NEMSIS v3 DEMDataSet Guide

Date
November 8, 2022

Author
Monet Iheanacho – NEMSIS Business Data Analyst

Overview
The NEMSIS v3 data standard includes three data sets: DEMDataSet (snapshot information about EMS agencies), EMSDataSet (EMS patient care reports), and StateDataSet (state reporting requirements and resources).

This guide discusses DEMDataSet. The agency demographic (DEM) file describes various aspects of the reporting Emergency Medical Services (EMS) agency. Each agency demographic file provides important information about the agency's composition, resources, and requirements and an overview of the services delivered. The DEM file specifically identifies the organization type, the service area, allowed procedures, medications, and protocols, personnel, vehicles, devices, and other critical information about the agency. The NEMSIS Technical Assistance Center (TAC) highly recommends that the agency DEM files are compiled by the EMS agency as the authoritative source of information and submitted to the state EMS office. The DEMS files are forwarded to the TAC via web services for entry into the NEMSIS national EMS repository.

Purpose of DEMDataSet
The NEMSIS TAC created the DEMDataSet XML Schema (XSD) to provide a consistent format to share NEMSIS v3 data about EMS responses to incidents. Nationally, there is an increased need for EMS data as a valuable asset that can improve the capability to conduct public health surveillance, assist with resource allocation, evaluate innovative payment models, and support evidence-based EMS delivery of patient care systems. The agency DEM files submitted to the national EMS repository are a vital piece of information that allows software systems to delineate the activity of thousands of EMS agencies across the country submitting millions of EMS records each year.

DEMDataSet at the National Level
Local EMS agencies use field-level "Collect Data" software products to collect the EMS agency demographics (DEM) files and electronic patient care reports (ePCRs). The EMS data are first sent to the state-level EMS repository, then exported to the national-level EMS repository using "Receive and Process" software. The NEMSIS XSD validates the structure of the data prior to entry in the NEMSIS repository. The validation system checks to ensure that the agency DEM file in the NEMSIS repository. If the agency DEM file is missing, incomplete, or incorrect the ePCR data will fail to enter the NEMSIS repository.

DEMDataSet Description in the v3.5 Data Dictionary

The NEMSIS v3.5.0 Data Dictionary is the key source of information related to the agency demographic data elements in the DEMDataSet Grouping and Sections. In the overview description of the NEMSIS Data Dictionary, there is a chart that outlines the composition of DEMDataSet and the elements that should be collected for the National EMS Database, and the data elements that should be considered for use at the state and local levels depending on each state or local EMS system's need.

DEMDataSet Sections

There are ten subsections within the DEMDataset. Each subsection contains information about a different aspect of the EMS agency. The data elements in the DEM subsections are labeled as national, state, or neither. If the data element is labeled as national, it must be collected at the local EMS agency level, submitted to the state, then submitted to the national level at the NEMSIS TAC. If the data element is labeled as state only, it may also be labeled as recommended usage to be collected at the state, but is not required at the national level. If the data element is not labeled as a national or state, it may be labeled as optional usage. If the data element is related to a configuration section, it will be labeled as mandatory usage. In total, there are 152 elements in the DEMDataset section.

DEM Elements	152
Mandatory	25
Required	4
Recommended	41
Optional	82

Each element has a usage level that indicates when the data element is expected to be collected:
- Mandatory = Must be completed and does not allow for NOT values.
- Required = Must be completed and allows NOT values.
- Recommended = Does not need to be completed and allows NOT values.
- Optional = Does not need to be completed and does not allow for NOT values.

NOT values will not be covered in this document, but more information is available in the NEMSIS Data Dictionary and at NEMSIS v3 Pertinent Negatives (PN) and Not Values (NV) Usage

Elements in the DEMDataset Sections

There is an excel spreadsheet on the NEMSIS website titled v3 Summary of Changes (xlsx). The spreadsheet lists all the v3.5 National and State elements, and was used to create the charts below describing the ten subsections of the DEMDataset. The spreadsheet was filtered on the element numbers, element names, distinction as a national, state, or optional element, and the usage.
The only national elements assigned to DEM elements are in the dAgency and dConfiguration sections.

