National EMS Database
NEMSIS Public Release Research Data Set
v3.5.0

2024 User Manual

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Rev. 2.0

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TERMS OF USE

Please be advised of the following Terms and Conditions of Use. In order to request the NEMSIS Public Release Research Data Set, you must agree to these terms and conditions (below), and complete the data application form.

The National Highway Traffic Safety Administration (NHTSA) established the NEMSIS National EMS Database as a public service. The National EMS Database is a repository of EMS related data voluntarily reported by participating EMS agencies and states. PLEASE NOTE THAT THE PUBLIC RELEASE RESEARCH DATASET IS NOT A POPULATION BASED DATA SET.

NHTSA funds and administers the NEMSIS Program. Therefore, use of any information from the National EMS Database or the NEMSIS Public Release Research Datasets must include a prominent credit line. That line is to read as follows:

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A copy of the final printed material must be forwarded to NEMSIS Technical Assistance Center staff https://nemsis.org/support.

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HISTORY OF NEMSIS

In 1973, the *Emergency Medical Services (EMS) Systems Act* is passed. Administered by The Department of Health, Education and Welfare, the EMS Systems Act provides funding for the development of local EMS systems. The Act identifies 15 essential components of an EMS system, including the need for EMS data collection. This is the first federal legislation requiring EMS data collection and documentation of EMS services.

In 1991, the *Utstein Style for Uniform Reporting of Data* is published. This is the first major document to publish data points that specifically addressed data collection for EMS systems. The data points are specific to prehospital cardiac care and include variables on patient outcomes.

In 1994, the NHTSA *Uniform Pre-hospital EMS Dataset (Version 1.0)* is published. The EMS Community recognizes that EMS systems across the country are collecting different data elements for identical types of incidents, emergencies, EMS operations, and prehospital clinical care. There is clearly a need for standardization. In response, NHTSA works with representatives of national EMS organizations and EMS technical experts to develop the NHTSA Uniform Pre-hospital EMS Dataset, a national consensus document that defines 81 elements determined important to an EMS information system.

In 1996, NHTSA's *EMS Agenda for the Future: A Vision for the Nation's EMS System* (Agenda) is published. The Agenda is a collaborative effort involving representatives from State Offices of EMS, National EMS Organizations, and Federal Partners. The Agenda identifies 14 EMS Attributes for continued development and improvement of EMS systems. The Information Systems Attribute includes 5 recommendations related to uniform EMS data elements, information systems for collecting and transmitting data electronically, and integration with other public safety and healthcare data.

In 1997, *Data Elements for Emergency Department Systems* is published. The data elements, developed by the Center for Disease Control and Prevention's National Center for Injury Control and Prevention, extends the concept of information systems for emergency departments by providing standards for data collection and linkages back to EMS.

In 1998, NHTSA's *EMS Agenda for the Future: Implementation Guide* is published. The *Implementation Guide*, a follow-up compendium to the *EMS Agenda for the Future,* identifies approaches for implementing the Agenda's 89 recommendations.

In 2001, the National EMS Information System (NEMSIS) and the National EMS Database are developed. The development of NEMSIS is a collaborative effort by The National Association of State EMS Directors with funding from NHTSA and the Trauma and EMS Systems Program at the Health Resources and Services Administration's (HRSA) Maternal and Child Health Bureau.

In 2003, an EMS data collection Memorandum of Agreement (MOU) is signed by 51 U.S. States and Territories. The MOU establishes the need for standardized EMS data element definitions, standardized data collection at the state level, and a defined set of national NEMSIS data

elements. By 2008, all states, the District of Columbia and the 5 U.S. Incorporated Territories have signed the MOU.

After 18 months of working with an expert consensus panel, a 400-page NEMSIS data dictionary is completed. The data dictionary includes data element labels, definitions, and standardized value codes.

In 2004, NEMSIS physical database schemas, element traits, and database development scripts are made available. These standardized implementation templates are provided to EMS software vendors for the development of EMS electronic patient care (ePCR) software and to states for development of state-level EMS data collection systems.

Also, during this time, Extensible Markup Language (XML) is designated as the standard to transmit EMS data from EMS agencies at the local-level to state-level EMS data collection systems, and onto the National EMS Database. XML's open format provides an easy way to transmit data for different ePCR software formats.

In 2005, the NEMSIS Version 2.2 Data Standard is created. The Version 2.2 Data Standard is developed using a national consensus process during a NEMSIS project pilot phase administered collaboratively by NHTSA, HRSA, and the CDC.

As a result of the pilot phase, NHTSA, HRSA, and the CDC recognize the value of the NEMSIS Project and initiate funding for a NEMSIS Technical Assistance Center (TAC). Initial development and testing of the NEMSIS standard are completed by the EMS Performance Improvement Center (EMS-PIC) at the University of North Carolina. The TAC agreement is awarded to the University of Utah School of Medicine (Utah). Utah works with closely with the EMS-PIC to ensure an accurate transfer of NEMSIS knowledge and technology developed by the EMS-PIC.

In 2009, NEMSIS Version 3 is created. NEMSIS Version 3 expands the number of NEMSIS data elements, incorporates ICD-10-CM codes for 19 data elements, establishes software business rules to improve data quality, expands recommendations for state EMS datasets, and establishes a data export and transmission standard based on Web Services to facilitate automated and near real-time EMS data transfer.

