 2021

National Public-Release Research Dataset

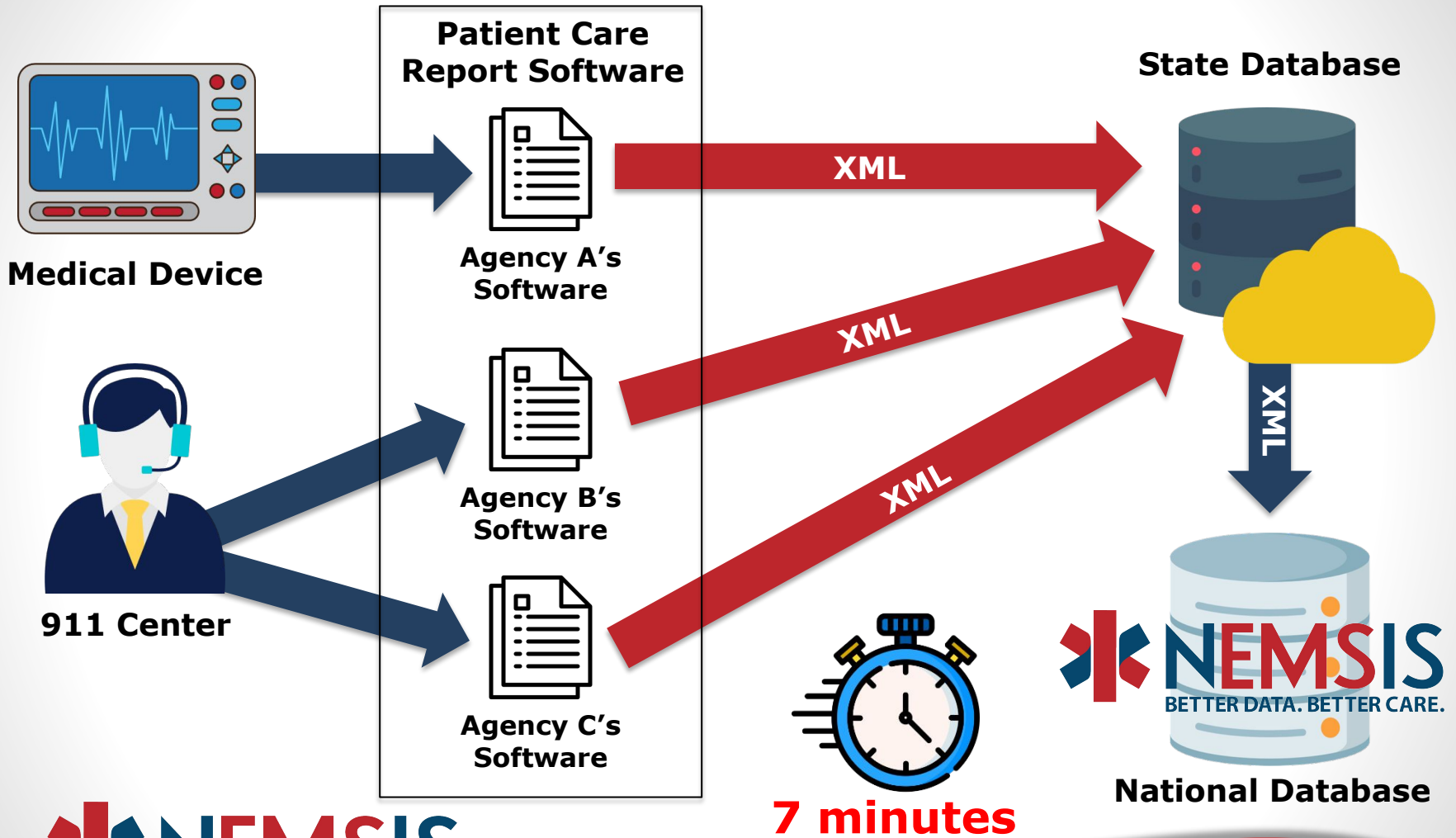
Statistical Year	Reporting States ¹	Reporting Agencies	Number of Events	Treated and Transported 9-1-1 Response ²
2009	26	2,112	5,767,090	3,367,668
2010	31	4,874	9,874,748	4,874,061
2011	35	7,180	14,371,941	7,701,605
2012	43	8,439	19,831,189	10,733,925
2013	45	9,025	23,835,729	12,595,958
2014	48	9,653	25,835,729	13,769,286
2015	49	8,785	30,206,450	15,729,516
2016	49	10,137	29,919,652	15,361,777
2017	35	4,016	7,907,829	3,835,110
2018	43	7,909	22,532,890	10,675,178
2019	47	10,062	34,203,087	15,873,573
2020	50	12,319	43,488,767	19,533,036
TOTALS			267,836,584	134,050,693

