



AZ PIERS  
Registry Users Group  
(EMSRUG)



**Agenda**

**Monday January 26, 2015 - 9:30 a.m. – 11:30 a.m.**

**Arizona Dept. of Health Services**

**150 North 18th Avenue Phoenix AZ 85007**

**5th Floor – 540A Conference Room**

**AZ PIERS Contacts:**

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- A) Welcome & Introductions
- B) AZ-PIERS Version 3 Update
  - 1) State Schematron – short, simplified presentation of schema vs. schematron and what it means to us. Based off presentation by Josh Legler, whose full presentation can be found at: <https://www.nasemso.org/Councils/DataManagers/documents/Data-Validation-in-the-NEMESIS-XML-Standard.pdf>
    - a) An updates, simplified version of the one presented at EMSRUG can be found attached to these minutes.
  - 2) Suggested values – send out current list soon
- C) Agency status: Timeline for Version3 survey results – summary of results (informal)
  - 1) Of the agencies which answered the survey, 50% have a Version 3 transition plan. Of those, approx. half plan to transition to version 3 in the first six months of 2015. Half of the respondents plan to use the ADHS ImageTrend license free software. Of those that are using either another vendor or ImageTrend as a stand-alone system, 2/3 state they are in communication with their vendor regarding transitioning to version 3.
- D) AZ-PIERS version2 Runs per Month scheduled, auto-generated reports – are you all receiving your reports? They should be arriving in your email inbox once per week on Mondays. If you currently submit to AZ-PIERS and are not receiving these reports, please let me know and I will look into any issues. The purpose of these reports is to inform agencies as to their monthly ePCR counts, as received by AZ-PIERS. Please take a quick look each report as it arrives and let us know immediately if you believe the numbers do not reflect your current submissions. These reports were developed to aid agencies in recognizing an issue occurring in uploads to AZ-PIERS.
- E) Data Definitions – Consistency
  - 1) Scene Departure Time: Non-Transporters, or ground transporters when ground sent to air:
    - a) Are you using your unit left scene, or when patient left scene?

- Agencies at the EMSRUG meeting indicate they record the time the patient left the scene (whether transported by their agency or another) when recording a ‘Scene Departure Time’ in their ePCR.

2) Trauma Triage: eInjury.03 & eInjury.04:

- a) eSituation.02 (Possible Injury) is required on all ePCR unless no patient contact. If yes, eInjury.03 (Trauma Center Criteria) & eInjury.04 (Vehicular, Pedestrian, or Other Injury Risk Factor) are required to be filled out.
- Question came up – if “Possible Injury” is yes, but none of the values apply in trauma triage, the correct values for eInjury.03 would be ‘Not Applicable’ and for eInjury.04 would be either ‘EMS Provider Judgment’ (if that is why a trauma center was specifically chosen for destination (not that the hospital just happens to be one but chosen as was closest)) or Not Applicable.
  - Another question: If eSituation.02 is yes but eInjury.03 & eInjury.04 are BOTH ‘Not Applicable’, would there be a reason ever to have: eDisposition.24 - Destination Team Pre-Arrival Alert or Activation = Yes-Adult Trauma or Yes-Pediatric Trauma or Yes-Trauma (General). Answer is yes, there could be a reason, so a validation rule using this to catch inconsistent data in this scenario would not work.

F) 2015 AZ-PIERS version 3 Data Dictionary Update

1) The Cycle for Data Dictionary updates. The standard of AZ-PIERS Data Dictionary, NEMSIS, and vendor annual update cycles reflect this example. NEMSIS releases the finalized changes vendors and systems are expected to make March (2015), vendors & systems have until January 1 (2016) to make the NEMSIS changes, AZ-PIERS Data Dictionary update of variables will be in January (each year). Values in AZ-PIERS (additions, deletions, or updates) can be altered at any time of year and do not need to wait for the annual update.