In 2012, NEMSIS Version 3.2.6 Data Standard ePCR software compliance testing is initiated to ensure adherence to the NEMSIS standard. Also, during this time, NEMSIS Version 3 works with a Standards Development Organization (Health Level Seven) and meets the American National Standards Institute (ANSI) requirements to become a National healthcare data standard. A Data Standard for Trial Use (DSTU) period is initiated and continued for 18 months.

Also, during this time, the number of states submitting Version 2 NEMSIS data to the National EMS Database reaches 37 states and territories.

In 2015, the National EMS Database reaches over 30 million NEMSIS Version 2.2.1 Data Standard records of EMS activations from 49 U.S. States and Territories. NEMSIS Version 3.4.0 is rolled out in 13 states with several additional states planning migration for early 2016.

In 2017, NEMSIS Version 2.2.1 has closed (Dec 31, 2016) for ePCR software compliance testing by the NEMSIS-TAC and for submission to the National EMS Database. The NEMSIS-TAC begins exclusively collecting Version 3 NEMSIS data from states and territories on January 1, 2017. For calendar year 2017, the NEMSIS-TAC collects 7,907,829 NEMSIS Version 3.3.4/3.4.0 records of EMS activations from 4,016 agencies located in 35 states and territories.

In 2019, the date to close NEMSIS Version 3.3.4 submissions is extended to March of 2021. NEMSIS Version 3.5.0 is completed and provided to software companies for implementation. Using NEMSIS Version 3.4.0, 10,062 EMS agencies serving 47 states and territories submit 34,203,087 EMS activations to the National EMS Repository. Over 900 scholarly reports, peered reviewed papers, and other publications are now available online, using NEMSIS data.

In 2020, during the COVID-19 pandemic, more than 12,000 EMS agencies serving 50 states and territories submitted in excess of 44 million EMS activations to the NEMSIS National EMS Repository. Many scholarly reports were published during that same year highlighting the reduced EMS call volume, excess at-home deaths, decreased vehicular crashes, additional opioid overdoses and increased mental-health related EMS calls that were occurring during the pandemic. The migration to NEMSIS v3.5.0 that was to occur during 2020 was delayed by the pandemic.

In 2024, 54 states and territories transitioned to v3.5.0 completing the roll out of the latest NEMSIS data standard – work that begin prior to the COVID-19 pandemic. This allowed the 2024 public release research dataset to be fully in the v3.5.0 format.

NEMSIS CONFIDENTIALITY POLICY

The NEMSIS National Database is maintained on a secure database with limited internal access. External users must gain permission to the dataset by completing a request form available on the web site (https://nemsis.org/using-ems-data/request-research-data/). Use of the National EMS Dataset is in strict compliance with the Health Insurance Portability and Accountability Act of 1996 (HIPAA).[2] The NEMSIS Technical Assistance Center does not distribute or report data identifying a patient, EMS agency, health care facility, or reporting state in any manner that allows for identification without the express written permission of the entity to be identified. The dataset collected by the NEMSIS TAC is considered a "limited" dataset under HIPAA, and the research dataset that the NEMSIS TAC releases is a "de-identified" dataset.

CURRENT LIMITATIONS OF NATIONAL EMS DATA

1. Data Quality in the National EMS Database

The National EMS Database is a large convenience sample— it consists solely of data submitted by participating EMS agencies within states/territories and it is not a population-based data set. In addition, the National EMS Database inherits the individual deficiencies originating from its contributing entities. However, the NEMSIS TAC is continually cleaning and standardizing the data to improve data quality. Data files received from contributing EMS agencies and states are checked for completeness, logical consistency, and proper formatting. Any data files not passing the NEMSIS validation and data cleaning processes are rejected or flagged, based upon the type of the discovered errors. A data profile report is generated for each submitted file from a state/territory allowing the opportunity to review the quality of submitted data, correct errors and resubmit their data if needed. Any remaining data limitations, errors, or inconsistencies are allowed into the database. These errors remain for two reasons: 1) it would be extremely difficult to flag individual errors and request corrections from thousands of EMS agencies submitting millions of records and; 2) allowing states (and associated EMS agencies) to view data as submitted, will hopefully facilitate efforts to further refine data collection techniques to increase the accuracy of data collected.

The NEMSIS TAC employs edit checks to identify invalid or out of range values for the variables included the research data set. There are currently over 450 edit checks. For further information about the edit checks please see the associated data element Schematron rule in the NEMSIS data dictionary.

2. The National EMS Database is not a Population-based Dataset

The National EMS Database is subject to the limitations of any "convenience sample". It probably includes a disproportionate number of EMS agencies with the resources and leadership necessary to be an adopter of the NEMSIS standard. The data may not be representative of all states or EMS agencies in the nation.

In addition, users of the National EMS Database should understand that the data are "event-based" and not "patient-based". That is, a single patient may be represented in more than one record for a variety of reasons. A patient may request EMS assistance frequently, and therefore, be represented in the dataset more than once. In addition, several agencies may respond to the same event (i.e., one patient) and each submit a patient care record to the National EMS Database. For example, a patient may be treated by first responders, who transfer care to a ground ambulance crew, who deliver the patient to a soccer field for transport to a tertiary hospital via air ambulance. In this case, three patient care reports (records) would exist in the National EMS Database for the single event. Thus, we refer to the National EMS Database as a registry of "EMS activations".