**On track
for 45
million
records for
2021**

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

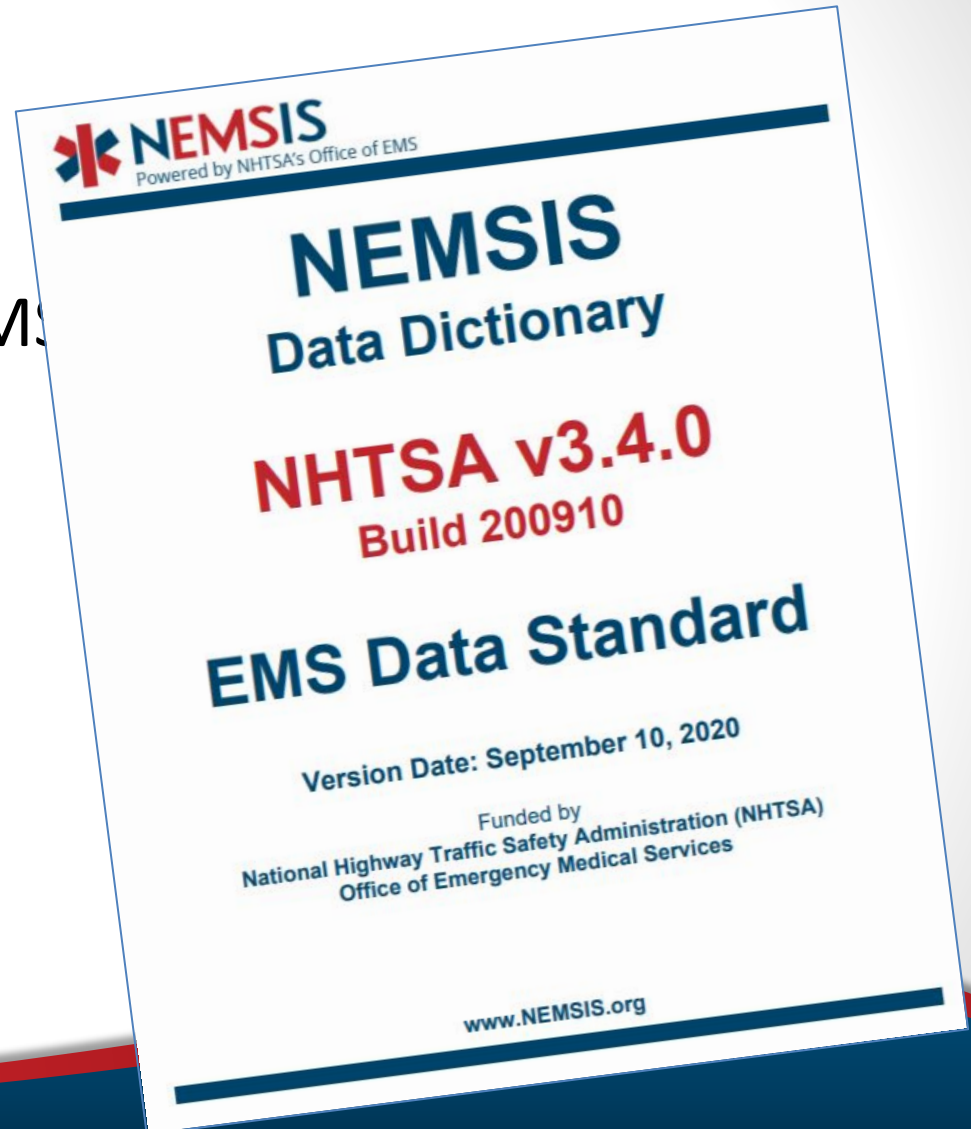
²Only including the events that are 9-1-1 calls, treated and transported by EMS.

