

Current Status and Future Direction: The NEMESIS Project

Eric Chaney, Office of EMS, NHTSA
N. Clay Mann, NEMESIS TAC Principal Investigator

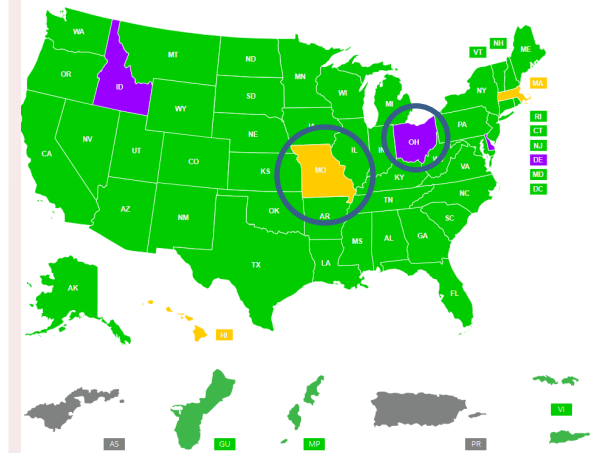


Outline Slide

- Current Composition: National EMS Repository
- Current Work and Status of ET3
- Supporting EMS through COVID-19
- Interest in Releasing State/County Identifiers for Surveillance
- Promoting Bi-directional Data Flow
- Development of SME Groups
- The Near Future for the NEMESIS Project

Current Composition: National EMS Repository

- 48 States/Territories submitting records
 - 2020 to date: 37,175,305
 - Total records (2010 through 2020): 250,000,000 in use
- 75% of records available within 2 weeks
- 1,000 NEMESIS publications in Google Scholar

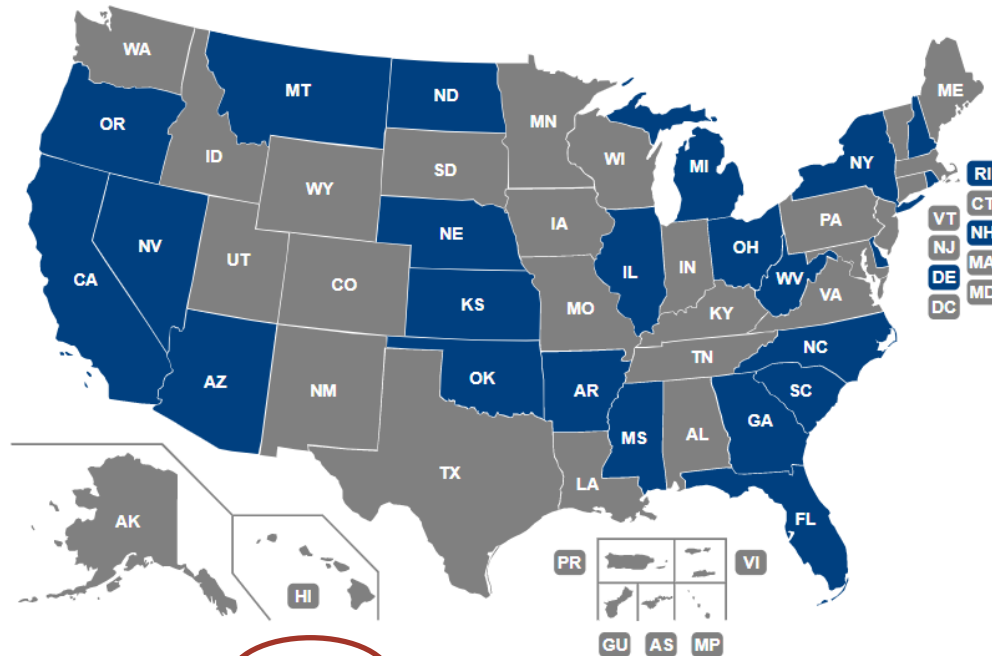


Current Work and Status of ET3



**NEMESIS V3 Custom
Element Library**
Library of state-level custom elements

community paramedicine disposition falls protocols stemi stroke trauma travel



National Custom Elements **ET3 Project**

ET3 Custom Elements and Values

Custom Data Elements

Configuration for custom data elements created to collect information that is not defined formally in NEMESIS Version 3.

Legend	Usage:	M = Mandatory, R = Required, E = Recommended, or O = Optional
	Attributes:	N = Not Values, P = Pertinent Negatives, L = Nillable, and/or C = Correlation ID