3. Selection and Information Bias in the National EMS Database

As a "convenience sample", the National EMS Database is subject to various forms of bias. The NEMSIS national data are submitted voluntarily from EMS agencies and states that have demonstrated a commitment to monitoring and improving the care of patients treated and transported by EMS. These may not be representative of all EMS agencies and states. In addition, states have differing criteria for including patients in statewide EMS databases. Some states include all 9-1-1 calls, while other states limit case additions to patient contacts or patient transports.

Some of the theoretical issues resulting from the use of registries have been noted[2-4]. The most obvious problems are selection bias, the inconsistency with which clinical variables can be measured, and inter-agency differences in treatment and transport practices.

Selection bias refers to an apparent difference between two groups that is actually caused by different inclusion criteria. For example, if a state includes all "no-treatment, left on scene" patients in its registry and another state does not, the state not including this patient population may appear to have more "higher acuity" events (e.g., frequent treatment and medication events) compared to the state including patient refusals. Any difference in inclusion/exclusion criteria could produce a selection bias.

Information bias refers to an apparent difference between two groups that is actually caused by a difference in the data available to compare them. Many fields among the national NEMSIS elements allow for null values and differences in the proportion of cases with missing (or null) data may be responsible for apparent differences among EMS agencies between or within states. If one state demonstrates incomplete data on patients when reporting treatment complications, for example, it may falsely appear to be delivering better quality care than a state that diligently requires every treatment complication to be recorded.

4. Missing data in the National EMS Dataset

The proportion of missing data varies across data elements in National EMS Database, and it is important to decide how to deal with missing data when doing analyses. In most cases, NEMSIS data are not missing at random and analyses, therefore, are subject to bias if missing data are ignored. That is, the results may be misleading when excluding all observations with missing data or null values. Excluding observations with missing values is the default for most software programs when running statistical analyses.

Another available option is to provide plausible values for the missing data, either by single value or multiple value imputation. A single imputation of a value may be an educated guess at the value, substitution of the mean value, or substitution based on a regression equation using other (observed) values. For example, one might assume that a patient has suffered an injury (eSituation.02 = Yes) if the complaint reported to dispatch was "Traumatic Injury". Most statistical software packages can do imputations without much difficulty. However, it is

important to explore the impact of missing data with sensitivity analyses. That is, repeat an analysis with and without imputation and see whether there are any important differences.

CONTACT INFORMATION

For further assistance in using the National EMS Dataset contact:

https://nemsis.org/support/

REFERENCES

1. Annas GJ. Medical privacy and medical research - judging the new federal regulations. *N Engl J Med.*; 346 pp.216-220.
2. Herrmann N, Cayten CG, Senior J, Staroscik R, Walsh S, Woll M. Interobserver and intraobserver reliability in the collection of emergency medical services data. *Health Serv Res*. 1980; 15 pp.127-43.
3. Mann NC, Guice K, Cassidy L, Wright D, Koury J, Anderson C. Are statewide trauma registries comparable? Reaching for a national trauma dataset. *Acad Emerg Med*. 2006; 13(9) pp.946-53.
4. Izquierdo JN, Schoenbach VJ**.** The potential and limitations of data from population-based state cancer registries. *Am J Public Hlth*. 2000; 90 pp.695-98.

GETTING STARTED WITH NATIONAL EMS DATA

The 2024 NEMSIS Public-Release Research Dataset includes 60,298,684 Version 3.5.0 EMS activations collected from 14,756 agencies located in 54 states and territories. This dataset is organized into a set of relational tables and consists of 43 data files each (including 6 reference tables and 1 computed table). These files are provided in ASCII format (pipe and tilde separated values), SAS and STATA formats. Both types of files can be used to export the data to other formats (e.g., R, SPSS, etc.).

It is important to note, that in 2024, data was received in the v3.5.0 version of the NEMSIS data standard. Additional information about mapping and translation between standards from pervious years is available: https://nemsis.org/technical-resources/version-3/v3-element-mappingtranslation-documents/

The table named "Pub PCRevents" includes all of the single-entry elements contained in the NEMSIS standard that have been approved for release. All other tables include elements for which multiple entry values are possible. The data element "PcrKey" is the unique key to match elements for each record contained in the Event Table and all other tables. This "PcrKey" (also known as "Primary Key") is the unique ID for each record contained in each table and can be used to match elements across tables associated with the same EMS event. A Foreign key is also found in all tables, except the Pub PCRevents Table, and is used to match multiple entries (for multiple entry elements) to the same EMS event. For most multiple entry elements, the included PcrKey is the same PcrKey found in the Pub PCRevents table. MedsGivenComplications, ProceduresComplications and Vitals related elements all contain a foreign key that matches multiple instances to a primary key in the MedsGiven, Procedures and vitals tables.

Please note that the time format changed in 2020 from `YYYY-MM-DD HH:MM:SS` to `DDMMMYYYY:HH:MM:SS`.

Contact us with any concerns or suggestions you might have regarding table by opening a help desk support ticket. A detailed data dictionary of each variable can be found on the NEMSIS website (https://nemsis.org/technical-resources/version-3/version-3-data-dictionaries/).

Additional information regarding file size:

UNCOMPRESSED
ASCII   209 GB
SAS   178 GB
STATA   162 GB

COMPRESSED
ASCII   22 GB
SAS   20 GB
STATA   20 GB

FREQUENTLY ASKED QUESTIONS ABOUT USING NATIONAL EMS DATA

1. What are the system requirements for downloading the NEMSIS data?
Relational Tables
Minimum of 250 GB of storage for ASCII files
Minimum of 250 GB of storage for SAS files
Minimum of 250 GB of storage for STATA files
Minimum of 16+ GB of RAM strongly recommended

Files are distributed using a link specific to the requester, which will expire after a pre-set time. This time will be provided with the link.