The Portability of EMS Data

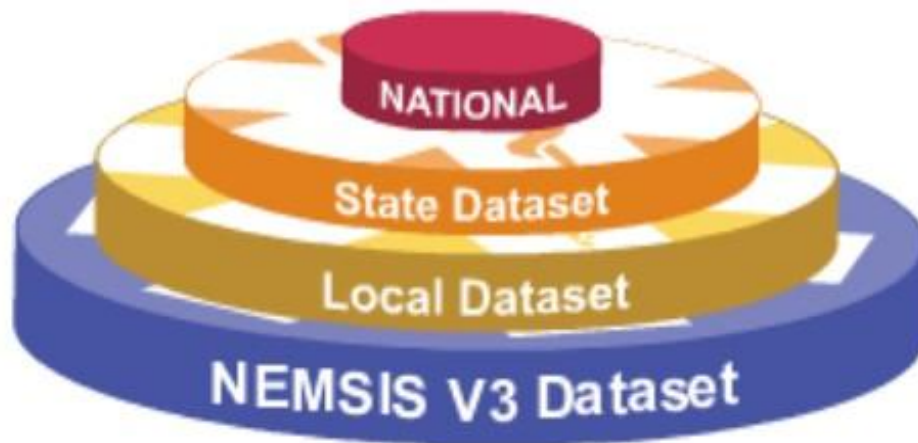


Data Elements

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



National EMS Data Standard



NEMSIS V3 Dataset	The total NEMSIS Version 3 Dataset – standardized and uniform.
Local Dataset	Local agencies select elements according to their needs, keeping the national AND state elements as part of their selection.
State Dataset	States select elements from the NEMSIS Dataset according to their needs, keeping the national elements as part of their selection.
National Dataset	A subset of base elements identified to accurately describe an EMS event.

The National elements are transmitted to the NEMSIS Technical Assistance Center (TAC) to populate the National EMS Dataset.

Legend		Dataset Level: ■ National ■ State ■ Deprecated
		Usage: M = Mandatory, R = Required, E = Recommended, or O = Optional
		Attributes: N = Not Values, P = Pertinent Negatives, L = Nillable, and/or C = Correlation ID
eVitals		
1:M	eVitals.VitalGroup	C
1:1	eVitals.01 - Date/Time Vital Signs Taken	N S R N L
1:1	eVitals.02 - Obtained Prior to this Unit's EMS Care	N S R N L
1:1	eVitals.CardiacRhythmGroup	C
1:M	eVitals.03 - Cardiac Rhythm / Electrocardiography (ECG)	N S R N L P C
1:1	eVitals.04 - ECG Type	N S R N L
1:M	eVitals.05 - Method of ECG Interpretation	N S R N L C
1:1	eVitals.BloodPressureGroup	
1:1	eVitals.06 - SBP (Systolic Blood Pressure)	N S R N L P
0:1	eVitals.07 - DBP (Diastolic Blood Pressure)	S E N L P
1:1	eVitals.08 - Method of Blood Pressure Measurement	N S R N L
0:1	eVitals.09 - Mean Arterial Pressure	O
1:1	eVitals.HeartRateGroup	
1:1	eVitals.10 - Heart Rate	N S R N L P
0:1	eVitals.11 - Method of Heart Rate Measurement	O
1:1	eVitals.12 - Pulse Oximetry	N S R N L P
0:1	eVitals.13 - Pulse Rhythm	O
1:1	eVitals.14 - Respiratory Rate	N S R N L P
0:1	eVitals.15 - Respiratory Effort	O
1:1	eVitals.16 - End Tidal Carbon Dioxide (ETCO2)	N S R N L P
0:1	eVitals.17 - Carbon Monoxide (CO)	S E N L P
1:1	eVitals.18 - Blood Glucose Level	N S R N L P
1:1	eVitals.GlasgowScoreGroup	
1:1	eVitals.19 - Glasgow Coma Score-Eye	N S R N L P
1:1	eVitals.20 - Glasgow Coma Score-Verbal	N S R N L P
1:1	eVitals.21 - Glasgow Coma Score-Motor	N S R N L P
1:M	eVitals.22 - Glasgow Coma Score-Qualifier	N S R N L C
0:1	eVitals.23 - Total Glasgow Coma Score	S E N L P