2) NEW AZ-PIERS Version3.1 2015 Data Dictionary & Change Log

AZ-PIERS V3.1 Data Dictionary at: [AZ-PIERS Data Dictionary 2015](#)

a) NEMSIS national standards that affect AZ-PIERS

- Change log available at: [AZ-PIERS Version3 Data Dictionary Change Log](#)

b) AZ-PIERS changes

- AZ-PIERS specific (non-national NEMSIS change) includes the addition of two new values in data element eInjury.04 Vehicular, Pedestrian, or Other Injury Risk Factor:

(a) it2904.101 Burn, with trauma mechanism

(b) it2904.100 Burn, without other trauma

G) Discussion of Adding stand-alone ERs and Specialty Centers which are part of a hospital, to the Destinations list. Agencies approved the addition of stand-alone ERs and Specialty Centers. Any destinations/facilities missing from the AZ-PIERS destinations list can be added by sending an email to [Anne.Vossbrink@azdhs.gov](mailto:Anne.Vossbrink@azdhs.gov) with the name and address of the missing facility. These can include out of state facilities to which the agency delivers

patients. EMSRUG discussion and recommendations regarding data submission and catastrophic system failures.

1) The updated policy, in effect as of Dec. 1, 2014, has now been revised to include a **Catastrophic data failure exception process.**

- This will allow agencies with extenuating circumstances of data submission (such as server failure or substantial vendor problems) to maintain Premier status while they work to resolve the issue. Agencies that experience a catastrophic failure must submit a copy of the attached document to the EMS Data Manager [Anne.Vossbrink@azdhs.gov](mailto:Anne.Vossbrink@azdhs.gov). The document will also be available at: <http://www.azdhs.gov/bems/data/PEAP.htm>
- Agencies that encountered a catastrophic failure can fill out the application for a retroactive recognition of their premier status. Please note if those previous issues have been resolved.

H) 2015 meeting schedule

- 1) All meetings are on Mondays, with a new time of 10:00am – 12:00pm  
April 27<sup>th</sup>, July 20<sup>th</sup>, & Oct. 26<sup>th</sup>

I) Announcements

J) Questions/Requests

K) Topics of Future Discussion as proposed by group

L) Open floor

# Schema vs. Schematron: a basic explanation

The below explanation was taken from the presentation by Josh Legler titled “Data Validation in the NEMESIS XML Standard: Using the XML Schema and Schematron”, the entirety of which can be found at:

<https://www.nasemso.org/Councils/DataManagers/documents/Data-Validation-in-the-NEMESIS-XML-Standard.pdf>

## Basic overview of Schema vs. Schematron

Schema makes sure data:

Is in the correct format?

- For example: Something like following punctuation rules so that when read, it can be understood

Is valid?

- For example: The value doesn't exceed length limits, or the value is one recognized by the software

Schematron is used to find things Schema cannot. It helps with 'fine tuning' the data:

Are these values valid if they are in the same record?

- For example: 'Male' is a valid Gender. 'Pregnancy' is valid for Patient History. However, together they are not valid.
- For example: All call times can be valid, but Unit Back in Service time cannot be before Unit Notified by Dispatch time.

Helpful Definitions:

The **XML Schema** is sometimes called an “XSD”

The **XML Schema** is written in XML

An **XML document** is the file that one system sends to the other receiving system

(ex: agency system sends file to state system)

## How **XML Schema** validation works...

**First, software checks an XML document to make sure it is “well-formed.”**

By “well-formed” it means following the basic rules of XML: think of it as having all your punctuation correct. This allows the software to know what the file is trying to say. Without this context of 'correct punctuation', the system would not know how to interpret the info being sent. Your software need to know that it can count on the file being sent having 'rules' that help it read what all the letters/numbers/symbols want it to do.

Ex: If you were to read a sentence and need to interpret what it was saying

Without 'schema': hiEms,,us,,.Er.PI//<E/asE\_sEn,,daLLdATA-f++llestOme)(((D.;uEby12215A..t34923sT.

