NEMSIS 2019
Version 3 Implementation Meeting

BOOT CAMP PRESENTATIONS

August 11, 2019

NEMSIS

BETTER DATA. BETTER CARE.

Table of Contents

TABLEAU

Assessing Data Quality using Tableau

A. How to access your Tableau reports
The best way to access your Tableau dashboard reports is to go directly to
https://nemsis.org/view-reports/state-reports/version-3-state-dashboards/

You will also be able to find important documentation and training videos on each dashboard.

3 Ways to Look at EMS Agency Reporting

A. The 3 critical dashboards
   a. Data Submission
https://nemsis.org/view-reports/state-reports/version-3-state-dashboards/v3-state-data-submission-dashboard/
   b. Agency Submission Tracking
https://nemsis.org/view-reports/state-reports/version-3-state-dashboards/v3-state-agency-submissions-tracking/
   c. Data Quality
https://nemsis.org/view-reports/state-reports/version-3-state-dashboards/v3-state-data-quality-dashboard/

Your Weekly Email Summary

A. How to subscribe to the email summary
   a. To subscribe to a dashboard click on the subscribe button in the toolbar at the bottom of the dashboard.

b.   Clicking on the button brings up a form that allows you to customize your
     subscription.

Complete the form and click the Subscribe button to complete your subscription.

Data Submission Dashboard

A.   Where to find additional information on validation rules and messages
     The complete set of National validation rules are located at
     https://nemsis.org/technical-resources/version-3/version-3-schematron/

Agency Submission Tracking Dashboard

A.   Understanding the difference between Submission Date and Unit Notified by Dispatch Date
     a.   The Unit Notified by Dispatch Date is taken directly from the value of eTimes.02 in
          the ePCR record. https://nemsis.org/media/nemsis_v3/release-
          3.4.0/DataDictionary/PDFHTML/DEMEMS/sections/elements/eTimes.02.xml
     b.   The Submission Date is the date the ePCR record was submitted to the NEMSIS TAC
          via web services

USING YOUR DASHBOARD

Once you have selected a dashboard and logged in you are ready to explore.

Tabs enable you to switch dashboard views with a click.

Filters enable you to narrow your focus by choosing additional criteria for your data.

Clicking on the label in a visualization is another way to filter your data.

The **Toolbar** enables you to revisit your choices, download your dashboard or share with others.

Undo & **Redo** steps backward or forward through changes.
Revert wipes out all of your changes.

Pause & **Refresh** stop and start dashboard refreshes while you make multiple filter selections.

View: Save your filter selections for later
Alert: Create triggered emails
Subscribe: Receive your dashboard as an email
Share: Send your dashboard
Download: Export your dashboard
Full Screen: Fill the screen with your dashboard

EMS SERVICE AREA

The purpose of the NEMSIS V3 Agency Service Area Builder is to enable EMS agency administrators to correctly document the following data elements in their NEMSIS V3 agency demographic data:

- dAgency.05 - EMS Agency Service Area States
- dAgency.06 - EMS Agency Service Area County(ies)
- dAgency.07 - EMS Agency Census Tracts
- dAgency.08 - EMS Agency Service Area ZIP Codes

The purpose of the Builder *is not* to identify the precise boundary of an EMS agency service area. Instead, its purpose is to identify all census tracts and ZIP codes (and, by extension, counties and states) that intersect, or overlap, an agency's service area. Thus, even if an agency serves only a portion of a particular census tract, the Builder identifies that census tract as part of the service area.

Once you have built a service area using the Builder, you can enter the service area information into your NEMSIS-compliant ePCR software or download the service area information for future reference.

Accessing the State Data Set Builder

The NEMSIS V3 Agency Service Area Builder is available online at www.nemsis.org/media/serviceareabuilder. It is web-based. It works with all currently supported versions of web browsers. (For Internet Explorer, version 10 or higher is required.)

If you choose to share your location, the Builder will initially center the map on your location. You can pan and zoom the map as needed using the usual Google Maps features.

Building a Service Area

The toolbar at the top of the map provides the following features to help you build your service area:
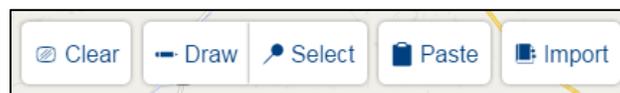
As you use the tools to build your service area, the service area will be highlighted on the map, and information regarding the identified service area will be listed on the left side of the screen.

Clear

If you built a service area and wish to start over, the Clear button will completely clear all information about your service area in the Builder, resetting the Builder to a clean slate.

Draw

Toggle the Draw button to enable the drawing tool. Then click/tap on the map to set each point of the outline.

Click/tap again on either the first point or the last point to complete the outline. When you complete the outline, the Builder will identify all census tracts, ZIP codes, counties, and states that overlap the shape you drew. It will highlight the census tracts on the map. Then it will remove the specific shape you outlined.

Select

Toggle the Select button to enable the selection tool. Then click/tap on the map to select areas to add to your service area. When you click/tap, an "Add" menu will appear:
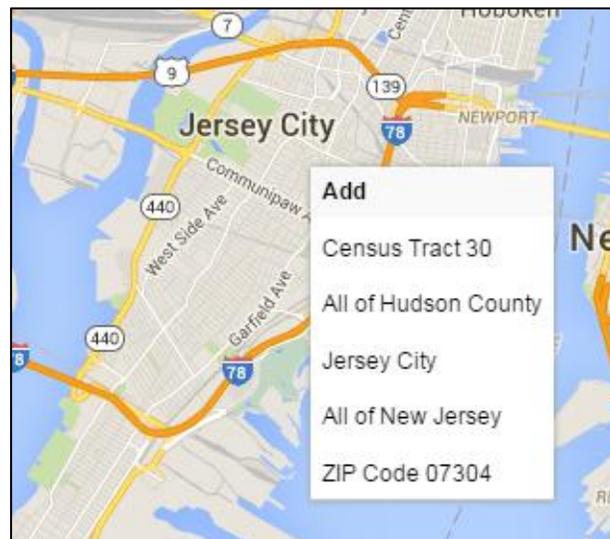
Select an item on the menu, and the Builder will identify all census tracts, ZIP codes, counties, and states that overlap the item you chose. It will highlight the census tracts on the map.

To remove areas from your service area, click/tap on an area that is already highlighted as part of the service area. A "Remove" menu will appear. Select an item on the menu, and the Builder will remove the census tracts, ZIP codes, counties, and states that overlap the item you chose.