Structure of the Data Standard



DATASET LEVEL: NATIONAL

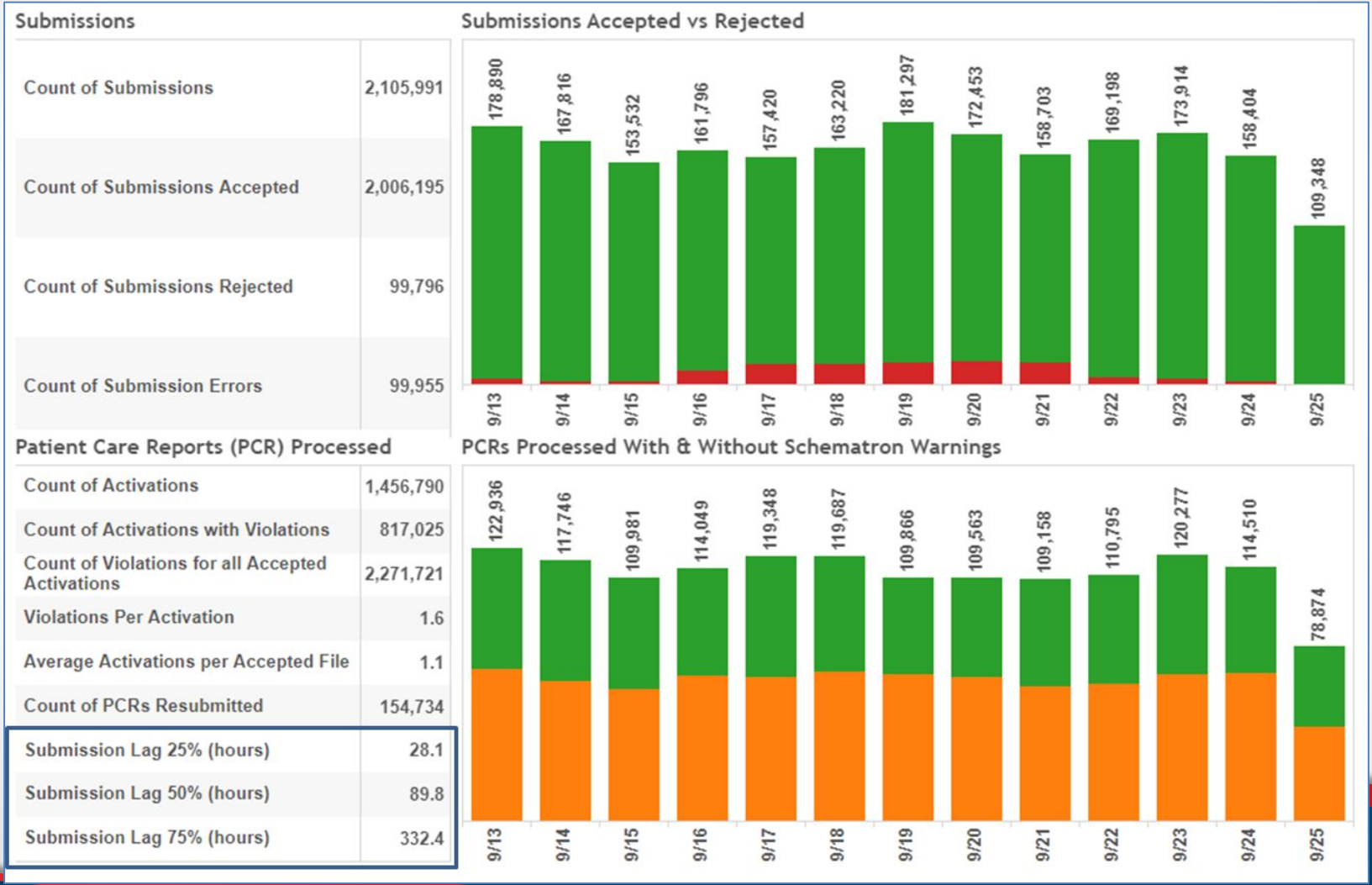
DATASET LEVEL: STATE

USAGE: M, R, E, O

ATTRIBUTES: P, L, C



Timeliness of Data



NEMESIS Publications 2021

Development of a Binary End-of-Event Outcome Indicator for the NEMESIS Public Release Research Dataset

Melissa L. Miller, MD, Erin W. ... H. Brown, PhD

NATIONAL CHARACTERISTICS OF EMERGENCY MEDICAL SERVICES IN FRONTIER AND REMOTE AREAS
Landon R. Mueller BS, John P. Donnelly MSPH, Karen E. Jacobson BA, NREMT-P, Justin N. Carlson PhD, N. Clay Mann PhD, MS & Henry E. Wang MD, MS

DESCRIPTION OF MEDICATION ADMINISTRATION BY EMERGENCY MEDICAL SERVICES DURING MASS-CASUALTY INCIDENTS IN THE UNITED STATES
Mazen El Sayed, MD, Hani Tamim, PhD, MPH

Google Scholar

NEMESIS

Scholar About 1,190 results (0.07 sec)

PROCEDURES PERFORMED BY EMERGENCY MEDICAL SERVICES IN THE UNITED STATES
Justin N. Carlson MD, MS, Christopher Karns DO, N. Clay Mann PhD, MS, Karen E. Jacobson BA, NREMT-P, Mengtao Dai MS, Caroline Colleran DO & Henry E. Wang MD, MS

EMERGENCY MEDICAL SERVICES AIRWAY MANAGEMENT IN THE UNITED STATES

EPIDEMIOLOGY OF PEDIATRIC PREHOSPITAL BASIC LIFE SUPPORT CARE IN THE UNITED STATES
Leigh Ann Diggs MPH, Manasi Sheth-Chandra PhD, Luca De Leo PhD, Medicine, Salt Lake City, UT, United States