With 'schema': <Hi\_EMS\_User>

<Please\_send\_all\_data\_files\_to\_me>

<Due\_by\_01/22/2015\_at\_349\_23\_St.>

So, if the file isn't 'well-formed', it is rejected as it can't be read by the established rules.

## Second the XML document is checked to make sure it is “valid.”

By “valid” it means that the answers you are sending in the XML file follow the rules. We all know that if a form says use the date format MM/DD/YYYY you need to write Jan. 1<sup>st</sup>. 2015 as 01/01/2015 and not 1/1/15. This “valid” part of the schema is also why you can’t send a code to another system unless that system will also recognize it.

Ex: Not fitting valid schema:

- There is a rule that the Patient’s first name has a maximum length of 50 characters
  - EMS crew types in a name of “Margaret Anne Jenny Laura Mary Nancy Katie Paula Julie Robin Noreen Barbara Christa Rosa Michelle Helen Maria Ruth”
- = that first name is not seen as ‘valid’ by the schema.

Ex: Not fitting valid schema:

- The data element (variable) eVitals.26 - Level of Responsiveness (AVPU) has the following active/valid codes: 3326001 Alert, 3326003 Verbal, 3326005 Painful, 3326007 Unresponsive, 7701001 Not Applicable, 7701003 Not Recorded.
  - Your agency has added an additional code of 3326888 Unknown
  - Your agency sends an XML file with the data element eVitals.26 - Level of Responsiveness (AVPU) with the value of 3326888
- = the receiving system will not see 3326888 as ‘valid’ as it does not recognize the code.

### Why your software vendor uses XML schema and why it cares:

Software developers use the information from the NEMESIS XML Schema to decide how to design their database. This way, your software can potentially catch errors at the time of data entry. And, so that data entered by users won’t be rejected later by State systems or the NEMESIS system.

### **Review**

Schema can catch issues with data files not being ‘well-formed’ (not using correct ‘punctuation’ on the back end) and with data not being ‘valid’ (not adhering to rules and accepted codes).

If only Schema is in place, other validation checks have to wait until later...things that in version2 usually end up caught using validations rules. But, Schema can’t do everything we need.

## Add **Schematron**

### How **Schematron** validation works...

#### **Schematron can catch what the Schema can’t.**

The inventor of Schematron called it “*a feather duster to reach the parts other schema languages cannot reach.*”

So, it can look at one valid answer (ex: Gender = Male). And compare it to another valid answer (ex: Patient History = Pregnant). Schema would allow both as they are both ‘valid’.

But **Schematron can compare two different variables and their values** and catch errors.

Schematron would see the same situation of gender being male and patient history includes pregnancy, and flag the error.

As with the NEMESIS XML Schema, software developers can use the information from the Schematron file to build validation routines into their interface at the time of data entry:

An EMS unit should not be back in service before the call began, so it makes sense to catch the problem as soon as possible.

**PCR**

Notified:	12:00
En route:	12:04
On Scene:	12:09
Left Scene:	12:23
Destination:	12:38
Back in Service:	11:45

Oops! Back in Service  
Date/Time is too early.

Schematron is more flexible than the Schema...

Schematron can do “warnings” as well as “errors”:

- With the Schema, if an XML document is not well-formed or not valid, it should be rejected by the receiving system.
- But with Schematron, we may designate some rules as only “warnings” and not reject the document.

### Schematron in Review

- Schematron can do everything the Schema can, but it’s generally used to do what the Schema cannot.
- It’s particularly good for cross-checking combinations of data within an XML document.
- It can do “warnings” as well as “errors.”
- Rules can be updated more easily over time.

## **Objective of Schema & Schematron use in ePCR Software**

With both Schema & Schematron, an error that would cause data errors, affect validation scores, and upload failures can be flagged as the crew fills in the ePCR, allowing immediate error correction.

**eTimes.09 - Unit Left Scene Date/Time**

**Definition**

The date/time the responding unit left the scene with a patient (started moving).