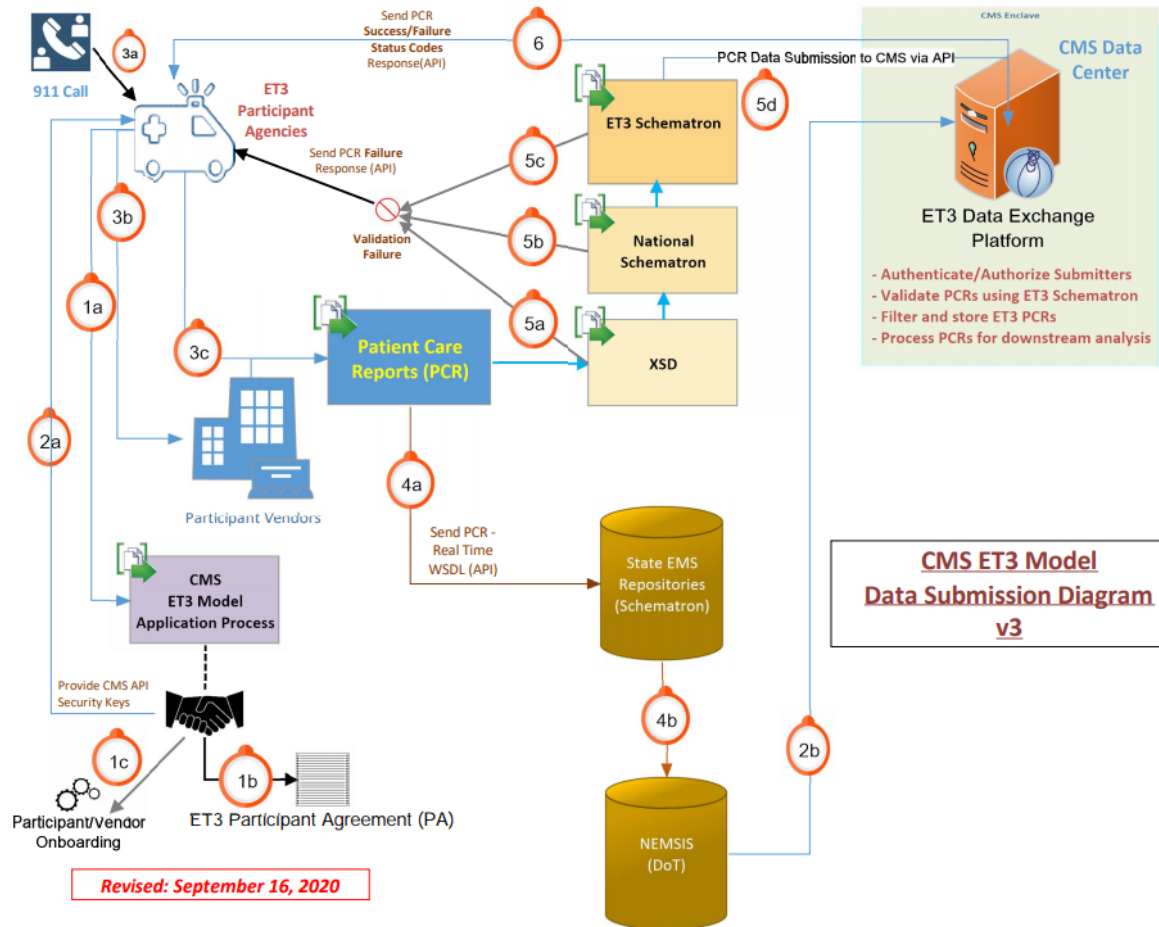
eCustomConfiguration

1 : 1	eDisposition.12 - Incident/Patient Disposition	M	L, C
1 : 1	eDisposition.21 - Type of Destination	R	L, C
1 : 1	et3Disposition.01 - ET3 Alternative Disposition Offer and Result	R	N, L, C

ET3 Schematron File

Level	Message	Notes
Warning	Transfer of EMS Patient Care Date/Time should be recorded when Incident/Patient Disposition is "Patient Treated, Transferred Care to Another Provider on Scene (non-EMS)" or "... to Telehealth Provider".	
Warning	Transfer of EMS Patient Care Date/Time should not be earlier than Date/Time Initial Responder Arrived on Scene.	Only trigger on ET3 TIP dispositions.
Warning	Transfer of EMS Patient Care Date/Time should not be earlier than Date/Time of Symptom Onset.	Only trigger on ET3 TIP dispositions.
Warning	Transfer of EMS Patient Care Date/Time should not be earlier than Unit Notified by Dispatch Date/Time.	Only trigger on ET3 TIP dispositions.
Warning	Transfer of EMS Patient Care Date/Time should not be earlier than Unit En Route Date/Time.	Only trigger on ET3 TIP dispositions.
Warning	Transfer of EMS Patient Care Date/Time should not be earlier than Unit Arrived on Scene Date/Time.	Only trigger on ET3 TIP dispositions.
Warning	Transfer of EMS Patient Care Date/Time should not be earlier than Arrived at Patient Date/Time.	Only trigger on ET3 TIP dispositions.
Warning	Unit Back in Service Date/Time should not be earlier than Transfer of EMS Patient Care Date/Time.	Only trigger on ET3 TIP dispositions.
Warning	Date/Time Medication Administered should not be later than Transfer of EMS Patient Care Date/Time.	Only trigger on ET3 TIP dispositions.
Warning	Date/Time Procedure Performed should not be later than Transfer of EMS Patient Care Date/Time.	Only trigger on ET3 TIP dispositions.
Warning	Date/Time Vital Signs Taken should not be later than Transfer of EMS Patient Care Date/Time.	Only trigger on ET3 TIP dispositions.

ET3 Data Flow



**CMS ET3 Model
Data Submission Diagram
v3**

ET3: Keeping States in the Loop



ET3 Q&A with State EMS Officials

**TUESDAY, OCT 13TH, 2020
2:00PM - 3:00PM MST**

ET3 representatives will facilitate a discussion concerning the impact to State Offices of EMS related to local EMS agencies participating in the ET3 Model.

ET3: Answering States Questions



State EMS Data Managers:

The NEMSIS TAC is working with the Office of EMS, NHTSA and the Center for Medicare and Medicaid Innovation (CMMI) to initially answer some questions raised regarding implementation of the ET3 project within States. You will note in the attached document that some questions have been initially addressed, other questions require additional internal discussion at CMMI, and others will be directly addressed during the scheduled "ET3 Q&A with State EMS Officials" webinar scheduled for Oct. 13th at 2 PM MT (see attached flyer).