2. Can I estimate a number of patients based on the National EMS Database?
The National EMS Database is an incident database and there are no patient identifiers in the database. If a patient has more than one EMS reported incident during a year, or several agencies submit a run report for the same incident, this patient will be in the database more than once.

3. How can I merge the data sets (tables) in the National EMS Database?
The National EMS Database files can be merged by using the unique incident key for each incident (e.g., PcrKey).

4. What are the patient inclusion criteria for the National EMS Database?
States have differing criteria for including patients in statewide EMS databases. Some states include all 9-1-1 calls, while other states limit case additions to patient contacts or patient transports.

5. How can I gain access to the [Additional Variables Requiring Approval](#)?
"Limited use" variables are submitted by states to the NEMSIS TAC, but are prohibitedfrom release by existing State Data Use Agreements. Researchers can gain access to these variables by making a direct request to each state for which the researcher wishes access. In addition, the NEMSIS TAC can make use of the HIPAA de-identification clause to statistically "mask" these elements in a fashion that allows for the investigation of a specific hypothesis.

As an example, if a researcher is working with a hypothesis that requires access to geographic boundaries (such as the element "EMS Agency State"), the NEMSIS TAC can collapse data from several states into categories, based on the hypothesis, and provide the researcher a new "blinded" categorical element and include a primary key element for merging to the publicly accessible patient-level data. To make use of this process, contact the Technical Assistance Center by opening a help desk support ticket.

SELECTED NEMSIS PUBLICATIONS

A current list of publications can be found at: https://nemsis.org/using-ems-data/articles-and-publications/

APPENDIX A:
PUBLIC USE VARIABLE DESCRIPTION LIST

This section includes the data table name, variable name, and variable description as defined in the v3.5.0 Public Use NEMSIS National EMS Database. Variable definitions and value codes can be found in the NEMSIS Data Dictionary (v3.5.0) https://nemsis.org/technical-resources/version-3/version-3-data-dictionaries/.

Table Name	Variable Name	Variable Description
EINJURY_01REF	DiagnosisCodeDescr	ICD 10 code description
EINJURY_01REF	eInjury_01	Cause of Injury
EPROCEDURES_03REF	ProcedureCodeDescr	ICD 10 code description
EPROCEDURES_03REF	eProcedures_03	Procedure
ESITUATION_09REF	DiagnosisCodeDescr	ICD 10 code description
ESITUATION_09REF	eSituation_09	Primary Symptom
ESITUATION_10REF	DiagnosisCodeDescr	ICD 10 code description
ESITUATION_10REF	eSituation_10	Other Associtated Symptom
ESITUATION_11REF	DiagnosisCodeDescr	ICD 10 code description
ESITUATION_11REF	eSituation_11	Provider's Primary Impression
ESITUATION_12REF	DiagnosisCodeDescr	ICD 10 code description
ESITUATION_12REF	eSituation_12	Provider's Secondary Impression
FACTPCRADDITIONALRESPONSEMODE	PcrKey	Primary Key for relational table
FACTPCRADDITIONALRESPONSEMODE	eResponse_24	Additional Response Mode Descriptors
FACTPCRADDITIONALSYMPTOM	PcrKey	Primary Key for relational table
FACTPCRADDITIONALSYMPTOM	eSituation_10	Other Associated Symptoms
FACTPCRADDITIONALSYMPTOM	eSituation_10PN	Other Associated Symptoms pertinent negative values
FACTPCRADDITIONALTRANSPORTMODE	PcrKey	Primary Key for relational table
FACTPCRADDITIONALTRANSPORTMODE	eDisposition_18	Additional Transport Mode Descriptors
FACTPCRALCOHOLDRUGUSEINDICATOR	PcrKey	Primary Key for relational table
FACTPCRALCOHOLDRUGUSEINDICATOR	eHistory_17	Alcohol/Drug Use Indicators
FACTPCRARRESTCPRPROVIDED	PcrKey	Primary Key for relational table
FACTPCRARRESTCPRPROVIDED	eArrest_09	Type of CPR Provided
FACTPCRARRESTRESUSCITATION	PcrKey	Primary Key for relational table
FACTPCRARRESTRESUSCITATION	eArrest_03	Resuscitation Attempted By EMS