The DEMDataset subsections are detailed below. The sections include:

1. dAgency	6. dPersonnel
2. dContact	7. dDevice
3. dConfiguration	8. dFacility

4. dLocation	9. dCustomResults
5. dVehicle	10. dCustomConfiguration

1. Listed below are NEMSIS data elements in the **dAgency Section.**

ElementNumber	ElementName	National	State	Usage
dAgency.01	EMS Agency Unique State ID	National	State	Mandatory
dAgency.02	EMS Agency Number	National	State	Mandatory
dAgency.03	EMS Agency Name		State	Recommended
dAgency.04	EMS Agency State	National	State	Mandatory
dAgency.05	EMS Agency Service Area States	National	State	Mandatory
dAgency.06	EMS Agency Service Area County(ies)	National	State	Mandatory
dAgency.07	EMS Agency Census Tracts	National	State	Required
dAgency.08	EMS Agency Service Area ZIP Codes	National	State	Required
dAgency.09	Primary Type of Service	National	State	Mandatory
dAgency.10	Other Types of Service		State	Recommended
dAgency.11	Level of Service	National	State	Mandatory
dAgency.12	Organization Status	National	State	Mandatory
dAgency.13	Organizational Type	National	State	Mandatory
dAgency.14	EMS Agency Organizational Tax Status	National	State	Mandatory
dAgency.15	Statistical Calendar Year		State	Recommended
dAgency.16	Total Primary Service Area Size		State	Recommended
dAgency.17	Total Service Area Population		State	Recommended
dAgency.18	911 EMS Call Center Volume per Year		State	Recommended
dAgency.19	EMS Dispatch Volume per Year		State	Recommended
dAgency.20	EMS Patient Transport Volume per Year		State	Recommended
dAgency.21	EMS Patient Contact Volume per Year		State	Recommended
dAgency.22	EMS Billable Calls per Year		State	Recommended
dAgency.25	National Provider Identifier	National	State	Required
dAgency.26	Fire Department ID Number	National	State	Required

1. Listed below are NEMSIS data elements in the **dContact Section.**

ElementNumber	ElementName	National	State	Usage
dContact.01	Agency Contact Type		State	Recommended
dContact.02	Agency Contact Last Name		State	Recommended
dContact.03	Agency Contact First Name		State	Recommended
dContact.04	Agency Contact Middle Name/Initial			Optional
dContact.05	Agency Contact Address		State	Recommended
dContact.06	Agency Contact City		State	Recommended
dContact.07	Agency Contact State		State	Recommended
dContact.08	Agency Contact ZIP Code		State	Recommended
dContact.09	Agency Contact Country			Optional
dContact.10	Agency Contact Phone Number		State	Recommended
dContact.11	Agency Contact Email Address		State	Recommended
dContact.12	EMS Agency Contact Web Address		State	Recommended
dContact.13	Agency Medical Director Degree		State	Recommended
dContact.14	Agency Medical Director Board Certification Type		State	Recommended
dContact.15	Medical Director Compensation			Optional
dContact.16	EMS Medical Director Fellowship Trained Status			Optional

2. Listed below are NEMSIS data elements in the **dConfiguration Section.**

ElementNumber	ElementName	National	State	Usage
dConfiguration.01	State Associated with this Configuration	National	State	Mandatory
dConfiguration.06	EMS Certification Levels Permitted to Perform Each Procedure	National	State	Mandatory
dConfiguration.07	EMS Agency Procedures	National	State	Mandatory
dConfiguration.08	EMS Certification Levels Permitted to Administer Each Medication	National	State	Mandatory
dConfiguration.09	EMS Agency Medications	National	State	Mandatory
dConfiguration.10	EMS Agency Protocols	National	State	Mandatory
dConfiguration.11	EMS Agency Specialty Service Capability		State	Recommended
dConfiguration.12	Billing Status			Optional
dConfiguration.13	Emergency Medical Dispatch (EMD) Provided to EMS Agency Service Area	National	State	Mandatory
dConfiguration.14	EMD Vendor		State	Recommended
dConfiguration.15	Patient Monitoring Capability(ies)		State	Recommended
dConfiguration.16	Crew Call Sign	National	State	Mandatory
dConfiguration.17	Dispatch Center (CAD) Name or ID			Optional

3. Listed below are NEMSIS data elements in the **dLocation Section.**

All elements in the dLocation section are designated as optional usage. They are not required for the National EMS Database, but may be considered for use at the state and local levels depending on each state or local EMS system's need.