The current list of questions are categorized below:

Questions with initial drafted answers: 2, 3, 6, 10, 13, 14, 15, 21, 22, 25

Questions to be addressed during Oct. 13th meeting with States: 8, 9, 11, 24

Questions requiring additional internal CMMI discussion before answering: 1, 4, 5, 7

1. How will ET3 participating agencies know how to fill out the ET3-specific custom values and elements?
2. **Will the EMS data for ET3 come from the States? Will State data include the ET3 custom values? Agencies will submit data directly to CMS. (Also see question 3 and attached ET3 Data Flow Diagram) ET3 will collect some custom data elements/values (extending two standard elements and adding one new element). If states would like to receive the ET3 custom data, they will need to ask agencies (and work with Software companies) to include it in their state submissions.**
3. **Knowing that ET3 participating agencies will be submitting data (along with custom values) directly to CMS, how will this work with agencies submitting to State-supported web-based software? States in this situation will need to allow/support agencies directly using their systems to implement the ET3 custom elements, add new facilities, and set up exports to ET3. Working with their State software vendor, they will need to create the custom values and custom element and make them available to all agencies participating in ET3. The new stand-alone custom element will need to be added to data entry forms and perhaps printable PCR forms (most ImageTrend states, for example, allow agencies to create their own forms layouts, so that would be the agency's responsibility in that case). Some states allow agencies to add their own facilities, while other states lock that feature down so that only state administrators can add facilities. The State software would need to set up the export job(s). States or individual agencies will need to request this work through a support ticket.**

ET3 Software On-boarding and Testing

ET3 Testing with NEMESIS Vendors – Tentative

- Week of Oct 12th – 16th
- NEMESIS Software Vendor Registration
 - Use of CMS Registration Website URL
 - Security Key Access – provided via CMS Authentication process
- PCR Data Submission Testing: Oct 14th
- Vendors work directly with NEMESIS TAC for coordination

Jul 20 – Sept 22



ET3 Schematron - Build, Test, Deploy

Sep 22 - Oct 31



ET3 Schematron - Implement New Validation Rules

Oct 12 - Oct 16



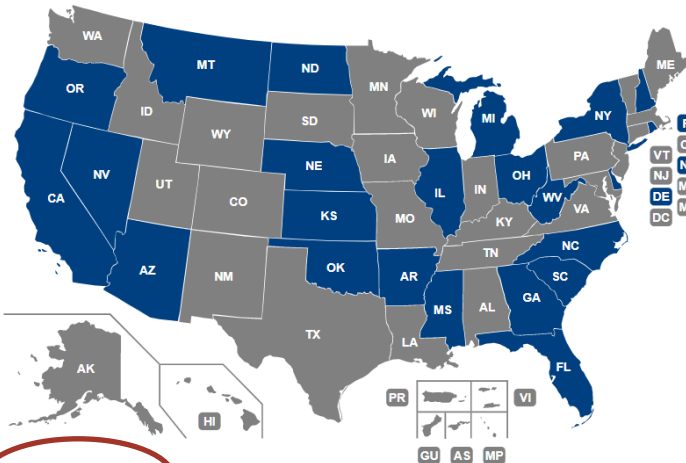
ET3 Schematron/UAT Test #1

Work completed to support EMS through COVID-19



NEMESIS V3 Custom Element Library
Library of state-level custom elements

community paramedicine disposition falls protocols stemi stroke trauma travel



National Custom Elements ETR Project



Infectious Disease National Custom Elements

Travel and Exposure Elements

Element	Title	Description
eHistory.901	Recent Travel	Prior to symptom onset, did the patient travel outside their community? The time frame "prior to symptom onset" and the term "community" are defined by state or local jurisdictions.
eHistory.902	Recent Local Travel	Document all places and locations the patient has traveled to that might have posed a significant threat of exposure prior to symptom onset. The time frame "prior to symptom onset" is defined by state or local jurisdictions. (Max Length of 255)
eHistory.903	Recent Exposure to Infectious Disease	Prior to symptom onset, has the patient had close contact with someone with similar symptoms or a confirmed diagnosis of the illness for which you are screening? The time frame "prior to symptom onset" is defined by state or local jurisdictions.
eHistory.904	Recent International Travel	Document all the countries (outside the US) the patient has traveled to prior to symptom onset. The time frame "prior to symptom onset" is defined by state or local jurisdictions. Use NEMESIS data type ANSICountryCode.
eHistory.905	Recent State Travel	Document all the states the patient has traveled to prior to symptom onset. The time frame "prior to symptom onset" is defined by state or local jurisdictions. Use NEMESIS data type ANSISStateCode.
eHistory.906	Recent City Travel	Document all the cities the patient has traveled to prior to symptom onset. The time frame "prior to symptom onset" is defined by state or local jurisdictions. Use NEMESIS data type CityGnisCode

- Please note that for travel and exposure-related national custom elements, states or local jurisdictions are required to define the time frame "prior to symptom onset" based on the incubation period of the pathogen under consideration.
- In addition, states or local jurisdictions must define "community" to best characterize the geographic area considered the current exposure zone. National custom elements/values related to travel are "specific" allowing for state adoption of few (or many) elements as an outbreak/epidemic/pandemic escalates and/or identification criteria change.
- Custom Elements (National or State) are not sent to the National EMS Data Repository.