Paste

Select Paste to open the Paste dialog. Using the Paste dialog, you can manually add areas to your service area by typing or by copying and pasting from a list that you already have. First, select the type of list you will be providing:
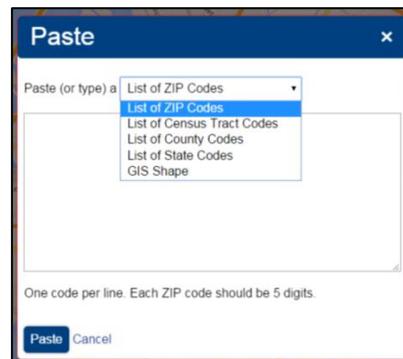
Then, paste or type your list of codes:
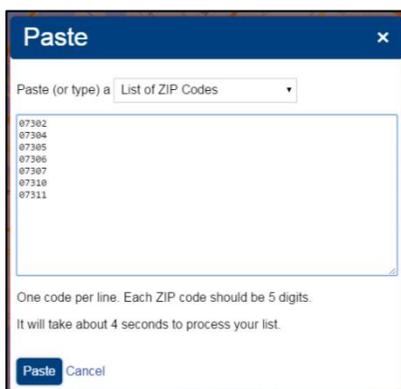
Select Paste at the bottom of the Paste dialog, and the Builder will identify all census tracts, ZIP codes, counties, and states that overlap the codes on your list. It will highlight the census tracts on the map.

If you choose to paste a "GIS Shape", the GIS shape should be a single polygon in well-known text (WKT) format.

Import

Select the Import button to import service area information from a NEMSIS V3 DEMDataSet XML file (or a file previously generated by the Service Area Builder). Select the file on your computer/device:
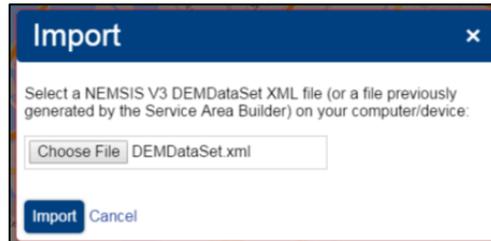
Select Import, and the Builder will import the information in the file. It will highlight the census tracts on the map.

If your DEMDataSet XML file contains more than one agency, the Builder will only import the first agency's service area information.

If the imported file contains census tract information, the Builder will ignore the ZIP code information. Instead it will add all Zip codes that it knows to overlap with the census tracts listed in the imported file. If the imported file does not contain census tract information, it will use the ZIP code information to identify all census tracts that overlap with the ZIP codes listed in the file. If the imported file only contains state and county information, nothing will be imported.

Viewing the Code List for Your Service Area

While you are building your service area on the map, the Builder maintains a list of all areas that are included in your service area. The list appears on the left side of the screen once you have added at least one area to your service area. The list is organized by state. Within each state, the Builder displays all counties, census tracts, and ZIP codes that are part of your service area. Select ► or ▼ to show or hide a list.
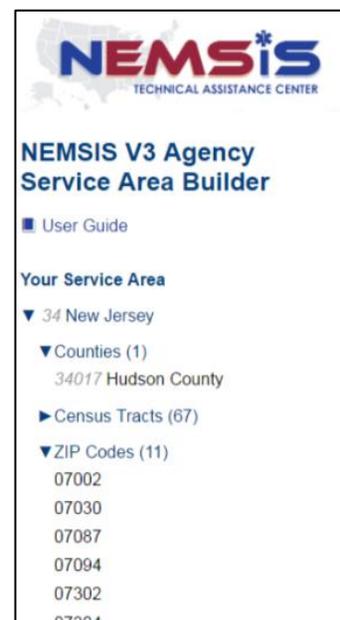
Viewing Census Statistics for Your Service Area

At the bottom of the service area list on the left side of the screen, the Builder includes a section titled "Census Statistics." Select ► or ▼ to show or hide a list of statistics from the US Census Bureau about your service area. The statistics are updated as you modify your service area. The statistics come from the Decennial Census and the American Community Survey. Hover over each statistic for information about its definition and data source.

▼ Census Statistics	
Area	21 sq mi
Population	247,597
Population Density	16,736.7 / sq mi
Under Age 18	21%
Age 65+	9%
Poverty	19%
Uninsured	20%
Disabled	10%

Remember that the purpose of the Builder *is not* to identify the precise boundary of an EMS agency service area. Instead, its purpose is to identify all census tracts that intersect, or overlap, an agency's service area. The Census statistics reflect the entirety of all census tracts identified in the agency's service area, even though the agency may serve only portions of some census tracts. As a result, the area and population reported by the Builder may be larger than the actual area and population served by the agency.

You may use the area and population information to record dAgency.16 Total Primary Service Area Size and dAgency.17 Total Service Area Population in your agency demographic data.

Printing Service Area Information

Select the Print button to print your service area information. The printout will include the lists of census tracts, ZIP codes, counties, and states in your service area, as well as a map highlighting your service area.

Downloading the Service Area Code List

Select the Download button to download your agency service area information. The download is an XML file containing the NEMSIS V3 dAgency.AgencyServiceGroup structure as found in NEMSIS DEMDataset XML files. The XML data is not a complete NEMSIS agency demographic data file. It only contains service area information. To import the information into a NEMSIS V3 software product, you will need to copy the XML data into an existing NEMSIS V3 agency demographic data file and then import that file.

Frequently Asked Questions

When I access the NEMSIS V3 Agency Service Area Builder, I see an error message saying that something went wrong. What should I do?

You may see a message saying, "Something went wrong. Try reloading. If that doesn't work, please contact the NEMSIS TAC." Generally, the message means that the Builder was unable to access all of the resources that it needs in order to work correctly. If the problem persists after you try the Reload button, please contact the NEMSIS TAC, and staff will help you to troubleshoot the problem.

Why does the NEMSIS V3 Agency Service Area Builder highlight a larger area than the outline I drew for my service area?

The purpose of the Builder *is not* to identify the precise boundary of an EMS agency service area. Instead, its purpose is to identify all census tracts and ZIP codes (and, by extension, counties and states) that intersect, or overlap, an agency's service area. Thus, even if an agency serves only a portion of a particular census tract, the Builder identifies that census tract as part of the service area.

Can I include areas that are outside the U.S. in my service area?

No. The NEMSIS V3 standard only supports areas within the U.S. for defining an agency service area.

ZIP Codes aren't purely geographical. How does the NEMSIS V3 Agency Service Area Builder figure out ZIP code coverage?

The Builder uses ZIP Code Tabulation Area (ZCTA) data from the U.S. Census Bureau, which are generalized geographical representations of United States Postal Service (USPS) ZIP Code areas.