ElementNumber	ElementName	National	State	Usage
dLocation.01	EMS Location Type			Optional
dLocation.02	EMS Location Name			Optional
dLocation.03	EMS Location Number			Optional
dLocation.04	EMS Location GPS			Optional
dLocation.05	EMS Location US National Grid Coordinates			Optional
dLocation.06	EMS Location Address			Optional
dLocation.07	EMS Location City			Optional
dLocation.08	EMS Location State			Optional
dLocation.09	EMS Station or Location ZIP Code			Optional
dLocation.10	EMS Location County			Optional
dLocation.11	EMS Location Country			Optional
dLocation.12	EMS Location Phone Number			Optional

4. Listed below are NEMSIS data elements in the **dVehicle Section.**

SectionName	ElementNumber	ElementName	National	State	Usage
dVehicle	dVehicle.01	Unit/Vehicle Number		State	Recommended
dVehicle	dVehicle.02	Vehicle Identification Number			Optional
dVehicle	dVehicle.03	EMS Unit Call Sign			Optional
dVehicle	dVehicle.04	Vehicle Type		State	Recommended
dVehicle	dVehicle.05	Crew State Certification/Licensure Levels			Optional
dVehicle	dVehicle.06	Number of Each EMS Personnel Level on Normal 911 Ambulance Response			Optional
dVehicle	dVehicle.07	Number of Each EMS Personnel Level on Normal 911 Response (Non-Transport) Vehicle			Optional
dVehicle	dVehicle.08	Number of Each EMS Personnel Level on Normal Medical (Non-911) Transport Ambulance			Optional
dVehicle	dVehicle.09	Vehicle Initial Cost			Optional
dVehicle	dVehicle.10	Vehicle Model Year		State	Recommended
dVehicle	dVehicle.11	Year Miles/Kilometers Hours Accrued			Optional
dVehicle	dVehicle.12	Annual Vehicle Hours			Optional
dVehicle	dVehicle.13	Annual Vehicle Miles/Kilometers			Optional

5. Listed below are NEMSIS data elements in the **dPersonnel Section.**

ElementNumber	ElementName	National	State	Usage
dPersonnel.01	EMS Personnel's Last Name		State	Recommended
dPersonnel.02	EMS Personnel's First Name		State	Recommended
dPersonnel.03	EMS Personnel's Middle Name/Initial		State	Recommended
dPersonnel.04	EMS Personnel's Mailing Address			Optional
dPersonnel.05	EMS Personnel's City of Residence			Optional
dPersonnel.06	EMS Personnel's State			Optional
dPersonnel.07	EMS Personnel's ZIP Code			Optional
dPersonnel.08	EMS Personnel's Country			Optional
dPersonnel.09	EMS Personnel's Phone Number			Optional
dPersonnel.10	EMS Personnel's Email Address			Optional
dPersonnel.11	EMS Personnel's Date of Birth		State	Recommended
dPersonnel.12	EMS Personnel's Gender		State	Recommended
dPersonnel.13	EMS Personnel's Race		State	Recommended
dPersonnel.14	EMS Personnel's Citizenship			Optional
dPersonnel.15	EMS Personnel's Highest Educational Degree			Optional
dPersonnel.16	EMS Personnel's Degree Subject/Field of Study			Optional
dPersonnel.17	EMS Personnel's Motor Vehicle License Type			Optional
dPersonnel.18	EMS Personnel's Immunization Status			Optional
dPersonnel.19	EMS Personnel's Immunization Year			Optional
dPersonnel.20	EMS Personnel's Foreign Language Ability			Optional
dPersonnel.21	EMS Personnel's Agency ID Number			Optional
dPersonnel.22	EMS Personnel's State of Licensure		State	Recommended
dPersonnel.23	EMS Personnel's State's Licensure ID Number		State	Recommended
dPersonnel.24	EMS Personnel's State EMS Certification Licensure Level		State	Recommended
dPersonnel.25	EMS Personnel's State EMS Current Certification Date			Optional
dPersonnel.26	EMS Personnel's Initial State's Licensure Issue Date			Optional
dPersonnel.27	EMS Personnel's Current State's Licensure Expiration Date			Optional
dPersonnel.28	EMS Personnel's National Registry Number			Optional
dPersonnel.29	EMS Personnel's National Registry Certification Level			Optional
dPersonnel.30	EMS Personnel's Current National Registry Expiration Date			Optional
dPersonnel.31	EMS Personnel's Employment Status		State	Recommended
dPersonnel.32	EMS Personnel's Employment Status Date		State	Recommended
dPersonnel.33	EMS Personnel's Hire Date			Optional
dPersonnel.34	EMS Personnel's Primary EMS Job Role		State	Recommended
dPersonnel.35	EMS Personnel's Other Job Responsibilities		State	Recommended
dPersonnel.36	EMS Personnel's Total Length of Service in Years			Optional
dPersonnel.37	EMS Personnel's Date Length of Service Documented			Optional
dPersonnel.38	EMS Personnel's Practice Level			Optional
dPersonnel.39	Date of Personnel's Certification or Licensure for Agency			Optional