Additional Values

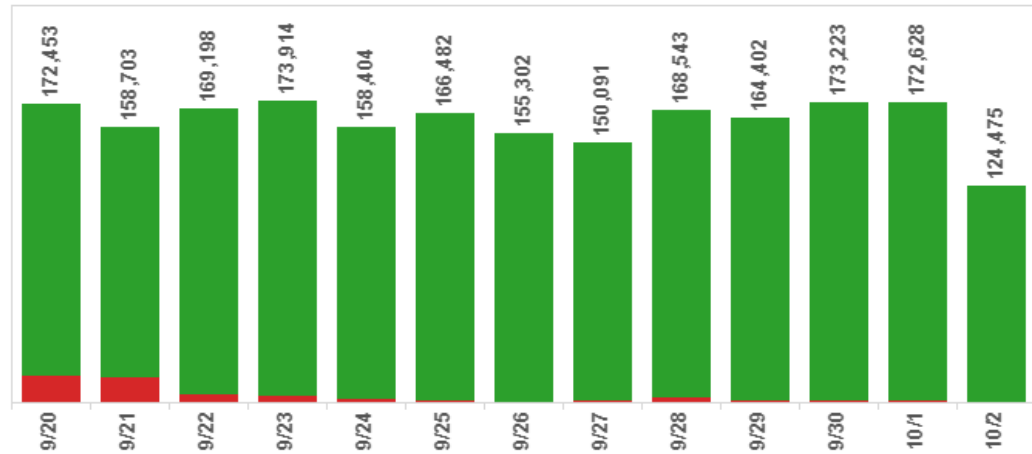
Element	Value
eOther.03: PPE Used	Gown Face Shield Isolation Coveralls
eDisposition.21: Type of Destination	Alternate Care Site
eDisposition.24: Destination Team Pre-Arrival Alert	Yes - Biological/Infectious Precautions
dFacility.01: Type of Facility	Alternate Care Site
eVitals.25: Temperature Method	No Touch (e.g., Infrared)

EMS By The Numbers

Submissions

Count of Submissions	2,107,818
Count of Submissions Accepted	2,062,200
Count of Submissions Rejected	45,618
Count of Submission Errors	45,911