I'm a software developer. Can I build my own app that accesses the same data used by the NEMSIS V3 Agency Service Area Builder?

Yes. The Builder is supported by a publicly available REST web service maintained by the NEMSIS TAC and publicly available REST web services maintained by the US Census Bureau. Contact the NEMSIS TAC for more information.

DATA DICTIONARY

Where do I find the Data Dictionary?

v3.4.0

Go to https://www.nemsis.org, in the main menu hover over Technical Resources then click Data Dictionary/XSD in the left column, second item from the top.
The v3.4.0 data dictionary is at the top of that page. You can choose between the PDF and the Web version.

WHAT IS NEMSIS	USING EMS DATA	VIEW REPORTS	CALLS AND TRAININGS	TECHNICAL RESOURCES
COMPLIANCE			COMPLIANT SOFTWARE TESTING STATUS	
DATA DICTIONARIES & XSD			MAPPING/TRANSLATION	
FREQUENTLY ASKED QUESTIONS			NATIONAL CUSTOM ELEMENT LIBRARY	
NATIONAL REQUISITE ELEMENTS			RESOURCES	
RESOURCE REPOSITORY			EMS AGENCY SERVICE AREA BUILDER	
ARCHIVE			SCHEMATRON	
WEB SERVICES			GUIDES & USAGE	
V2 DATASET DICTIONARIES			FORUM	

v3.5.0

Click the link on the homepage below the banner, "v3.5.0 Candidate Release is available here", the click "View the Candidate Release here", and the button for the Data Dictionary is at the top of the page. You can choose between the PDF and the Web version.

Careful consideration of posted requests for revisi
Implementation meeting, and continue through bi
calls.

VIEW THE CANDIDATE RELEASE HERE

WHY MOVE TO V3.5.0?
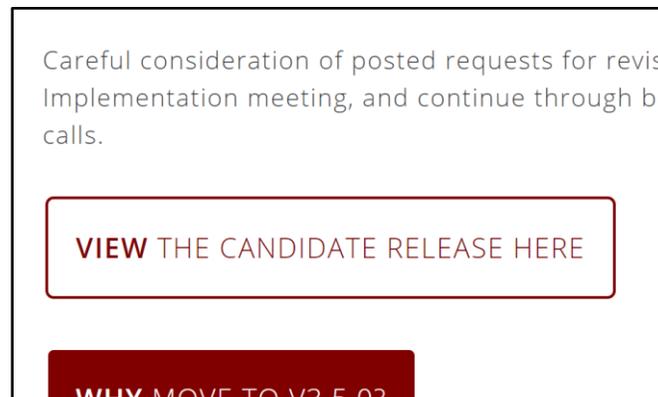
Pertinent Negatives and Not Values

Not every EMS activation requires all the same data elements to be recorded. Sometimes an element is not applicable to a call or the clinician leaves a field blank that should have an answer. This is where Pertinent Negatives (PN) and Not Values (NV) come into play.

Pertinent Negative and Not Value Example

In eProcedures.03, a procedure may be <u>Denied by Order</u> (PN), or a procedure generally required by protocol was <u>Not Applicable</u> (NV), or the field may have been left blank and the EMS software auto-populates <u>Not Recorded</u> (NV) and the element itself is left blank.

			eProcedures.03
		State	National

eProcedures.03 - Procedure

Definition
The procedure performed on the patient.

National Element	Yes	Pertinent Negatives (PN)	Yes
State Element	Yes	NOT Values	Yes
Version 2 Element	E19_03	Is Nillable	Yes
Usage	Required	Recurrence	1 : 1

Associated Performance Measure Initiatives
Airway   Cardiac Arrest   Pediatric   STEMI   Stroke   Trauma

Attributes

NOT Values (NV)
7701001 - Not Applicable   7701003 - Not Recorded

Pertinent Negatives (PN)
8801001 - Contraindication Noted   8801003 - Denied By Order   8801019 - Refused
8801023 - Unable to Complete   8801027 - Order Criteria Not Met

Pertinent Negatives

Pertinent Negatives are used to document why you did <u>not</u> do something. This occurs in two ways:
- Example: A patient has chest pain, and there is a protocol for chest pain that indicates aspirin should be administered, but the patient has already taken it prior to EMS arrival. Document "Aspirin" for eMedications.03 – Medication Given, with the PN "Medication Already Taken".
- Example: A patient is encountered at the scene, but refuses to give their name. The value for ePatient.02 – Last Name is left blank, with the PN "Refused" recorded.

For many elements PNs only work one way, i.e. either with or without a valid value. Some elements allow both ways, for example, in v3.5.0 for eSituation.01 – Date/Time of Symptom Onset
- Example: The patient is asked when their symptoms began, and they respond "yesterday morning". Document the time 5/21/2019 09:00, with the PN "Approximate"
- Example: A patient is encountered, but they are unconscious. The value for symptom onset is left blank, with the PN "Unable to Complete"

Not Values

In the NEMSIS standard, "Required" elements have either a real value or a Not Value.

> Type of Not Values
> Not Applicable: The data element is not applicable or pertinent.
> Not Recorded: The data element is considered applicable, but was left blank. The software should auto-populate it with "Not Recorded".
> Not Reporting: The data element is not collected by the EMS agency or state. This NOT value does not apply to National elements where Usage is specified as "Required".

Here's an easy example: EMS responds to a call, but there is no patient contact made.
For the Required element ePatient.07- Patient's Home County, the software should auto-populate "Not Applicable" for the Not Value based on the fact that the Disposition indicates no patient was found.

Custom Elements

Custom elements allow you to extend the NEMSIS standard to collect any additional relevant data for your State (or locality). They are built into the NEMSIS standard, and compliance testing so that all software will support their implementation.
All NEMSIS compliant software will allow you to add any custom elements you wish. States can provide custom elements to agencies via the State Data Set.

Examples of Custom Elements

A Completely New Element

itOutcome.020 (used in NY and NV) "An indication if the patient will need to be followed up by the community paramedic."
Two values choices: Yes or No.

A Modification of an Existing Element

eResponse.05 modification (used in NH) adds four new value choices to the element to extend the element eResponse.05 - Type of Service Requested.

Code	NEMSIS Code	Description
it2205.104	2202005	Interfacility Transfer (PIFT/Paramedic)
it2205.116	2205005	Interfacility Transfer (CCT/AMT)
it2205.117	2205011	Bariatric Transport or Special Equipment Delivery
it2205.118	2205011	MIHC/Community Paramedicine

When extending Mandatory or Required elements, the new values must roll up to standard NEMSIS values for national reporting. This is what the NEMSIS code is in the above table.