National Element	Yes	Pertinent Negatives (PN)	No
State Element	Yes	NOT Values	Yes
Version 2 Element	E05_09	Is Nillable	Yes
Usage	Required	Recurrence	1 : 1

**Associated Performance Measure Initiatives**

Airway    Cardiac Arrest    Pediatric    Response    STEMI    Stroke    Trauma

**Attributes**

**NOT Values (NV)**

7701001 - Not Applicable                      7701003 - Not Recorded

**Constraints**

Data Type	minInclusive	maxInclusive
dateTime	1950-01-01T00:00:00-00:00	2050-01-01T00:00:00-00:00

**Pattern**

[0-9]{4}-[0-9]{2}-[0-9]{2}T[0-9]{2}:[0-9]{2}:[0-9]{2}(\.\d+)?(\+|-)[0-9]{2}:[0-9]{2}

**Data Element Comment**

DateTime consists of finite-length characters of the form: yyyy '-' mm '-' dd 'T' hh ':' mm ':' ss ('.' s+)? (zzzzzz)

yyyy	a four-digit numeral that represents the year
'-'	separators between parts of the date portion
mm	a two-digit numeral that represents the month
dd	a two-digit numeral that represents the day
T	separator that indicates time-of-day follows
hh	a two-digit numeral that represents the hour
':'	a separator between parts of the time-of-day portion
mm	a two-digit numeral that represents the minute
ss	a two-integer-digit numeral that represents the whole seconds
'.' s+	(not required) represents the fractional seconds
zzzzzz	(required) represents the timezone (as described below)

Timezones, required, are durations with (integer-valued) hour and minute properties in the form: ('+' | '-') hh ':' mm

hh	a two-digit numeral (with leading zeros as required) that represents the hours
mm	a two-digit numeral that represents the minutes
'+'	a nonnegative duration
'-'	a nonpositive duration

State National

**eSituation.02 - Possible Injury**

**Definition**

Indication whether or not there was an injury

National Element	Yes	Pertinent Negatives (PN)	No
State Element	Yes	NOT Values	Yes
Version 2 Element	E09_04	Is Nillable	Yes
Usage	Required	Recurrence	1 : 1

**Associated Performance Measure Initiatives**

Airway    Cardiac Arrest    Pediatric    Response    STEMI    Stroke    Trauma

**Attributes**

**NOT Values (NV)**

7701001 - Not Applicable                      7701003 - Not Recorded

**Code List**

Code	Description
9922001	No
9922003	Unknown
9922005	Yes

**Data Element Comment**

This data element provides documentation to classify the EMS Reason for Encounter as either injury or non-injury related based on mechanism and not on actual injury. eSituation.02 (Possible Injury), eSituation.09 (Primary Symptom), eSituation.07 (Chief Complaint Anatomic Location), and eSituation.08 (Chief Complaint Organ System) are grouped together to form the EMS Reason for Encounter.

## eInjury.03 - Trauma Center Criteria

## Definition

Field Triage Criteria for transport to a trauma center as defined by the Centers for Disease Control and Prevention and the American College of Surgeons-Committee on Trauma.

National Element	Yes	Pertinent Negatives (PN)	No
State Element	Yes	NOT Values	Yes
Version 2 Element		Is Nillable	Yes
AZ-PIERS Usage	Required	Recurrence	1 : M

## Associated Performance Measure Initiatives

Trauma

## Attributes

**NOT Values (NV)**

7701001 - Not Applicable

7701003 - Not Recorded

**CorrelationID**

**Data Type:** string

**minLength:** 0

**maxLength:** 255

## Code List

Code	Description
2903001	Amputation proximal to wrist or ankle
2903003	Crushed, degloved, mangled, or pulseless extremity
2903005	Chest wall instability or deformity (e.g., flail chest)
2903007	Glasgow Coma Score < 14
2903009	Open or depressed skull fracture
2903011	Paralysis
2903013	Pelvic fractures
2903015	All penetrating injuries to head, neck, torso, and extremities proximal to elbow or knee
2903017	Respiratory Rate < 10 or >29 breaths per minute ( < 20 in infants aged <1 year) or need for ventilatory support
2903019	Systolic Blood Pressure < 90 mmHg
2903021	Two or more proximal long-bone fractures

## Data Element Comment

2011 Guidelines for the Field Triage of Injured Patients - value choices for Steps 1 and 2. For falls, one story is equal to 10 feet.