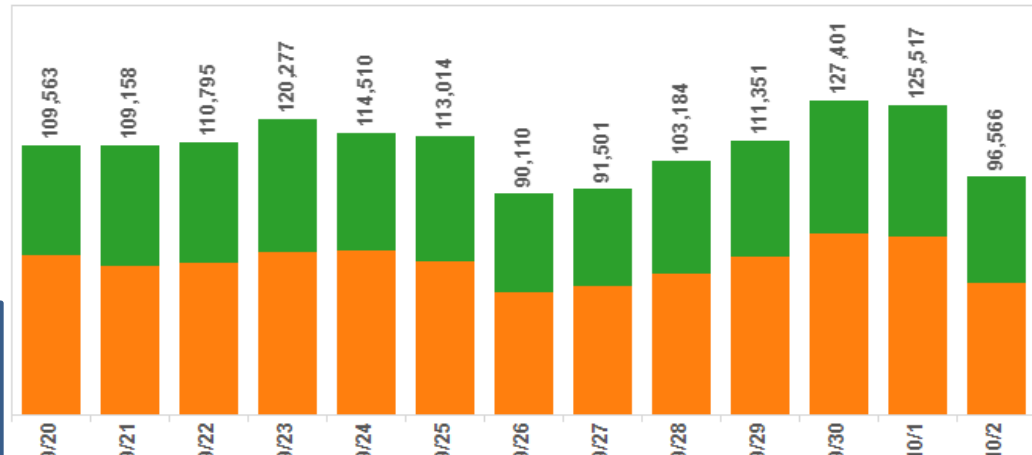
Submissions Accepted vs Rejected



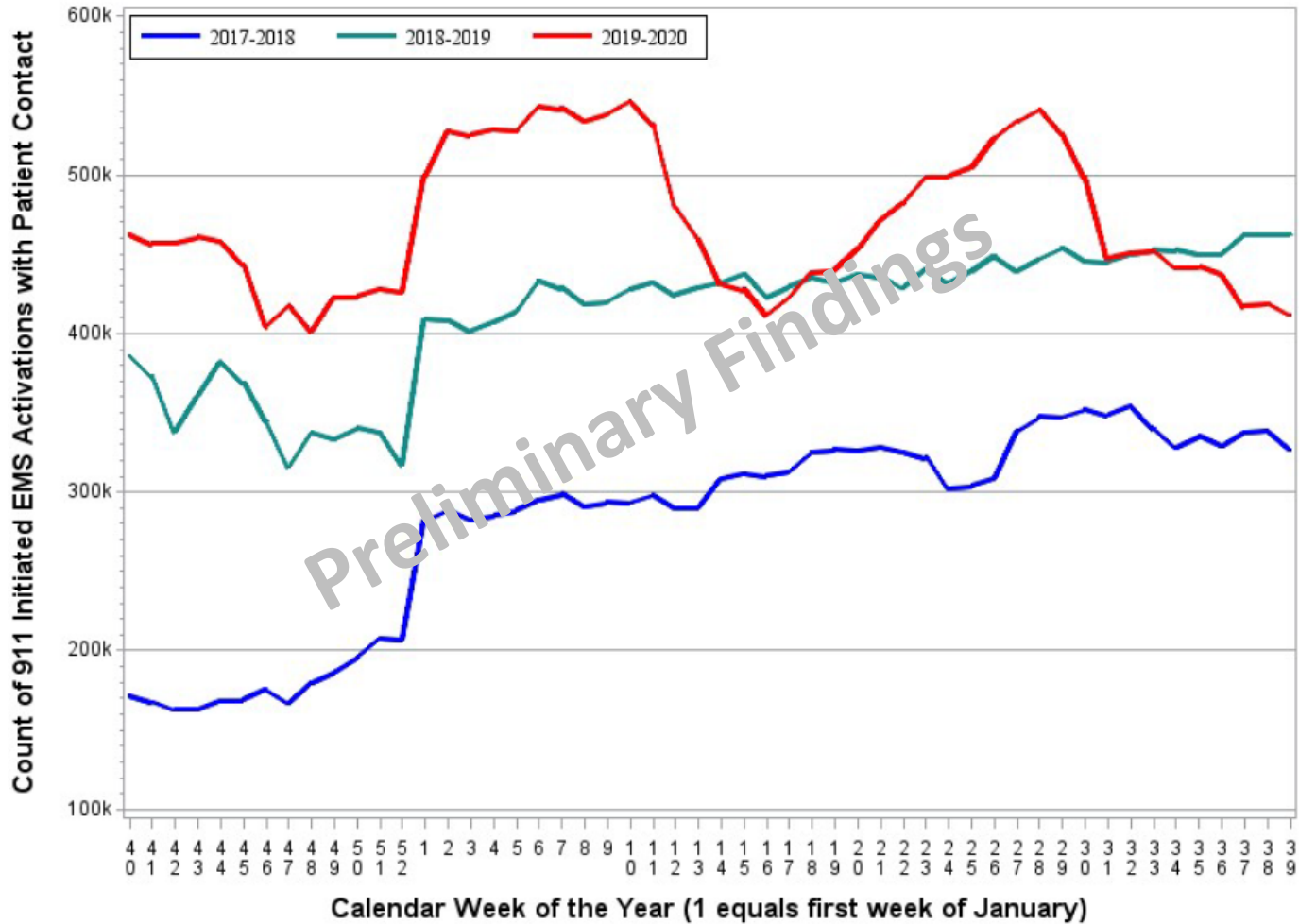
Patient Care Reports (PCR) Processed

Count of Activations	1,422,947
Count of Activations with Violations	805,260
Count of Violations for all Accepted Activations	2,206,448
Violations Per Activation	1.6
Average Activations per Accepted File	1.1
Count of PCRs Resubmitted	159,178
Submission Lag 25% (hours)	25.4
Submission Lag 50% (hours)	85.4
Submission Lag 75% (hours)	336.3

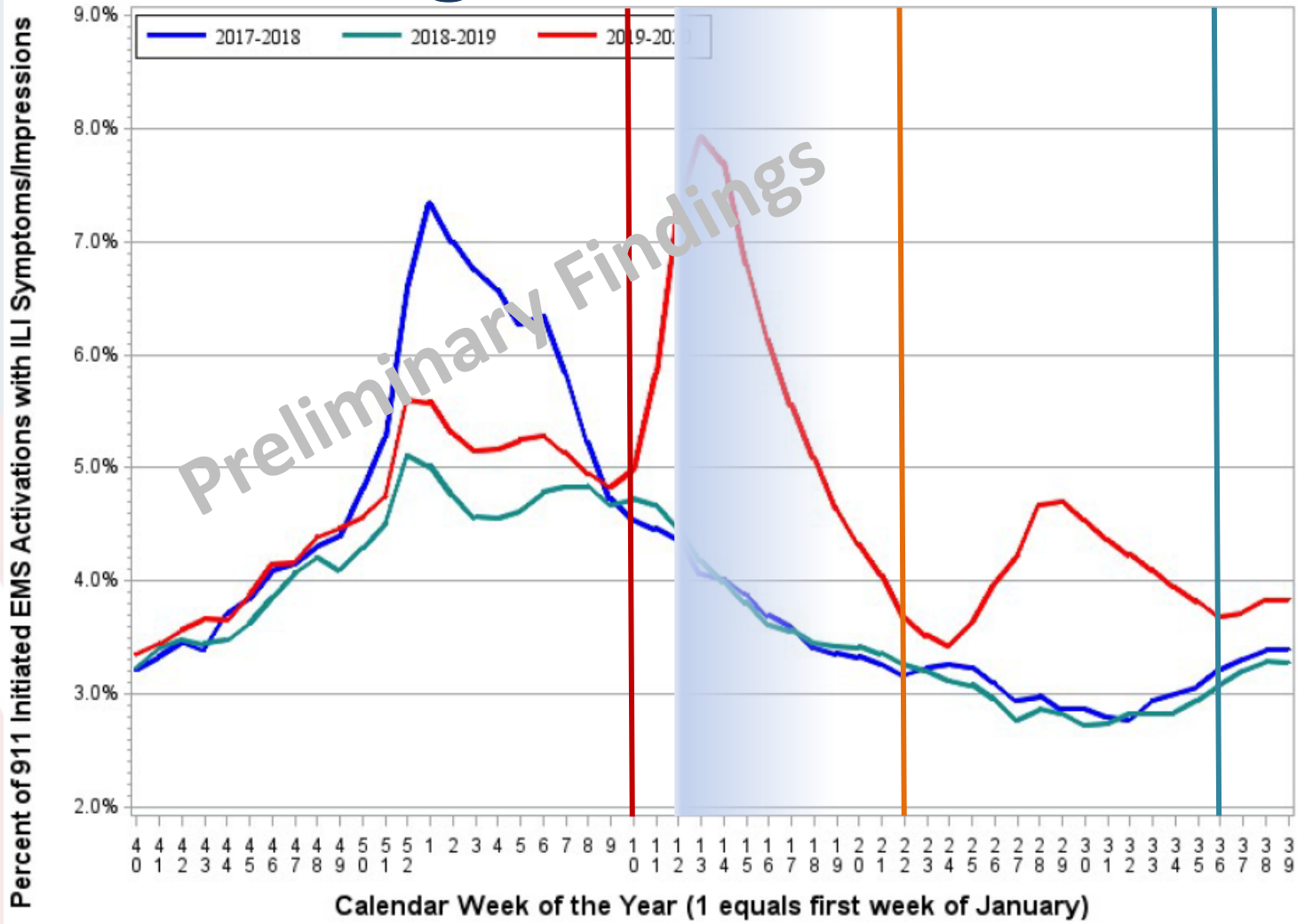
PCRs Processed With & Without Schematron Warnings