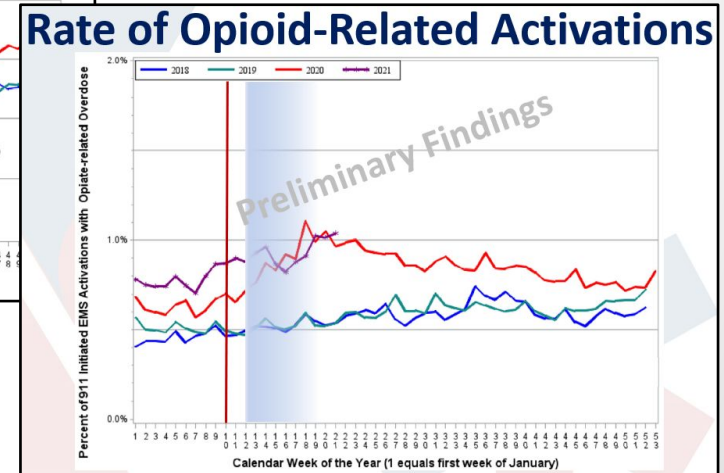
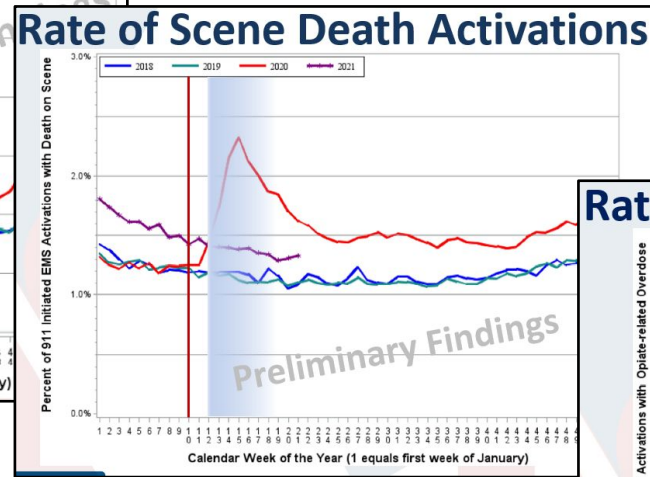
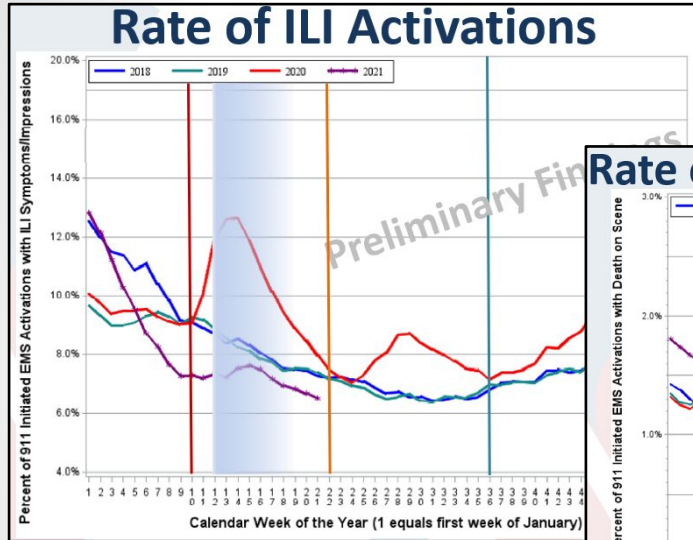
The Cost of Over-triage: Emergency Medical Services Transport Patterns and Acute Care Outcomes among Low-Risk Injured Patients

Pediatric firearm incidents: it's time to decrease on-scene mortality

Growth & Interest in EMS Data

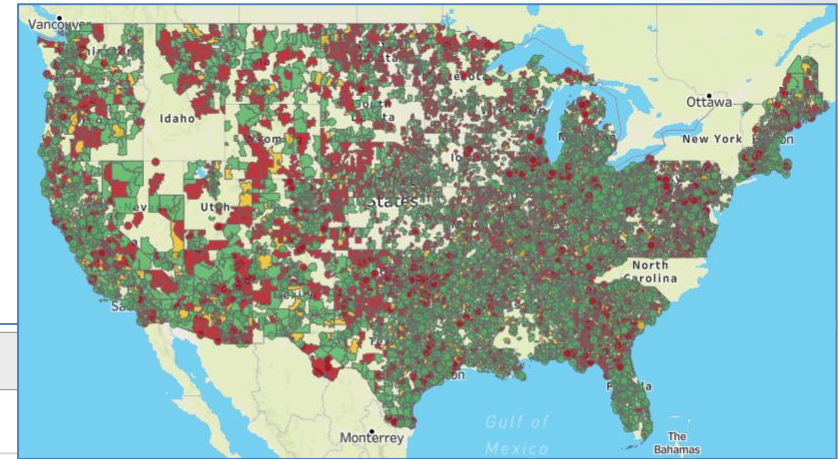
- COVID
- Opioid Epidemic
- Ketamine Use
- Transportation-related Injuries
 - Ejections, Pedestrians, Cyclists, Motorcycles
- Pediatric Prehospital Care
- Time Sensitive Conditions: Stroke, Cardiac, Trauma, Respiratory
- ET3: Novel Medicaid Reimbursement Model