## Version 3 Changes Implemented

Added to better evaluate the CDC-ACS 2011 Guidelines for the Field Triage of Injured Patients.

Website: <http://www.cdc.gov/FieldTriage/>

## eInjury.04 - Vehicular, Pedestrian, or Other Injury Risk Factor

## Definition

Field Triage Criteria for transport to a trauma center as defined by the Centers for Disease Control and Prevention and the American College of Surgeons-Committee on Trauma.

National Element	Yes	Pertinent Negatives (PN)	Yes
State Element	Yes	NOT Values	Yes
Version 2 Element	E10_04	Is Nillable	Yes
AZ-PIERS Usage	Required	Recurrence	1 : M

## Associated Performance Measure Initiatives

Trauma

## Attributes

**NOT Values (NV)**

7701001 - Not Applicable                      7701003 - Not Recorded

**Pertinent Negatives (PN)**

8801005 - Exam Finding Not Present

**CorrelationID**

**Data Type:** string                      **minLength:** 0                      **maxLength:** 255

## Code List

**Code      Description**

2904001 Auto v. Pedestrian/Bicyclist Thrown, Run Over, or > 20 MPH Impact  
 2904003 Fall Adults: > 20 ft. (one story is equal to 10 ft.)  
 2904005 Fall Children: > 10 ft. or 2-3 times the height of the child  
 2904007 Crash Death in Same Passenger Compartment  
 2904009 Crash Ejection (partial or complete) from vehicle  
 2904011 Crash Intrusion, including roof: > 12 in. occupant site; > 18 in. any site  
 2904013 Crash Vehicle Telemetry Data (AACN) Consistent with High Risk of Injury  
 2904015 Motorcycle Crash > 20 MPH  
 2904017 SBP < 110 for age > 65  
 2904019 Anticoagulants and Bleeding Disorders  
 2904021 Pregnancy > 20 weeks  
 2904023 EMS Provider Judgment  
 it2904.101 Burn, with trauma mechanism  
 it2904.100 Burn, without other trauma

## Data Element Comment

Assesses mechanism of injury and evidence of high-energy impact (Step 3) AND Assess special patient or system considerations (Step 4) based on CDC 2011 Guidelines for the Field Triage of Injured Patients Step 3 and 4. Website: <http://www.cdc.gov/FieldTriage/>.

## Version 3 Changes Implemented

Added to better evaluate the CDC-ACS 2011 Guidelines for the Field Triage of Injured Patients. Website: <http://www.cdc.gov/FieldTriage/>

## eDisposition.24 - Destination Team Pre-Arrival Alert or Activation

## Definition

Activation of the Destination Healthcare Facility Team prior to EMS arrival for acute ill or injured patient.

National Element	Yes	Pertinent Negatives (PN)	No
State Element	Yes	NOT Values	Yes
Version 2 Element		Is Nillable	Yes
AZ-PIERS Usage	Required	Recurrence	1 : 1

## Associated Performance Measure Initiatives

Cardiac Arrest    STEMI    Stroke    Trauma

## Attributes

**NOT Values (NV)**

7701001 - Not Applicable

7701003 - Not Recorded

## Code List

Code	Description
4224001	No
4224003	Yes-Adult Trauma
4224005	Yes-Cardiac Arrest
4224007	Yes-Obstetrics
4224009	Yes-Other
4224011	Yes-Pediatric Trauma
4224013	Yes-STEMI
4224015	Yes-Stroke
4224017	Yes-Trauma (General)

## Data Element Comment

## Version 3 Changes Implemented

Added to better document performance measure for acute time dependent illness and injury systems of care.