Best Practices for Custom Elements

We recommend you avoid creating too many custom elements, as it can become cumbersome for both data entry and software implementation.

Before creating new elements consider checking the Custom Elements Library to see how others are solving similar data collection situations across the country.

The Custom Elements Library can be found on the NEMSIS website under Technical Resources, in the right column "National Custom Elements Library".

WHAT IS NEMSIS	USING EMS DATA	VIEW REPORTS	CALLS AND TRAININGS	TECHNICAL RESOURCES
COMPLIANCE			COMPLIANT SOFTWARE TESTING STATUS	
DATA DICTIONARIES & XSD			MAPPING/TRANSLATION	
FREQUENTLY ASKED QUESTIONS			NATIONAL CUSTOM ELEMENT LIBRARY	
NATIONAL REQUISITE ELEMENTS			RESOURCES	
RESOURCE REPOSITORY			EMS AGENCY SERVICE AREA BUILDER	
ARCHIVE			SCHEMATRON	
WEB SERVICES			GUIDES & USAGE	
V2 DATASET DICTIONARIES			FORUM	

Schematron

What is Schematron?

Schematron is a rule-based language for XML document validation. Schematron is an international standard defined in ISO/IEC 19757-3(2006).

It is another type of validation used for NEMSIS XML files, performed after XML schema validation (XSD validation).

Schematron is more dynamic than XML schema validation, allowing for more complex rules and implementation of rules.

The Power of Schematron

Schematron allow us to have three levels of errors: **[FATAL], [ERROR],** and **[WARNING]**.

FATALs are used for problems that would affect an entire file/submission, e.g. a problem in the header or custom element configurations.

ERRORs are used for problems that are most likely caused by a software bug, e.g. failure to auto-populate a Not Value.

WARNING errors are used for problems that are most likely caused by user entry, e.g. times entered are out of order.

Part of the power of Schematron lies in its ability to allow data to move along, even if it has WARNINGs.

Receiving these records is useful to help study, troubleshoot, and prevent future WARNINGs and improve data quality. For example, the NEMSIS TAC provides dashboards to State Representatives to showcase what WARNINGs are occurring across different software products, versions, and agencies among other filters.

More information on the more technical aspects on Schematron can be found on the NEMSIS website under Technical Resources.

Upcoming Schematron Changes

The NEMSIS TAC has released a Schematron update for v3.4.0, and a candidate Schematron for v3.5.0. Both of these relax many of the ERRORs present in previous rule sets, and increase precision among WARNINGs.

The v3.5.0 changes also make the rules more atomic, i.e. there are more rules in the v3.5.0 Schematron schema, but each rule has a smaller scope.

Detailed descriptions of the changes to the National Schematron can be found on the NEMSIS website:

v3.4.0

Schematron changes can be found on the Schematron page under Technical Resources.

v3.5.0

Schematron changes can be found under "View the Candidate Release" on the v3.5.0 page.

EMS Performance

What is the EMS Performance Measure Service?

It's a way for software vendors to query benchmarking data from the national repository. The available performance measures were defined by the EMS Compass initiative. More information about EMS Compass is available at https://www.nasemso.org/projects/ems-compass. Information about the successor to EMS Compass, the National EMS Quality Alliance (NEMSQA), is available at http://www.nemsqa.org.

Your EMS software can use this national data to benchmark your state (or an agency, in the case of collect data software) against the nation for the defined measures. The graph below is an example of how a software program might report these benchmarks:
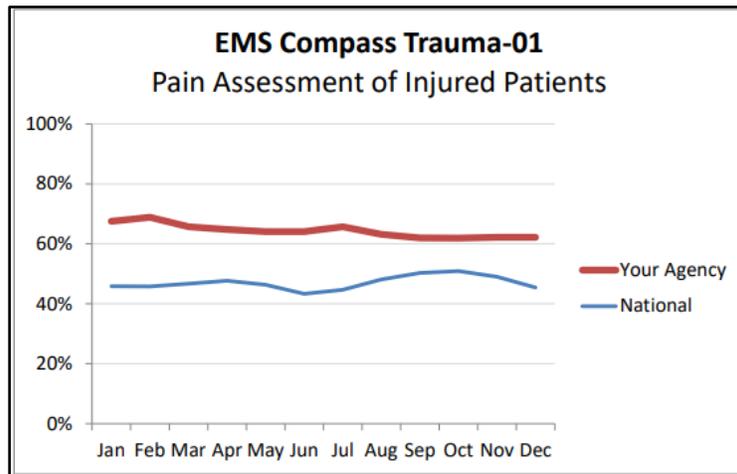
The service provided by the NEMSIS TAC allows vendors to pull down benchmarking data segmented and filtered along many different parameters:

- Geography
- Urbanicity
- Organization Status
- Organizational Type
- Level of Care
- EMS Patient Contact Volume
- Calendar Year
- Calendar Month

More information, including full technical details of the EMS Performance Measures service, and a publicly available Tableau dashboard, can be found on the NEMSIS website.
The web service details are on the "Web Services" page under "Technical Resources", and the dashboard is on our "Public Reports" page.

STATE DATA SET BUILDER

The State Data Set Builder is a UI tool to help State Data Managers build their State Data Set files. EMS agencies and their software vendors must have certain information about their state's EMS practice requirements available in order to accurately configure their patient care reporting software to meet state requirements. The NEMSIS Technical Assistance Center (NEMSIS TAC) has created a StateDataSet XML Schema (XSD) to provide a consistent format in which to share NEMSIS V3 state-specific information. Vendors are not required to support StateDataSet in their version 3.3.4 or v3.4.0 software, however, this feature will be required in the compliance process for version 3.5.0. The advantages of using the StateDataSet include:

- StateDataSet files can be validated using the NEMSIS StateDataSet XSD.
- StateDataSet files can be easily processed by systems.
- StateDataSet files can be easily viewed online in human-readable form.
- StateDataSet is based on the core NEMSIS V3 XSDs.

StateDataset files contain the following nine sections to ensure standardization of the following state or territory information:

1. State/Territory
2. Custom Data Elements
3. State Required Elements
4. State Certification/Licensure Levels
5. Procedures Permitted by the State
6. Medications Permitted by the State
7. Protocols Permitted by the State
8. EMS Agencies
9. Facilities (hospitals, etc.)