Communicating the EMS Impact of COVID



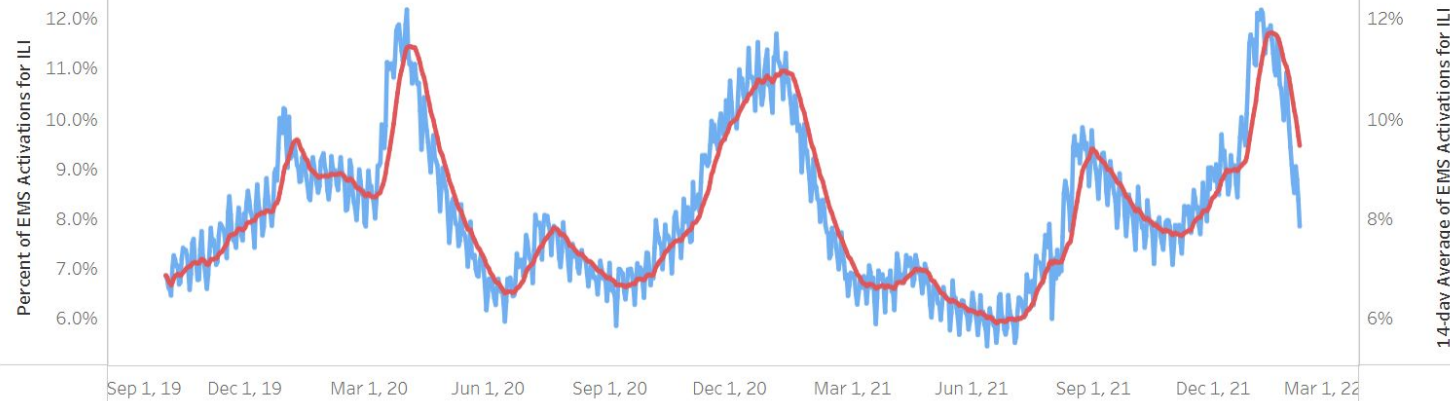
Communicating the EMS Impact of COVID

- ILI Response Trends
- Off-Load and Turn-Around Times
- State COVID/PPE tracking



Trend Over Time

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



Recognizing the Role of EMS in Healthcare

- Federal interest is growing:
 - CDC, DHS, HHS, DOT, NHTSA, FDA, FEMA, White House
- National Registries:
 - CARES: Cardiac Arrest Registry to Enhance Survival
 - Stroke Registry
 - Trauma Registry, American College of Surgeons

EMS Response Time vs. Mortality

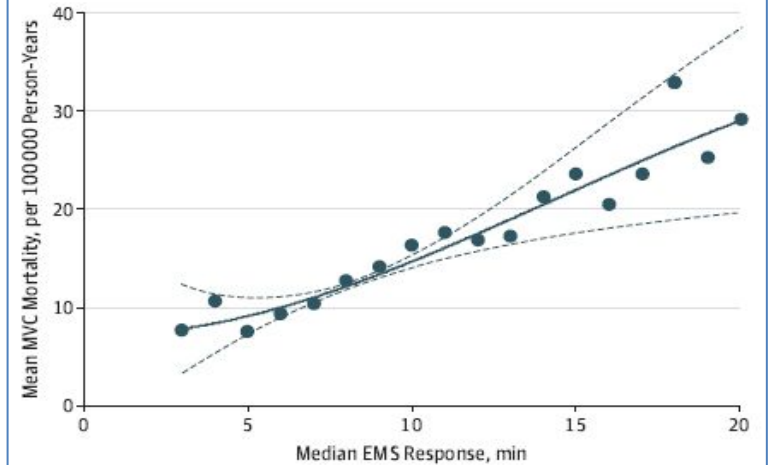
JAMA Surgery | Original Investigation

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.