Count of EMS Activations



Percentage of ILI Activations



EMS COVID Resource Reporting



Resize font:
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EMS COVID Resource Reporting Tool

Please complete this form once every 7 days.

Please answer all questions. If it does not apply, please use N/A or zero.

Agency Information

State:

* must provide value

Agency Name:

* must provide value

Number of EMS personnel (EMR, EMT, Nurse, Paramedic, Etc) within the Agency

* must provide value

Agency Contact Phone Number:

* must provide value

Name of Agency Point of Contact:

* must provide value

The response to the following will be an actual number (1 to 4 digits).

CONFIRMED NEW (Past 7 days): Record the number of EMS personnel in your agency that tested positive with COVID-19 in the past 7 days (confirmed by laboratory test).

* must provide value

The response to the following will be an actual number (1 to 4 digits).

State COVID Resource Dashboard

EMS COVID Resource Reportin... | COVID Exposure | PPE Supply

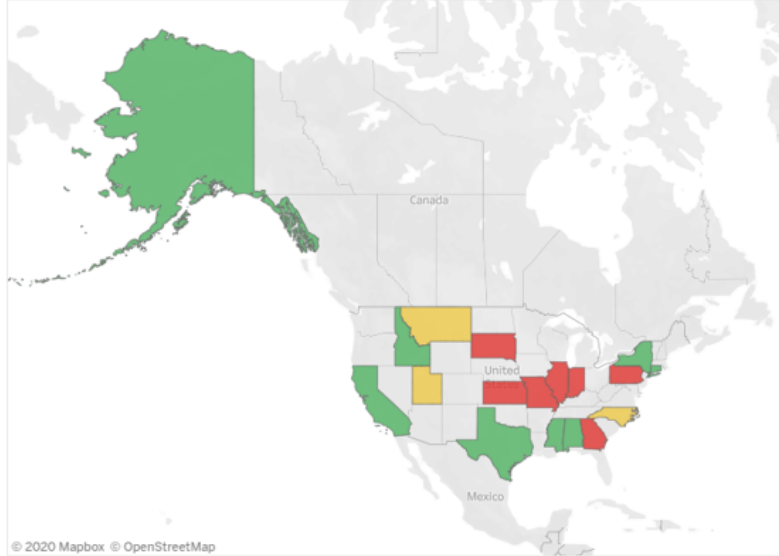
EMS COVID Resource Reporting Tool

Response Date: This week

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

PPE Availability

Agency Name	Phone Number	Contact Name	PPE Availability
			No Stress/Need
			No Stress/Need
			No Stress/Need
			Acute Stress/Need
			No Stress/Need
			No Stress/Need
			No Stress/Need
			Acute Stress/Need
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			No Stress/Need
			No Stress/Need
			No Stress/Need
			Minimal Stress/Need
			No Stress/Need
			No Stress/Need
			Acute Stress/Need
			No Stress/Need



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PPE Availability

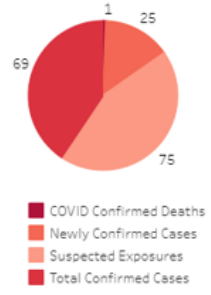
Acute Stress/Need Minimal Stress/Need No Stress/Need