Locating the State DataSet Builder

From the any page on the NEMSIS website, click on the navigation menu header titled "View Reports", then select the title "State Dataset Builder".
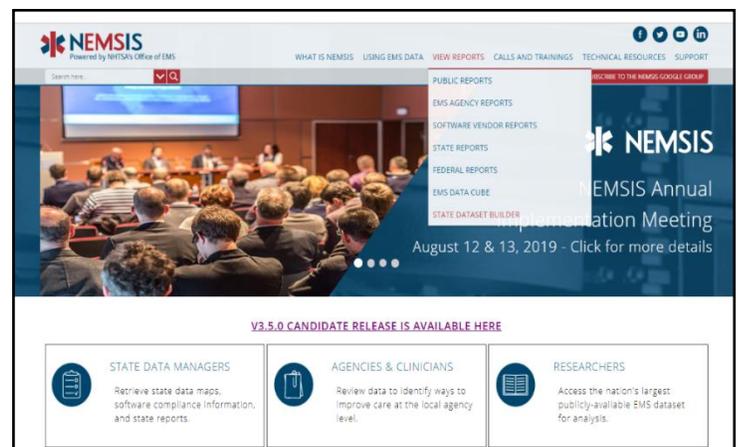
Options on the State Dataset Builder page:

1. A link to access the NEMSIS V3 Dataset Builder
2. A link to the State Data Manager User Guide (pdf)
3. A Training Webinar (video)
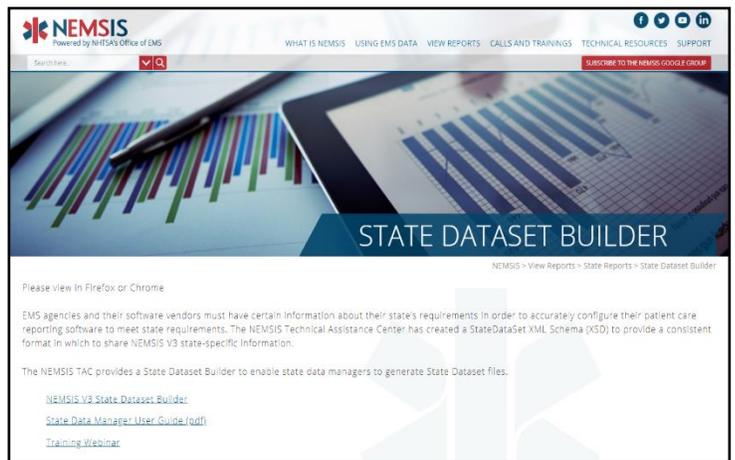
State/Territory Information. Select your state in the drop-down list.
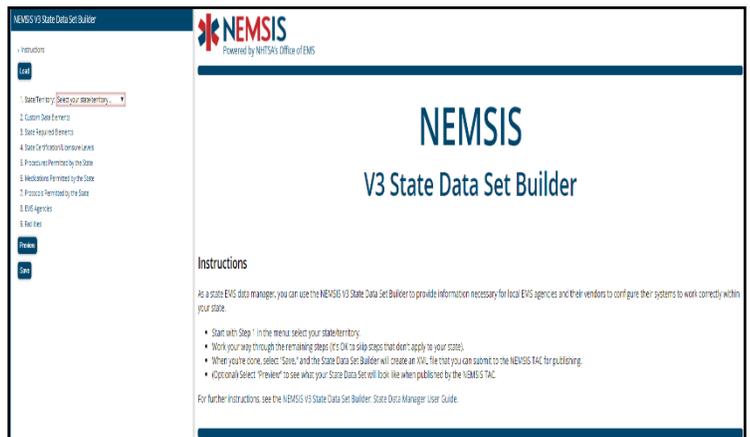
Verify if you want to load a file from another state or your state information from the NEMSIS Repository.
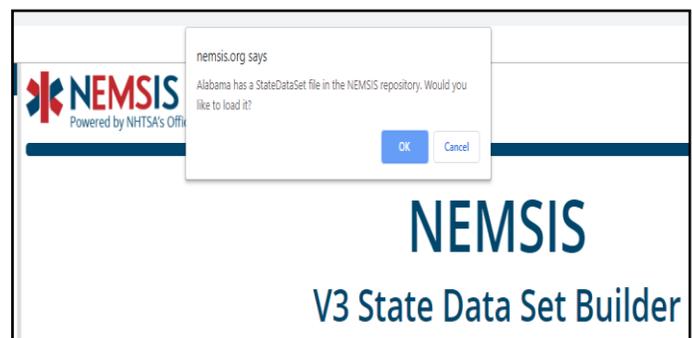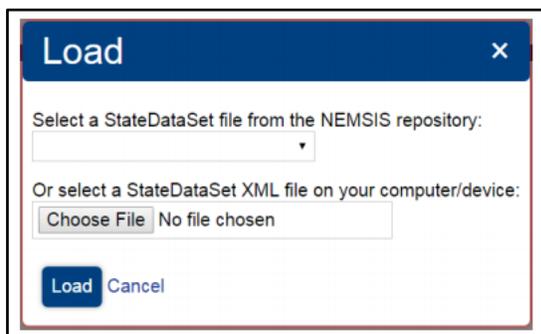
Create your custom elements or copy elements from another state.

Custom Elements are created to collect information not formally defined in the NEMSIS v3 data dictionary.

Custom Data Elements

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

Demographic Custom Elements

| Import | Remove All |

ID	Title	Extends	Grouping ID
... ID	Title	NEMSIS Element ▾	Grouping ID

EMS (PCR) Custom Elements

| Import | Remove All |

ID	Title	Extends	Grouping ID
... ID	Title	NEMSIS Element ▾	Grouping ID

Enter your state required elements.

This information is necessary so that your software vendors know which elements to turn on in their software.

State Required Elements

Indicates which elements are required by the state.

Select: | Import | All | State Recommended | National | None |

AS	N	S	Element Number	Element Name
☐			dState.01	State Required Element
☐			dCustomConfiguration.01	Custom Data Element Title
☐			dCustomConfiguration.02	Custom Definition
☐			dCustomConfiguration.03	Custom Data Type
☐			dCustomConfiguration.04	Custom Data Element Recurrence
☐			dCustomConfiguration.05	Custom Data Element Usage
☐			dCustomConfiguration.06	Custom Data Element Potential Values
☐			dCustomConfiguration.07	Custom Data Element Potential NOT Values (NV)
☐			dCustomConfiguration.08	Custom Data Element Potential Pertinent Negative Values (PN)
☐			dCustomConfiguration.09	Custom Data Element Grouping ID
☑	N	S	dAgency.01	EMS Agency Unique State ID
☑	N	S	dAgency.02	EMS Agency Number
☑		S	dAgency.03	EMS Agency Name
☑	N	S	dAgency.04	EMS Agency State

Enter your state Certification/Licensure Levels.

Selection of this information helps state managers appropriately align EMS personnel with the medications they can administer and the procedures they can perform.