FACTPCRARRESTRHYTHMDESTINATION	PcrKey	Primary Key for relational table
FACTPCRARRESTRHYTHMDESTINATION	eArrest_17	Cardiac Rhythm on Arrival at Destination
FACTPCRARRESTROSC	PcrKey	Primary Key for relational table
FACTPCRARRESTROSC	eArrest_12	Any Return of Spontaneous Circulation
FACTPCRARRESTWITNESS	PcrKey	Primary Key for relational table
FACTPCRARRESTWITNESS	eArrest_04	Arrest Witnessed By
FACTPCRBARRIERTOCARE	PcrKey	Primary Key for relational table
FACTPCRBARRIERTOCARE	eHistory_01	Barriers to Patient Care
FACTPCRCAUSEOFINJURY	PcrKey	Primary Key for relational table
FACTPCRCAUSEOFINJURY	eInjury_01	Cause of Injury
FACTPCRDESTINATIONREASON	PcrKey	Primary Key for relational table
FACTPCRDESTINATIONREASON	eDisposition_20	Reason for Choosing Destination
FACTPCRDESTINATIONTEAM	PcrKey	Primary Key for relational table
FACTPCRDESTINATIONTEAM	eDisposition_24	Destination Team Pre-Arrival Alert or Activation
FACTPCRDESTINATIONTEAM	eDisposition_25	Date/Time of Destination Prearrival Alert or Activation
FACTPCRDISPATCHDELAY	PcrKey	Primary Key for relational table
FACTPCRDISPATCHDELAY	eResponse_08	Type of Dispatch Delay
FACTPCRINJURYRISKFACTOR	PcrKey	Primary Key for relational table
FACTPCRINJURYRISKFACTOR	eInjury_04	Vehicular, Pedestrian, or Other Injury Risk Factor
FACTPCRMEDICATION	PcrKey	Primary Key for relational table
FACTPCRMEDICATION	PcrMedicationKey	Primary Key for Medication
FACTPCRMEDICATION	eMedications_01	Date/Time Medication Administered
FACTPCRMEDICATION	eMedications_02	Medication Administered Prior to this Unit's EMS Care
FACTPCRMEDICATION	eMedications_03	Medication Given
FACTPCRMEDICATION	eMedications_05	Medication Dosage
FACTPCRMEDICATION	eMedications_06	Medication Dosage Units
FACTPCRMEDICATION	eMedications_07	Response to Medication
FACTPCRMEDICATION	eMedications_10	Role/Type of Person Administering Medication
FACTPCRMEDICATION	eMedications_03Descr	Medication recoded name
FACTPCRMEDICATION	eMedications_03_PN	Medication pertinent negative value
FACTPCRPRIMARYIMPRESSION	PcrKey	Primary Key for relational table
FACTPCRPRIMARYIMPRESSION	eSituation_11	Provider's Primary Impression
FACTPCRPRIMARYSYMPTOM	PcrKey	Primary Key for relational table
FACTPCRPRIMARYSYMPTOM	eSituation_09	Primary Symptom
FACTPCRPROCEDURE	PcrKey	Primary Key for relational table
FACTPCRPROCEDURE	PcrProcedureKey	Primary Key for Procedures
FACTPCRPROCEDURE	eProcedures_01	Date/Time Procedure Performed
FACTPCRPROCEDURE	eProcedures_02	Procedure Performed Prior to this Unit's

FACTPCRPROCEDURE	eProcedures_03	Procedure
FACTPCRPROCEDURE	eProcedures_03PN	Procedure pertinent negative value
FACTPCRPROCEDURE	eProcedures_05	Number of Procedure Attempts
FACTPCRPROCEDURE	eProcedures_06	Procedure Successful
FACTPCRPROCEDURE	eProcedures_08	Response to Procedure
FACTPCRPROCEDURE	eProcedures_10	Role/Type of Person Performing the Procedure
FACTPCRPROTOCOL	PcrKey	Primary Key for relational table
FACTPCRPROTOCOL	eProtocol_01	Protocols Used
FACTPCRPROTOCOL	eProtocol_02	Protocol Age Category
FACTPCRRESPONSEDELAY	PcrKey	Primary Key for relational table
FACTPCRRESPONSEDELAY	eResponse_09	Type of Response Delay
FACTPCRSCENEDELAY	PcrKey	Primary Key for relational table
FACTPCRSCENEDELAY	eResponse_10	Type of Scene Delay
FACTPCRSECONDARYIMPRESSION	PcrKey	Primary Key for relational table
FACTPCRSECONDARYIMPRESSION	eSituation_12	Provider's Secondary Impressions
FACTPCRTRANSPORTDELAY	PcrKey	Primary Key for relational table
FACTPCRTRANSPORTDELAY	eResponse_11	Type of Transport Delay
FACTPCRTRAUMACRITERIA	PcrKey	Primary Key for relational table
FACTPCRTRAUMACRITERIA	eInjury_03	Trauma Center Criteria
FACTPCRTURNAROUNDDELAY	PcrKey	Primary Key for relational table
FACTPCRTURNAROUNDDELAY	eResponse_12	Type of Turn-Around Delay
FACTPCRVITAL	PcrKey	Primary Key for relational table
FACTPCRVITAL	PcrVitalKey	Primary Key for Vitals
FACTPCRVITAL	eVitals_01	Date/Time Vital Signs Taken
FACTPCRVITAL	eVitals_02	Obtained Prior to this Unit's EMS Care
FACTPCRVITAL	eVitals_04	ECG Type
FACTPCRVITAL	eVitals_06	SBP (Systolic Blood Pressure)
FACTPCRVITAL	eVitals_08	Method of Blood Pressure Measurement
FACTPCRVITAL	eVitals_10	Heart Rate
FACTPCRVITAL	eVitals_12	Pulse Oximetry
FACTPCRVITAL	eVitals_14	Respiratory Rate
FACTPCRVITAL	eVitals_16	End Tidal Carbon Dioxide (ETCO2)
FACTPCRVITAL	eVitals_18	Blood Glucose Level
FACTPCRVITAL	eVitals_19	Glasgow Coma Score-Eye
FACTPCRVITAL	eVitals_20	Glasgow Coma Score-Verbal
FACTPCRVITAL	eVitals_21	Glasgow Coma Score-Motor
FACTPCRVITAL	eVitals_26	Level of Responsiveness (AVPU)
FACTPCRVITAL	eVitals_27	Pain Scale Score
FACTPCRVITAL	eVitals_29	Stroke Scale Score
FACTPCRVITAL	eVitals_30	Stroke Scale Type