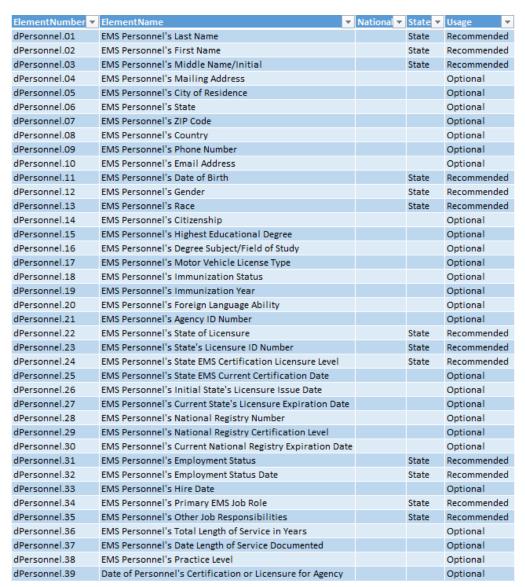6. Listed below are NEMSIS data elements in the **dDevice Section.**

All elements in the dDevice section are designated as optional usage. They are not required for the National EMS Database, but may be considered for use at the state and local levels depending on each state or local EMS system's need.

ElementNumber	ElementName	National	State	Usage
dDevice.01	Medical Device Serial Number			Optional
dDevice.02	Medical Device Name or ID			Optional
dDevice.03	Medical Device Type			Optional
dDevice.04	Medical Device Manufacturer			Optional
dDevice.05	Medical Device Model number			Optional
dDevice.06	Medical Device Purchase Date			Optional

7. Listed below are NEMSIS data elements in the **dFacility Section.**

All elements in the dFacility section are designated as optional usage. They are not required for the National EMS Database, but may be considered for use at the state and local levels depending on each state or local EMS system's need.

ElementNumber	ElementName	National	State	Usage
dFacility.01	Type of Facility			Optional
dFacility.02	Facility Name			Optional
dFacility.03	Facility Location Code			Optional
dFacility.04	Hospital Designations			Optional
dFacility.05	Facility National Provider Identifier			Optional
dFacility.06	Facility Room, Suite, or Apartment			Optional
dFacility.07	Facility Street Address			Optional
dFacility.08	Facility City			Optional
dFacility.09	Facility State			Optional
dFacility.10	Facility ZIP Code			Optional
dFacility.11	Facility County			Optional
dFacility.12	Facility Country			Optional
dFacility.13	Facility GPS Location			Optional
dFacility.14	Facility US National Grid Coordinates			Optional
dFacility.15	Facility Phone Number			Optional

8. Listed below are NEMSIS data elements in the **dCustomResults Section.**

All elements in the dCustomResults and dCustomConfiguration sections are designated as either mandatory or optional usage. They are mandatory if the state implements custom elements, but not required for the National EMS Database. Custom elements may be considered for use at the state and local levels depending on each state or local EMS system's need.

ElementNumber	ElementName	National	State	Usage
dCustomResults.01	Custom Data Element Result			Mandatory
dCustomResults.02	Custom Element ID Referenced			Mandatory
dCustomResults.03	CorrelationID of DemographicReport Element or Group			Optional

9. Listed below are NEMSIS data elements in the **dCustomConfiguration Section.**

ElementNumber	ElementName	National	State	Usage
dCustomConfiguration.01	Custom Data Element Title			Mandatory
dCustomConfiguration.02	Custom Definition			Mandatory
dCustomConfiguration.03	Custom Data Type			Mandatory
dCustomConfiguration.04	Custom Data Element Recurrence			Mandatory
dCustomConfiguration.05	Custom Data Element Usage			Mandatory
dCustomConfiguration.06	Custom Data Element Potential Values			Optional
dCustomConfiguration.07	Custom Data Element Potential NOT Values (NV)			Optional
dCustomConfiguration.08	Custom Data Element Potential Pertinent Negative Values			Optional
dCustomConfiguration.09	Custom Data Element Grouping ID			Optional

DEMDataSet Completeness and Accuracy

There are instances when the agency DEM files are missing, incomplete, or incorrect and the ePCR data will fail to enter the NEMSIS repository. Within the v3.5 Data Standard there are 22 National Mandatory and Required elements that must be completed for the agency DEM file.