State Certification/Licensure Levels

All of the potential levels of certification/licensure for EMS personnel recognized by the state.

Select: | Import | All | National Education Standards | None |

AS	Code	Description
☑	9911001	2009 Advanced Emergency Medical Technician (AEMT)
☑	9911003	2009 Emergency Medical Responder (EMR)
☑	9911005	2009 Emergency Medical Technician (EMT)
☑	9911007	2009 Paramedic
☐	9911009	EMT-Basic
☐	9911011	EMT-Intermediate
☐	9911013	EMT-Paramedic
☐	9911015	First Responder
☐	9911019	Other
☐	9911021	Physician
☐	9911023	Critical Care Paramedic
☐	9911025	Community Paramedicine
☐	9911027	Nurse Practitioner
☐	9911029	Physician Assistant

Enter your Procedures Permitted by the State.

This information can help ensure that EMS personnel are compliant in performing only the procedures allowed for their certification/licensure levels.

Procedures Permitted by the State

A list of all of the procedures permitted by the state.

| Import |

Code	Description	2009 Advanced Emergency	2009 Emergency Medical R	2009 Emergency Medical T	2009 Paramedic
		All	All	All	All
		None	None	None	None
268400002	12 lead electrocardiogram	All None ☐	☐	☐	☐
429163003	15 lead electrocardiographic monitoring	All None ☐	☐	☐	☐
425808002	18 lead electrocardiographic monitoring	All None ☐	☐	☐	☐

Enter your Medications Permitted by the State.

This information can help create better controls that prohibit EMS personnel from administering medications outside of their certification/licensure levels.

Enter your Protocols Permitted by the State.

Some states do not regulate protocols, but may promote the use of certain protocols and they may have different names across the states. The goal of this information is to help establish consistency across the U.S. in the way protocols are defined.

Enter your EMS Agencies.

Completion of this information is necessary to auto-populate the demographic information needed in the patient care records.

Enter your Facilities.

This section allows you to provide the specific list of facilities that you require or would encourage agencies to use and it drives the correctness of the information that is recorded in the patient care reports.

STATE DATA CUBE

Differences Between Public and State EMS Data Cube

A. The State EMS Data Cube offers additional elements and values:
   a. Locations
   b. Agency Specific
   c. Destination Zip Codes

State Specific Information
- ☐ ⊞ Destination Location
- ☐ ⊞ Incident Location
- ☐ ⊞ Patient Location
- ☐ ⊞ Submitting State
- ☐ ⊞ EMS Agency Organization Tax Status
- ☐ ⊞ EMS Agency Home State
- ☐ ⊞ EMS Agency Number
- ☐ ⊞ Destination Zipcode

Data Request: Defining the Query

A. Identify applicable elements that may add insight to your query.

- ⊟ Measures
  - ⊞ Summary Measures
- ⊞ Cardiac Arrest Elements
- ⊞ Cardiac Arrest Elements - Arrest Witnessed By
- ⊞ Cardiac Arrest Elements - CPR Type
- ⊞ Cardiac Arrest Elements - Destination Cardiac Rhythm
- ⊞ Cardiac Arrest Elements - Resuscitation Attempted
- ⊞ Dates-Times - Unit Notified by Dispatch Date Times
- ⊞ EMS Response
- ⊞ EMS Response - Additional Response Mode Descriptors
- ⊞ EMS Response - Delay Categories
- ⊞ EMS Scene Information
- ⊞ EMS Scene Information - Alcohol-Drug Use Indicator
- ⊞ EMS Scene Information - Barriers to Patient Care
- ⊞ EMS Unit Agency Information
- ⊞ EMS Unit Dispatch Information
- ⊞ Geographic Region of Destination
- ⊞ Geographic Region of Incident
- ⊞ Geographic Region of Patient Home

- ⊞ Injury Information - Injury Cause ICDs
- ⊞ Injury Information - Trauma Center Criteria
- ⊞ Injury Information - Vehicular Indicator
- ⊞ Medication Information
- ⊞ Medication Information - Medication Complication
- ⊞ Patient Billing Information
- ⊞ Patient Demographics
- ⊞ Patient Demographics - Race
- ⊞ Patient Disposition
- ⊞ Patient Disposition - Additional Transport Mode Descriptors
- ⊞ Patient Disposition - Destination Team Pre-Arrival Alert or Activation
- ⊞ Patient Disposition - Reason for Choosing Destination
- ⊞ Patient Situation
- ⊞ Patient Situation - Patients Other Associated Symptoms
- ⊞ Patient Situation - Providers Secondary Impression ICDs
- ⊞ Patient Vitals
- ⊞ Patient Vitals - Cardiac Rhythm - Electrocardiography ECG
- ⊞ Patient Vitals - Method of ECG Interpretation
- ⊞ Procedure Information
- ⊞ Procedure Information - Procedure Complication
- ⊞ Protocol Information
- ⊞ State Specific Information

B. Clarify the Data
   a. Define the parameters of the query.
   b. Identify elements and values that contribute.
   c. Remove elements and values that distract or confuse by filtering out extraneous information.
   d. Create list of codes for large datasets:
      i. ICD-10
      ii. RxNORM
      iii. SNOMED

Filter Rows

MDX | Text

InStr(1, [Patient Situation].[Primary Impression ICD 10].CurrentMember.Name, "T67") <> 0

Primary Impression ICD 10 ▾

containing ▾ | T67 | >

Delete | OK | Cancel

NEMSIS V3 Restricted - 2017 through Present

Search

☐ 📋 Patient Situation
  ☐ ⊞ ▦ Chief Complaint Anatomic Location
  ☐ ⊞ ▦ Chief Complaint Organ System
  ☐ ⊞ ▦ Initial Patient Acuity
  ☐ ⊞ ▦ Possible Injury
  ☐ ⊟ ▦ Primary Impression ICD Name
    ☑ • Primary Impression ICD Name
  ☐ ⊟ ▦ Primary Impression ICD 10
    ☑ • Primary Impression ICD 10

Primary Impression ICD Name	Primary Impression ICD 10	Count of Events
Effect of heat and light, unspecified, initial encounter	T67.9XXA	5
Heat cramp	T67.2	14
Heat cramp, initial encounter	T67.2XXA	16
Heat exhaustion, unspecified, initial encounter	T67.5XXA	162
Heat prostration NOS	T67.5	2,100
Heat syncope	T67.1	11
Heatstroke and sunstroke, initial encounter	T67.0XXA	6
Thermoplegia	T67.0	322

C. Exporting the Data
   a. The data you see on the screen in the results are is what will be exported.
   b. Error code on the left is being addressed. Just ignore it!