FACTPCRVITAL	eVitals_31	Reperfusion Checklist
FACTPCRWORKRELATEDEXPOSURE	PcrKey	Primary Key for relational table
FACTPCRWORKRELATEDEXPOSURE	eOther_05	Suspected EMS Work Related Exposure, Injury, or Death
PUB_PCREVENTS	PcrKey	Primary Key for relational table
PUB_PCREVENTS	eArrest_01	Cardiac Arrest
PUB_PCREVENTS	eArrest_02	Cardiac Arrest Etiology
PUB_PCREVENTS	eArrest_05	CPR Care Provided Prior to EMS Arrival
PUB_PCREVENTS	eArrest_07	AED Use Prior to EMS Arrival
PUB_PCREVENTS	eArrest_11	First Monitored Arrest Rhythm of the Patient
PUB_PCREVENTS	eArrest_14	Date/Time of Cardiac Arrest
PUB_PCREVENTS	eArrest_16	Reason CPR/Resuscitation Discontinued
PUB_PCREVENTS	eArrest_18	End of EMS Cardiac Arrest Event
PUB_PCREVENTS	eArrest_20	Who First Initiated CPR
PUB_PCREVENTS	eArrest_21	Who First Applied the AED
PUB_PCREVENTS	eArrest_22	Who First Defibrillated the Patient
PUB_PCREVENTS	eDispatch_01	Complaint Reported by Dispatch
PUB_PCREVENTS	eDispatch_02	EMD Performed
PUB_PCREVENTS	eDisposition_12	Incident/Patient Disposition
PUB_PCREVENTS	eDisposition_16	EMS Transport Method
PUB_PCREVENTS	eDisposition_17	Transport Mode from Scene
PUB_PCREVENTS	eDisposition_19	Final Patient Acuity
PUB_PCREVENTS	eDisposition_21	Type of Destination
PUB_PCREVENTS	eDisposition_22	Hospital In-Patient Destination
PUB_PCREVENTS	eOutcome_01	Emergency Department Disposition
PUB_PCREVENTS	eOutcome_02	Hospital Disposition
PUB_PCREVENTS	eOutcome_11	Date/Time of Hospital Admission
PUB_PCREVENTS	eOutcome_16	Date/Time of Hospital Discharge
PUB_PCREVENTS	eOutcome_18	Date/Time of Emergency Department Admission
PUB_PCREVENTS	ePatient_15	Age
PUB_PCREVENTS	ePatient_16	Age Units
PUB_PCREVENTS	ePayment_01	Primary Method of Payment
PUB_PCREVENTS	ePayment_50	CMS Service Level
PUB_PCREVENTS	eResponse_05	Type of Service Requested
PUB_PCREVENTS	eResponse_07	Primary Role of the Unit
PUB_PCREVENTS	eResponse_23	Response Mode to Scene
PUB_PCREVENTS	eScene_01	First EMS Unit on Scene
PUB_PCREVENTS	eScene_06	Number of Patients at Scene
PUB_PCREVENTS	eScene_07	Mass Casualty Incident
PUB_PCREVENTS	eScene_08	Triage Classification for MCI Patient
PUB_PCREVENTS	eScene_09	Incident Location Type

PUB_PCREVENTS	eSituation_01	Date/Time of Symptom Onset
PUB_PCREVENTS	eSituation_02	Possible Injury
PUB_PCREVENTS	eSituation_07	Chief Complaint Anatomic Location
PUB_PCREVENTS	eSituation_08	Chief Complaint Organ System
PUB_PCREVENTS	eSituation_13	Initial Patient Acuity
PUB_PCREVENTS	eSituation_18	Date/Time Last Known Well
PUB_PCREVENTS	eSituation_20	Reason for Interfacility Transfer/Medical Transport
FACTPCRHOSPITALCAPABILITY	PcrKey	Primary Key for relational table
FACTPCRHOSPITALCAPABILITY	eDisposition_23	Hospital Capability
FACTPCROUTCOMEHOSPDIAG	PcrKey	Primary Key for relational table
FACTPCROUTCOMEHOSPDIAG	eOutcome_13	Hospital Diagnosis
FACTPCROUTCOMEHOSPPROC	PcrKey	Primary Key for relational table
FACTPCROUTCOMEHOSPPROC	eOutcome_12	Hospital Procedures
FACTPCROUTCOMEHOSPPROC	eOutcome_20	Date/Time Hospital Procedure Performed
FACTPCROUTCOMEEDDIAG	PcrKey	Primary Key for relational table
FACTPCROUTCOMEEDDIAG	eOutcome_10	Emergency Department Diagnosis
FACTPCROUTCOMEEDPROC	PcrKey	Primary Key for relational table
FACTPCROUTCOMEEDPROC	eOutcome_09	Emergency Department Procedures
FACTPCROUTCOMEEDPROC	eOutcome_19	Date/Time Emergency Department Procedure Performed
FACTPCRTIME	PcrKey	Primary Key for relational table
FACTPCRTIME	eTimes_01	PSAP Call Date/Time
FACTPCRTIME	eTimes_03	Unit Notified by Dispatch Date/Time
FACTPCRTIME	eTimes_05	Unit En Route Date/Time
FACTPCRTIME	eTimes_06	Unit Arrived on Scene Date/Time
FACTPCRTIME	eTimes_07	Arrived at Patient Date/Time
FACTPCRTIME	eTimes_09	Unit Left Scene Date/Time
FACTPCRTIME	eTimes_11	Patient Arrived at Destination Date/Time
FACTPCRTIME	eTimes_12	Destination Patient Transfer of Care Date/Time
FACTPCRTIME	eTimes_13	Unit Back in Service Date/Time
PCRMEDCOMPGROUP	MedicationKey	Foreign key to match to Medication table
PCRMEDCOMPGROUP	PcrMedCompGroupKey	Primary Key for Medication Complication
PCRMEDCOMPGROUP	eMedications_08	Medication Complication
PCRPATIENTRACEGROUP	PcrPatientRaceGroupKey	Primary Key for Patient Race
PCRPATIENTRACEGROUP	ePatient_14	Race
PCRPATIENTRACEGROUP	PcrKey	Primary Key for relational table
PCRPROCCOMPGROUP	PcrProcCompGroupKey	Primary Key for Procedure Complications
PCRPROCCOMPGROUP	ProcedureKey	Foreign key For Procedure table
PCRPROCCOMPGROUP	eProcedures_07	Procedure Complication
PCRVITALECGGROUP	PcrVitalECGGroupKey	Primary key for Vital ECG
PCRVITALECGGROUP	VitalKey	Foreign key For FactPcrVital table