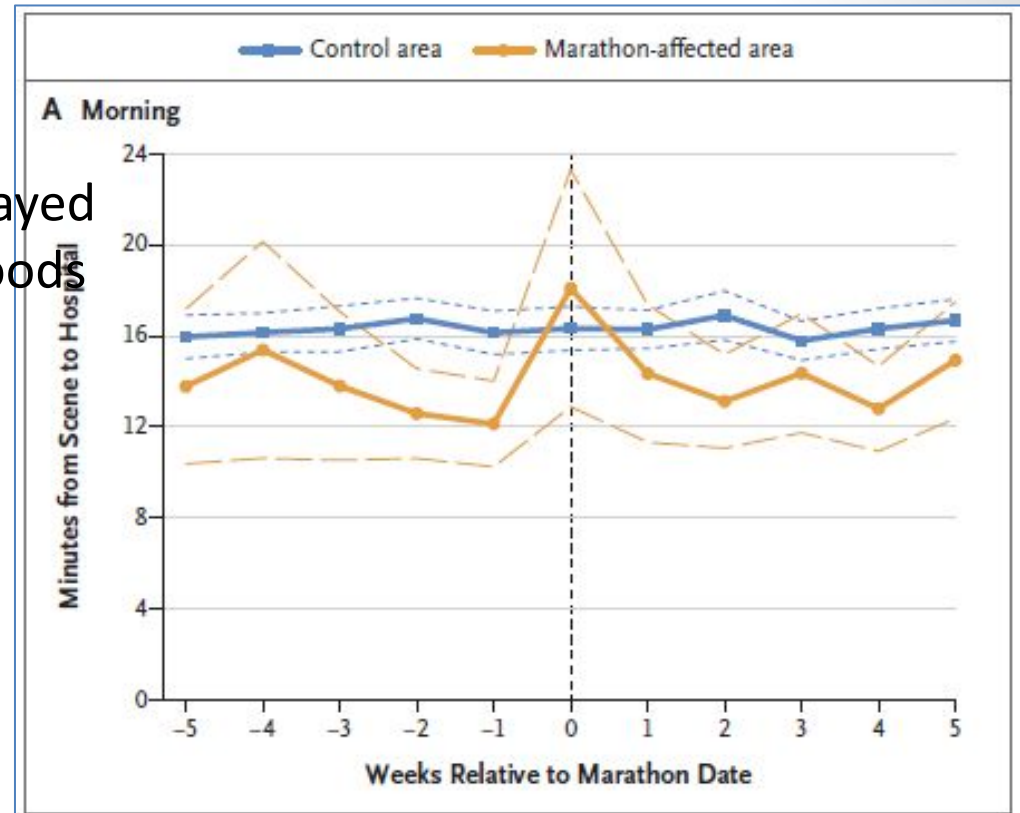
Figure 2. Crude Association Between County Median Emergency Medical Service (EMS) Response Time and County Rate of Motor Vehicle Crash (MVC) Mortality



Delayed Care During Marathons

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

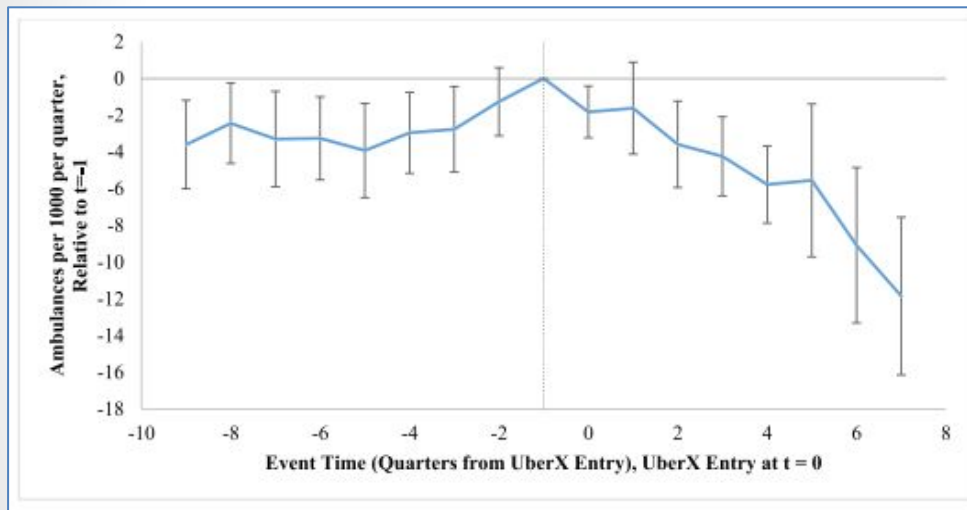
- 11 largest US urban marathons
- 3 years
- 62,890 EMS activations for >65 yrs. chest pain patients
- **On average, transport times 4.4 min longer.**



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

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.

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

For questions, visit www.NEMESIS.org or email nemesis@hsc.utah.edu