Support Tools

A. EMS Data Cube Primer video series on NEMSIS YouTube channel
   a. Short tutorials for EMS Data Cube navigation
   b. https://nemsis.org/view-reports/public-reports/ems-data-cube/
B. Suggested Lists
   a. V3 Suggested Lists
   b. https://nemsis.org/technical-resources/version-3/version-3-resources/
C. Data Dictionary – Public and State
   a. NEMSIS v3 Data Dictionary
   b. https://nemsis.org/technical-resources/version-3/version-3-data-dictionaries/

EMS DATA CUBE ICON GLOSSARY

ICON	NAME	DESCRIPTION
	New Report	Resets the application to the initial state so that a new query can be created
	Connect to Cube	Opens the Connect to Cube Dialog Box
	Save Report	Saves a new or existing report
	Open Report	Open a saved report
	Field List	Shows the list dimensions, levels, and measures for the cube selected in the connection panel
	Chart	Show a number of charts for the report. The chart will be interactive if the drill down or expand mode is selected
MDX	MDX	Shows the underlying MDX statement for the selected query. One can "build", manually modify and then "execute" a statement. The MDX statement will not be saved if a query filter is selected.
	Switch Axis	Move dimensions on rows to columns and those on columns to rows
	Expand/ Drill Down/ Expand All	Select a navigational mode. Expand mode is enabled by default
	Filter Rows	Opens the filter rows dialog box allowing you to filter the data displayed in the row area of the chart—such as removing the "NOT" values from the table
	Show Only Top	Show Top number, Top Percent, Sum of cells limit, Bottom number, Bottom Percent, Sum of cells limit
%	Add Percent of Total Measures	Add Percent of Total, Percent of Filtered Result, Percent of Dimension, Percent of Parent
	Sparkline	Line chart that depicts the general trend of data without axes or coordinates
	Add Calculated Field	Add a calculated field to measures
{..}	Add Named Set	Add, change, or delete named set for report
A	Theme	Change the colors of the table in the cube
	Conditional Formatting	Apply conditional formatting to cells that fall within a given value range
	Options	Set report options such as show/hide empty items, rows, and columns summary
	Zoom	Allows scaling of the results table before it is printed or to facilitate on-screen readability
	Export	Export the result table including Excel, PDF, or HTML
	Print Data	Print what is visible in the Results Area
	Break results into pages	If a query returns too many rows, the query can be broken down into pages

*Icon Names in **BOLD** are the most commonly used functions.

NAVIGATING THE CUBE

Once you have accessed the EMS Data Cube and are ready to process your query, this is main workbook area:

Results are displayed in this area.

NEMSIS V3 Restricted - 2017 through Present

Search

Year - Week - Day	Count of Events
⊟ All	337,060
⊞ 2017	135,629
⊞ 2018	135,110
⊞ 2019	66,321

⊟ Measures
  ⊟ 📁 Summary Measures
    ☑ Count of Events

Measures are the numerical count of EMS events in the database selected.

⊞ Cardiac Arrest Elements
⊞ Cardiac Arrest Elements - Arrest Witnessed By
⊞ Cardiac Arrest Elements - CPR Type
⊞ Cardiac Arrest Elements - Destination Cardiac Rhythm
⊞ Cardiac Arrest Elements - Resuscitation Attempted
⊞ Dates-Times - Unit Notified by Dispatch Date Times

Elements describe aspects of the data.

⊞ EMS Response
⊟ EMS Response - Additional Response Mode Descriptors
  ☐ ⊞ Mode Descriptor

Variables that have categories.

⊟ EMS Response - Delay Categories
  ☐ ⊞ Delay Hierarchies

Hierarchies are variables with a parent-child relationship.

Rows
Year - Week - Day

Σ Measures
Count of Events

Rows: Elements are automatically placed here when selected. You can also drag an element to this area.

Measures: Automatically placed here when selected.

Filters

Columns

Filters: Refine your query by filtering the values of an element. See the filter tool bar in the Results Area.

Columns: Dragging an element here places it on the horizontal axis in the results area.

COMPLIANCE

What does NEMSIS Compliance mean

The following is listed in our Compliance materials as the full requirements:

Collect Data
- The full NEMSIS v3 Demographic standard is implemented in the user interface.
- The full NEMSIS v3 EMS standard is implemented in the user interface.
- The software is capable of implementing custom elements as provided in the test cases.
- XML Schema (XSD) validation is used when a Demographic record is finalized.
- XML Schema (XSD) validation is used when an EMS record is finalized.
- Schematron validation is used for business rules when a Demographic record is finalized.
- Schematron validation is used for business rules when an EMS record is finalized.
- The software is able to validate data using multiple Schematron files (national, state, etc.).
- The software is able to properly submit data using the NEMSIS v3 Web Service standard.

Receive and Process
- The software is able to properly interoperate using the NEMSIS v3 Web Service standard.
- The software is able to receive Demographic and EMS data.
- The software is able to send Demographic and EMS data—national elements only.
- XML Schema (XSD) validation is used when Demographic and EMS data are received.
- Schematron validation is used for business rules when Demographic and EMS data are received.
- The software is able to validate received data using multiple Schematron files (national, state, etc.).

What does NEMSIS Compliance mean? (in a nutshell)

- Software has been tested by the NEMSIS TAC to conform to the NEMSIS Standard (XML schema, schematron, use of web services)
- Only software solutions that have tested compliant with the NEMSIS TAC are permitted to contribute to the national EMS repository.
- Look for these logos:

How do we test software for Compliance?

- Collect Data vs. Receive and Process.
- Pre-Testing vs. Active Testing.
- Six test cases: One demographic file, five ePCR records.
- Dynamic implementation of schematron.
- Implementation of NEMSIS XSDs.
- Ability to submit or receive via web services.
- XML schema and schematron validation completed at every juncture!

What do we NOT test for?

- Overall design, or Graphical User Interface (GUI).
- Ease of use, i.e. date entry, error correction, submission of records.
- Comprehensive bug testing.
- Schematron rule collisions between different rule sets (National, State, etc.).

Changes for v3.5.0?

- StateDataSet use will become mandatory.
- StateDataSet can be sent to the NEMSIS TAC via web services.
- Mostly, compliance will remain the same!