PCRVITALECGGROUP	eVitals_03	Cardiac Rhythm / Electrocardiography (ECG)
PCRVITALECGINTERPRETATIONGROUP	PcrVitalECGInterpretationGroupKe	Primary key for Method of ECG Interpretation
PCRVITALECGINTERPRETATIONGROUP	VitalKey	Foreign key For FactPcrVital table
PCRVITALECGINTERPRETATIONGROUP	eVitals_05	Method of ECG Interpretation
PCRVITALGLASGOWQUALIFIERGROUP	PcrVitalECGGroupKey	Primary key for Glasgow Coma Score-Qualifier
PCRVITALGLASGOWQUALIFIERGROUP	VitalKey	Foreign key For FactPcrVital table
PCRVITALGLASGOWQUALIFIERGROUP	eVitals_22	Glasgow Coma Score-Qualifier
FACTPCROUTCOMEHOSPDIAG	PcrKey	Primary Key for relational table
COMPUTEDELEMENTS	PcrKey	Primary Key for relational table
COMPUTEDELEMENTS	EMSDispatchCenterTimeSec	Time difference in Seconds between eTimes.03 and eTimes.01.
COMPUTEDELEMENTS	EMSSceneResponseTimeMin	Time difference in minutes between eTimes.06 and eTimes.05
COMPUTEDELEMENTS	EMSSceneTimeMin	Time difference in minutes between eTimes.06 and eTimes.09
COMPUTEDELEMENTS	EMSSceneToPatientTimeMin	Time difference in minutes between eTimes.06 and eTimes.07
COMPUTEDELEMENTS	EMSSystemResponseTimeMin	Time difference in minutes between eTimes.03 and eTimes.06
COMPUTEDELEMENTS	EMSTotalCallTimeMin	Time difference in minutes between eTimes.13 and eTimes.03
COMPUTEDELEMENTS	EMSTransportTimeMin	Time difference in minutes between eTimes.09 and eTimes.11
COMPUTEDELEMENTS	EMSChuteTimeMin	Time difference in minutes between eTimes.03 and eTimes.05
COMPUTEDELEMENTS	USCensusDivision	
COMPUTEDELEMENTS	USCensusRegion	
COMPUTEDELEMENTS	Urbanicity	Reclassified USDA urban influence code
COMPUTEDELEMENTS	Ageinyear	Age in years
COMPUTEDELEMENTS	NasemsoRegion	

Limited Use Variable Description List

This section includes the variable name and variable description for elements protected from public use in their native form. These variables can be made available as "de-identified data elements" (specified by the HIPAA Privacy Rule) by statistical manipulation to include masked anonymous value codes. Masked value codes can be grouped to address a specific hypothesis and made available to researchers through use of the master Primary Key (i.e., PcrKey) to link back to individual cases. Variable definitions and value codes can be found in the NEMSIS Data Dictionary (v.3.5.0) https://nemsis.org/technical-resources/version-3/version-3-data-dictionaries/.

Variable Name	Variable Description
eResponse_01	EMS Agency Number
ePatient_07	Patient's Home County
ePatient_08	Patient's Home State
ePatient_09	Patient's Home ZIP Code
eDisposition_05	Destination State
eDisposition_06	Destination County
eDisposition_07	Destination ZIP Code
eScene_18	Incident State
eScene_19	Incident ZIP Code
eScene_21	Incident County

APPENDIX B:
OVERVIEW OF NATIONAL NEMSIS BUSINESS RULES BY NEMSIS ELEMENT

Information regarding individual data element business rules can be found on the NEMSIS website Schematron documentation library.

https://nemsis.org/technical-resources/version-3/version-3-schematron/

Additional data reduction methods applied to the data warehouse and public extracts:

For all 1-to-Many and Many-to-Many elements:

1) If a patient record has both null values and non-null values, exclude 1: Many records with null values.
2) If a patient record has multiple null values listed but does not have any non-null values, keep only the first null value listed and exclude all other 1: Many records with null values.
3) If a patient record has multiple non-null values listed and the same exact 1: Many values is listed multiple times, keep that specific value only for the 1st five times it is listed; exclude all other repetitions of the value.