Personnel Shortage

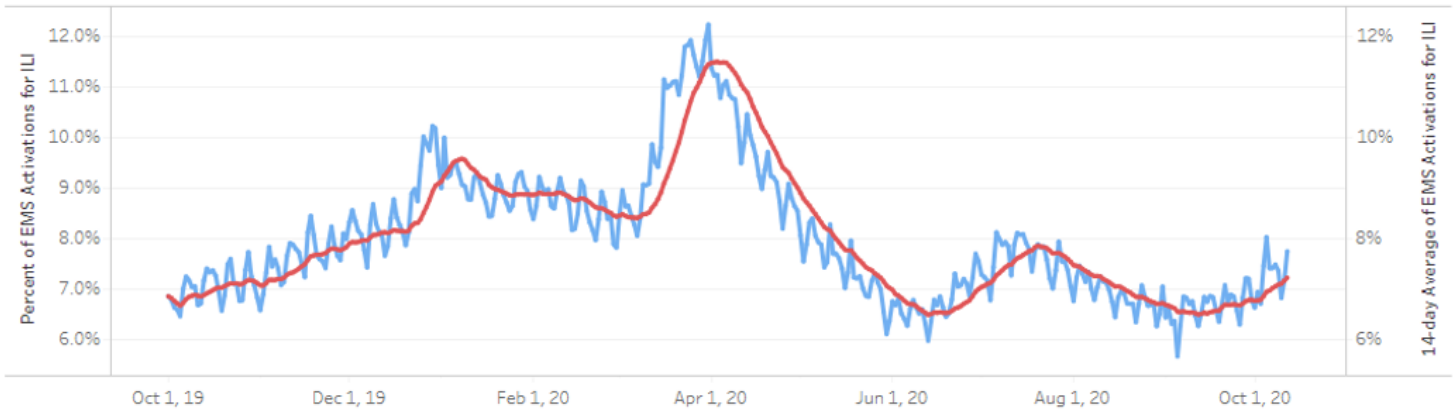


COVID Exposure



40 State ILI Dashboard

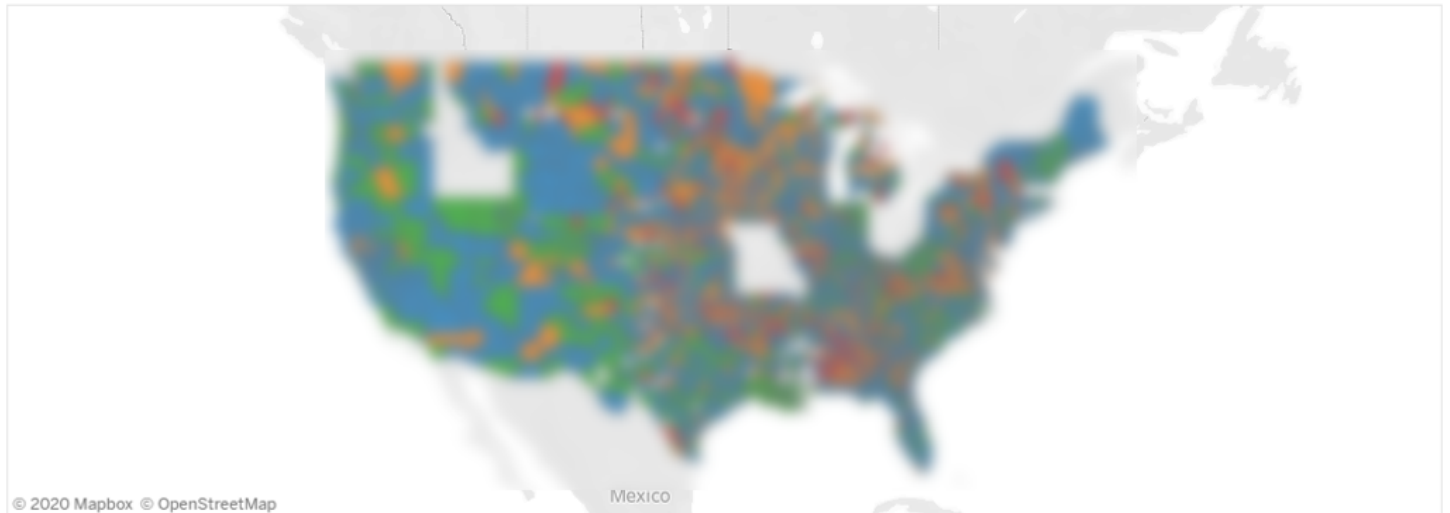
Trends of ILI Activations by Day ■ % ILI Activations ■ 14-day Avg



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%



Other Federal Activities

- API with daily data release to FEMA and CDC
 - Unit Notified by Dispatch Date
 - Patient Gender
 - Patient Age in Years
 - Patient Age Group (0-10,11-20,...etc.)
 - **Census Region**
 - Urbanicity
 - Primary Symptom
 - Other Associated Symptoms
 - Primary Impression
 - Other Associated Impressions
 - Patient Disposition
 - Patient Race
 - Destination Reason
- Special data requests for HHS, Healthcare Resiliency Working Group
EMS/Prehospital Team

Interest in Releasing State/County Identifiers for Surveillance

NEMESIS/STATE DATA USE AGREEMENT

This Data Use Agreement (hereinafter, the “Agreement”) is entered into this ____ day of _____, 2016 between the **National EMS Information System Technical Assistance Center (hereinafter, “NEMESIS” or “Data Recipient”)** in the Department of Pediatrics at the University of Utah School of Medicine and the ____ (“**Covered Entity**”) for purposes of compliance with the Health Insurance Portability and Accountability Act of 1996 (“HIPAA”) and the Health Information Technology for Economic and Clinical Health (HITECH) Act of 2009.

<http://www.cdc.gov/ehrmeaningfuluse/introduction.html>

Privacy Rule: <http://www.hhs.gov/ocr/privacy/hipaa/administrative/privacypolicy/>

RECITALS

- A. **Whereas**, Data Recipient performs certain operations including the collection of EMS incident data in order to populate a National Emergency Medical Services (EMS) Database; and
- B. **Whereas**, Covered Entity is engaged in activities including the collection of EMS activation, response, and care data; and
- C. **Whereas**, Covered Entity agrees to disclose a Limited Data Set (as defined in **Appendix v3**) to Data Recipient for use by Data Recipient in performing the Activities (as defined below); and
- D. **Whereas**, Data Recipient agrees to limit its use of the Limited Data Set and protect the Limited Data Set according to the terms and conditions of this Agreement, and all applicable requirements of HIPAA, HITECH, and the Privacy Rule (as defined below), as amended from time to time.