For more information on Compliance, visit the "Compliance" page of the NEMSIS website. You can find it under Technical Resources in the main menu (circled in red below):
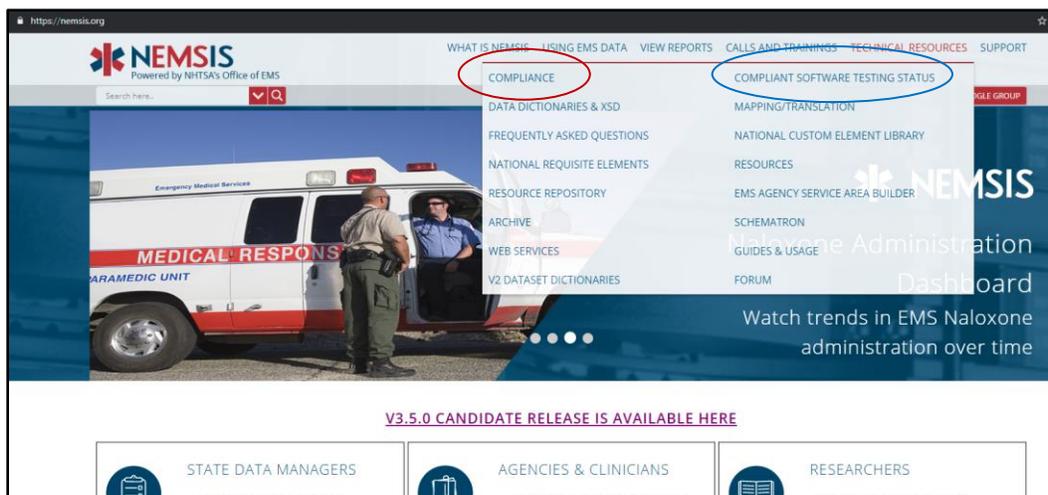
The Compliance page offers several documents that give a general overview of what we test for and how we test it. There is also some technical information intended for vendors who are interested in testing with us, such as test cases, testing web services, and code samples.

The Compliant Software Testing Status page (circled in blue above), provides information on what Vendors have completed or are in the process of completing NEMSIS compliance testing. It also includes information on what version was tested and when. This resource can be helpful to those seeking an ePCR product, and is the most up-to-date listing of NEMSIS-compliant products.

You may notice that there are a large number of items under the "Technical Resources" menu on the NEMSIS website. Please consider this section of the site your one-stop-shop for technical questions. Under the different sections we offer documentation on many complex topics such as Schematron or Web Services designed to help you understand the more technical aspects of the NEMSIS v3 standard. Utilizing this section of the site can help you navigate many technical issues that may arise.

If you have any questions about Compliance, or the Technical Resources available on the NEMSIS website, please feel free to contact me at laurel.baeder@hsc.utah.edu.

Monthly Training

What to expect?

- Training is held once a month for all who are interested (state officials, EMS, researchers, the general public, etc).
- Training topics will vary, usually involving different NEMSIS TAC offered dashboards, reports, or other tools.
- You can receive advance notice of training topics by joining our Google Group mailing list.

Upcoming Training Sessions

Date	Topic	Presenter
Sept 3	Overview of Changes to v3.5.0	Clay Mann, Laurel Baeder, Josh Legler
Oct 1	Software Compliance	Laurel Baeder
Nov 5	Tableau How-To Tableau User Tool Bar	Kevin White
Dec 3	Flu Surveillance	Laurel Baeder

NEMSIS Google Group

What is the NEMSIS Google Group?

- We use the NEMSIS Google Group as our mailing list.
- It is the fastest way to find out about upcoming trainings, implementation calls, state resource changes, as well as new dashboards and other tools we offer.
- Any interested stakeholders can sign up on our homepage.

NEMSIS Accounts

Why should I have a NEMSIS account?

- Named NEMSIS accounts are used to access all of our state-specific Tableau dashboards, and the Cube.
- It's easy to get one, there's a form on our website, or you can email us.
- Send an email to nemsis@hsc.utah.edu to request your account.

Named Accounts vs. Service Accounts

- Named accounts are based on your name and are intended for your use only to access reports and other tools. E.g. lbaeder.
- Service accounts are used for data submission via web services. These are usually plugged into your state software. They cannot be used to view reports. E.g. UT_NEMSIS_WS_V3.

Vendor vs. State Accounts

- Did you know your software vendor also can have an account with the NEMSIS TAC?
- These accounts give software vendors access to the same reports you use.
- Much like State Representatives can only see their state's data, vendors can only see data that was generated by, or passed through their software.
- The purpose of offering vendor accounts is so that you and your software vendor can collaborate and work together to correct errors or improve data quality.
- Vendor representatives can request an account on the NEMSIS website, or by emailing nemsis@hsc.utah.edu.
- Most compliant vendors will already have an account set up for them.

Trouble with your NEMSIS Account?

- If you forgot your password, or it has expired, you can reset your account by clicking the "Forgot Password" link in the footer on the NEMSIS site:

ABOUT US   SUPPORT   FORGOT PASSWORD   NHTSA PRA

- This will take you to the University of Utah Data Coordinating Center page where you can follow the steps to reset your password.
- You will need access to the email your account is associated with to complete the password reset.
- If you have any trouble with this process please reach out us at nemsis@hsc.utah.edu so that we can assist you.

THE UNIVERSITY OF UTAH

DATA COORDINATING CENTER

Reset Password
Reset your forgotten password
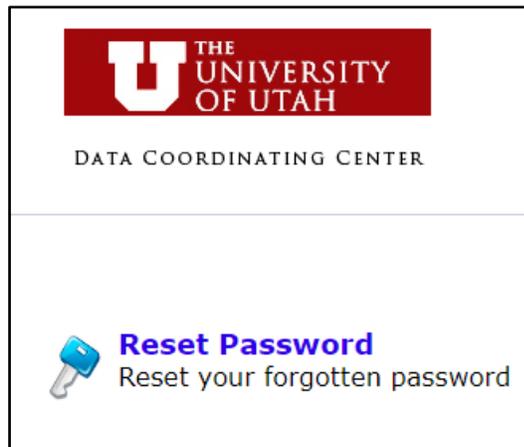
ADDITIONAL RESOURCES

EMS Data Cube Primer Video Tutorials

Access the Data Cube

Build a Simple Report

Clarify the Data Elements

Design a Graph

Exporting Data

Subscribe to the NEMSIS TAC YouTube Channel

Presenter Contact Information

N. Clay Mann	clay.mann@hsc.utah.edu	801-585-9161
Kevin White	kevin.white@hsc.utah.edu	801-213-3408
Monet Iheanacho	monet.iheanacho@hsc.utah.edu	801-213-3930
Laurel Baeder	laurel.baeder@hsc.utah.edu	801-587-5337
Julianne Ehlers	julianne.ehlers@hsc.utah.edu	801-213-1448
General Information	nemsis@hsc.utah.edu	801-587-7361