Mandatory Elements must have a value.

The NEMSIS Data Dictionary indicates if the information cannot be completed for the **Required Elements**, the element can be left blank. Required Elements allow for the NOT Values (NV) code = 7701003. "*If a data element was unintentionally left blank, the EMS software should auto-populate it with "Not Recorded."*

V3.5 Mandatory (M) and Required (R) Elements for the Agency Dem File
dAgency.01 – EMS Agency Unique State ID (M)
dAgency.02 – EMS Agency Number (M)
dAgency.04 – EMS Agency State (M)
dAgency.05 – EMS Agency Service Area States (M)
dAgency.06 – EMS Agency Service Area County(ies) (M)
dAgency.07 – EMS Agency Census Tract (R)
dAgency.08 – EMS Agency Service Area ZIP Codes (R)
dAgency.09 – Primary Type of Service (M)
dAgency.11 – Level of Service (M)
dAgency.12 – Organization Status (M)
dAgency.13 – Organizational Type (M)
dAgency.14 – EMS Agency Organizational Tax Status (M)
dAgency.25 – National Provider Identifier (R)
dAgency.26 – Fire Department ID Number (R)
dConfiguration.01 – State Associated with the Certification/Licensure Levels (M)
dConfiguration.06 – EMS Certification Levels Permitted to Perform Each Procedure (M)
dConfiguration.07 – EMS Agency Procedures (M)
dConfiguration.08 – EMS Certification Levels Permitted to Administer Each Medication (M)
dConfiguration.09 – EMS Agency Medications (M)

dConfiguration.10 – EMS Agency Protocols (M)
dConfiguration.13 – Emergency Medical Dispatch (EMD) Provided to EMS Agency Service Area (M)
dConfiguration.16 – Crew Call Sign (M)

Common Reasons for Submission Failures

The most common reasons for submission failures are:

- The DEM files fail for one reason: XML schema/Schematron validation error.
- The EMS files fail for two reasons: XML schema/Schematron validation error OR non-matching dAgency.01, dAgency.02, or dAgency.04.

Data submissions from the state will fail at the national level when there are inconsistencies between the DEM and ePCR values of dAgency.01, dAgency.02, and dAgency.04.

Here are two common examples of inconsistencies between DEM and ePCR files that cause failures:

DEM file information:
dAgency.01 = 018
dAgency.02 = 018
dAgency.04 = 24

ePCR file information:
dAgency.01 = 018
dAgency.02 = 0180
dAgency.04 = 38

DEM file information:
dAgency.01 = 4321
dAgency.02 = 1234
dAgency.04 = 52

ePCR file information:
dAgency.01 = 1234
dAgency.02 = 1234
dAgency.04 = 61

The definitions for the dAgency.01, dAgency.2, and dAgency.04 elements are:

dAgency.01- EMS Agency Unique State ID: The unique ID assigned to the EMS Agency is associated with all state licensure numbers and information.

dAgency.02 – EMS Agency Number: The state-assigned provider number of the responding agency. *Depending on the services provided by an agency, an EMS Agency can have more than one Agency Number within a state. This reflects the ability of an EMS Agency to have a different number for each service type or location (based on state implementation).*

dAgency.04 - EMS Agency State: The state/territory which assigned the EMS agency number.

To avoid failure of data submissions to the national repository, DEM and ePCR values for elements dAgency.01, dAgency.02, and dAgency.04 must be consistent.

Additional v3.5 Technical Guides

For more information about Collect Data software and compliance, please review the v3.5 Compliance Process- "Collect Data" Software.

For more information about the technical structure of the DEM files, review Schematron rule file for DEMDataSet.

Conclusion

The DEMDataSet provides a format in which ePCR data can be collected in a consistent and standardized format which facilitates improved local, state, and national data analysis.

The information provided in this document is sourced from multiple locations on the NEMSIS website and is compiled here as a summary resource related to the Agency Demographic (DEM) File.

If you have questions or need assistance, please contact the TAC at support@nemsis.atlassian.net.