THEREFORE, in consideration of the mutual promises set forth herein and other good and valuable consideration, the sufficiency of which is hereby acknowledged, the parties agree as follows:

Provides Data Security

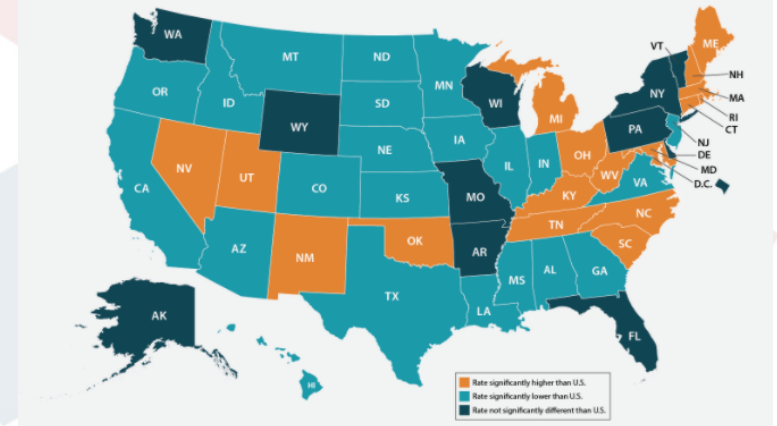
- State Data Use Agreements:
 - 23 States no signed agreement
 - 30 States with signed Data Use Agreements
 - 3 States require annual IRB approval
- Arguments for:
 - Limits “awkward/uninformed” media releases
 - State control of data
 - Lowest common denominator

Policy: “Ensures”

- Zero identifications of
 - Patient (Can’t)
 - EMS provider (Can’t)
 - EMS agency
 - Destination Hospital
 - ANY GEOGRAPHIC IDENTIFIER (including submitting State)
- Utilize HIPAA Statistical De-identification Guidance
 - “Expert” masks and aggregates data and concludes reasonably de-identified.

Ramifications for Surveillance

- Public and government research stifled
 - 70% of requested research is denied or diluted
- Corporate entities are selling the same data
- CDC and other Federal agencies handicapped
 - And, thus are dis-interested.



NASEMSO DMC Resolution

- Release geographic identifiers for surveillance of time-sensitive issues
 - Infectious Disease (Influenza, COVID-19)
 - Non-fatal Opioid Overdose
 - STEMI
 - Stroke
 - Cardiac Arrest
 - Severe Trauma (Motor Vehicle Crashes)

NASEMSO DMC Resolution

- What NEMESIS elements would be released
 - EMS Activation Date
 - Incident State and County
 - Assessment Data
 - Patient complaints, symptoms, injuries
 - EMS provider impressions
 - Administration of Naloxone (only this medication)

NASEMSO DMC Resolution

- What NEMESIS elements would **NOT** be released
 - Patient Demographics
 - Any reported ZIP Codes
 - EMS Agency Information
 - EMS Response Times
 - Patient Care Information (excepting Naloxone administration)
 - EMS System or provider performance measures

DMC Identified Reservations

- Release at county-level might identify EMS agency or hospital
- Must address the issue of duplicate records
 - First response, transport, interfacility
- May require small cell suppression
 - By time and geographic region
- Should States approve requests for data?

Release of Geo-Data for Surveillance

Next steps for moving forward:

- Jumping off point with NASEMSO Resolution
- NEMSIS to develop a surveillance specific dataset
- Probably provide single API for dataset
 - States could control access to API – granted through state designated contract process to the application that meets the state need...(much admin overhead).
 - Could provide “small cell suppression” but problematic

Promoting Bi-directional Data Flow



United States Core Data for Interoperability
— VERSION 1 (JULY 2020 ERRATA) —



- **Develop our own eOutcomes XSD template**
 - Separate document, separate lifecycle
 - Reconnect to NEMESIS (at National level) with UUID

Development of SME Groups

- Internal Board
 - NEMESIS data quality, clarity and efficiency in the data collection process
- External Board
 - NEMESIS data integration and harmonization with external strategic targets relating to automation and coordination of patient care data.

NEMSIS Monthly Report



Monthly Report - September 2020

Records in the v3 Database

102,297,709

Participating States

48

Reporting Agencies

14,037

Overview

This report presents highlights of work, collaboration and initiatives that the team at the NEMSIS Technical Assistance Center is focused on during the month. It is not an all-inclusive task list but rather an insight into major projects with which the TAC team is engaged.

Stakeholder Engagement

V3 Implementation Calls:

September 9: https://www.youtube.com/watch?v=djKf708_6T8

September 23: <https://www.youtube.com/watch?v=pBc6UNOGggQ>

State Training:

September 8: Utilizing the COVID Resource Reporting Tool Dashboard. The new COVID Resource Reporting Tool is capturing critical information directly from response agencies across the country each week. In this training, N. Clay Mann demonstrated how to access the dashboard, explained the different visualizations, and showed how to download actionable information for your state/territory or region. Information reflected in this dashboard include personnel status, COVID exposure and PPE resource needs. Only EMS stakeholders with approved access to state level data can view the information submitted by agencies.

Video: <https://www.youtube.com/watch?v=F9chG0kk2mE>

State and Vendor Support

State Support:

- Webinars were provided to four state data managers to provide instruction for completing sections of the StateDataSet.
- A webinar was conducted to provide assistance to a local EMS agency manager and software vendor instructions for populating the DEM files.
- Support was provided to two states to complete the NEMSIS Data Use Agreement and to establish state web services account and instructions to start compliance testing.

Near Future for the NEMESIS Project

- Migration to DOT AWS Cloud environment
 - Data submission, data access, reporting
- New approach to data exchange
- Data use by FDA, CMS, CDC, HHS, etc.
- Ease the burden of data collection
 - Element “defined lists”
 - Improving clinician understanding of data use

Questions?

www.nemesis.org

Search here..



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NEMESIS

NEMESIS V3 EMS Data Cube
Now available!