Other value limits: (usually based upon the number of possible values, excluding null and NOT values, contained within an element.)

eHistory.17	shall have no more than six values per event.
eArrest.14	time before 2024.01.01 set to null, keep 2025.01.01
eArrest.03	shall have no more than three values per event.
eArrest.04	shall have no more than three values per event.
eDisposition.20	shall have no more than six values per event.
eDisposition.25	time before 2024.01.01 set to null, keep 2025.01.01
eDisposition.07	all 00000 set to 'not recorded'
eSituation.11	shall have no more than 14 values per event.
eSitutation.12	shall have no more than 14 values per event
eInjury.04	shall have no more than six values per event.
eMedication.03	shall have no more than 29 values per event.

eMedication.01	time before 2024.01.01 set to null, keep 2025.01.01
eProcedure.03	shall have no more than 100 values per event.
eProcedure.01	time before 2024.01.01 set to null, keep 2025.01.01
eResponse.24	shall have no more than seven values per event.
eSituation.01	removed time after 2024.12.31
eScene.19	set all 00000 to not recorded
eSituation.09	shall have no more than 20 values per event.
eSituation.10	shall have no more than 150 values per event.
eTimes01	eTimes.13 time before 2024.01.01 set to null, keep 2025.01.01
eDisposition.18	shall have no more than five values per event.
eInjury.03	shall have no more than seven values per event.
eResponse.12	shall have no more than nine values per event.
eOther.05	shall have no more than one value per event.
ePatient.14	shall have no more than six values per event.
eProcedure.07	shall have no more than nine values per event.
Vital Signs	shall have no more than 200 values per event.
eVitals.05	shall have no more than three values per event.
eArrest.17	shall have no more than seven values per event
ePatient.09	set all 0000 to not recorded
eResponse.10	shall have no more than nine values per event

APPENDIX C: 2024 CONTRIBUTING STATES & TERRITORIES

Alabama	Indiana	New Hampshire	Texas
Alaska	Iowa	New Jersey	Utah
Arizona	Kansas	New Mexico	Vermont
Arkansas	Kentucky	New York	Virginia
California	Louisiana	North Carolina	Virgin Islands
Colorado	Maine	North Dakota	Washington
Connecticut	Maryland	Northern Mariana Islands	West Virginia
Delaware	Massachusetts	Ohio	Wisconsin
District of Columbia	Michigan	Oklahoma	Wyoming
Florida	Minnesota	Oregon	
Georgia	Mississippi	Pennsylvania	
Guam	Missouri	Rhode Island	
Hawaii	Montana	South Carolina	
Idaho	Nebraska	South Dakota	
Illinois	Nevada	Tennessee	

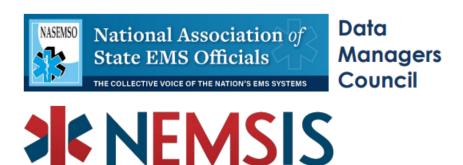**APPENDIX D:**
EXTENDED DEFINITION DOCUMENT, VERSION 3.5.0

(https://nemsis.org/media/nemsis_v3/release-
3.5.1/DataDictionary/PDFHTML/EMSDEMSTATE/Extended%20Data%20Definitions.pdf)

These extended definitions explain field values of a specific number of v3 variables.

EXTENDED
DATA
DEFINITIONS

NEMSIS Version 3.5.0

This document represents the continued effort of defining field values which started with NEMSIS v2.2.1.

The NASEMSO Data Managers Council (DMC) and the NEMSIS Technical Assistance Center (TAC) are confident that this document will support the development, standardization, and improvement of state, territory and national EMS data systems.

May 2024 Version 2

APPENDIX E:
COMPUTED VARIABLE DESCRIPTION LIST*

Variable Name	Short Variable Definition
AgeinYears	Age in Years, computed from Age and Age Units
EMSDispatchCenterTimeSec	Time difference in minutes between eTimes.03 and eTimes.01. Note: if > 3,599 seconds, set to null.
EMSChuteTimeMin	Time difference in minutes between eTimes.03 and eTimes.05. Note: if > 59 minutes, set to null.
EMSSystemResponseTimeMin	Time difference in minutes between eTimes.03 and eTimes.06. Note: if > 1,439 minutes, set to null.
EMSSceneResponseTimeMin	Time difference in minutes between eTimes.06 and eTimes.05. Note: if > 1,439 minutes, set to null.
EMSSceneTimeMin	Time difference in minutes between eTimes.06 and eTimes.09. Note: if > 1,439 minutes, set to null.
EMSSceneToPatientTimeMin	Time difference in minutes between eTimes.06 and eTimes.07. Note: if > 719 minutes, set to null.
EMSTransportTimeMin	Time difference in minutes between eTimes.09 and eTimes.11. Note: if > 1,439 minutes, set to null.
EMSTotalCallTimeMin	Time difference in minutes between eTimes.13 and eTimes.03. Note: if > 1,439 minutes, set to null.
USCensusRegion	Stratifies events into the five major U.S. Census regions
USCensusDivision	Stratifies events into the ten U.S. Census divisions
NasemsoRegion	Stratifies events into the four NASEMSO regions
Urbanicity	Stratifies events by four Urbanicity Codes, based upon 2024 USDA UrbanInfluence Codes

* For all elapsed times, negative elapsed time values are set to null

Errata and Supplemental Information

1. August 1, 2025: Computed ages of less than or equal to 12 months are defined as age 0 in `ageinyears`. Computed ages of 24 months are defined as age 1 in `ageinyears`.