# Change Log: AZ-PIERS V3 → AZ-PIERS V3.1

**This log only details NEMESIS & Arizona Changes that represent data elements collected by AZ-PIERS version3 with the current NEMESIS 3.3.4 standard**

## Part I Change Log: Changes by Category/Group

### icd10MedSurge

**Pattern Change:** The ICD-10-CM “T” Codes were added to the allowed pattern.

Old Pattern: ([A-QSZ][0-9]{2})(\.[0-9A-Z]{1,3})?

New Pattern: ([A-QSTZ][0-9]{2})(\.[0-9A-Z]{1,3})?

**AZ-PIERS Elements Affected:** eHistory.08 – Medical/Surgical History

### StateCertificationLicensureLevels

Codes Added

**Code:** 9917025 **Description:** Nurse Practitioner

**Code:** 9917027 **Description:** Physician Assistant

**Code:** 9917029 **Description:** Licensed Practical Nurse (LPN)

**Code:** 9917031 **Description:** Registered Nurse

**Codes Definition Modified:**

**Code:** 9917005 **Old Description:** 2009 Emergency Medical Technician

**New Description:** 2009 Emergency Medical Technician (EMT)

**AZ-PIERS Elements Affected:**

dAgency.11 - Level of Service

dConfiguration.06 - EMS Certification Levels Permitted to Perform Each Procedure

dConfiguration.08 - EMS Certification Level Permitted to Administer Each Medication

### LicensureLevels

Codes Added

**Code:** 9911027 **Description:** Nurse Practitioner

**Code:** 9911029 **Description:** Physician Assistant

**Code:** 9911031 **Description:** Licensed Practical Nurse (LPN)

**Code:** 9911033 **Description:** Registered Nurse

**Codes Definition Modified:**

**Code:** 9911005 **Old Description:** 2009 Emergency Medical Technician

**New Description:** 2009 Emergency Medical Technician (EMT)

**AZ-PIERS Elements Affected:**

dConfiguration.02 - State Certification Licensure Levels

### MemberLevel

Codes Added

**Code:** 9925037 **Description:** Nurse Practitioner

**Code:** 9925039 **Description:** Physician Assistant

**Code:** 9925041 **Description:** LPN (licensed practical nurse)

**Code:** 9925043 **Description:** Registered Nurse

**AZ-PIERS Elements Affected:**

eCrew.02 - Crew Member Level

## CommonDataType

### Code Added

**Code:** 9902011 **Description:** Boolean

### AZ-PIERS Elements Affected:

eCustomConfiguration.03 (dCustomConfiguration.03)

## ProtocolsUsed

### Codes Added

**Code:** 9914167 **Description:** Exposure-Carbon Monoxide

**Code:** 9914169 **Description:** Cardiac Arrest-Do Not Resuscitate

**Code:** 9914171 **Description:** Cardiac Arrest-Special Resuscitation Orders

**Code:** 9914173 **Description:** Exposure-Smoke Inhalation

**Code:** 9914175 **Description:** General-Community Paramedicine / Mobile Integrated Healthcare

**Code:** 9914177 **Description:** General-Exception Protocol

**Code:** 9914179 **Description:** General-Extended Care Guidelines

**Code:** 9914181 **Description:** General-Interfacility Transfers

**Code:** 9914183 **Description:** General-Law Enforcement - Blood for Legal Purposes

**Code:** 9914185 **Description:** General-Law Enforcement - Assist with Law Enforcement Activity

**Code:** 9914187 **Description:** General-Neglect or Abuse Suspected

**Code:** 9914189 **Description:** General-Refusal of Care

**Code:** 9914191 **Description:** Injury-Mass/Multiple Casualties

**Code:** 9914193 **Description:** Injury-Thoracic

**Code:** 9914195 **Description:** Medical-Adrenal Insufficiency

**Code:** 9914197 **Description:** Medical-Apparent Life Threatening Event (ALTE)

**Code:** 9914199 **Description:** Medical-Tachycardia

### AZ-PIERS Elements Affected:

dConfiguration.05 - Protocols Permitted by the State

dConfiguration.10 - EMS Agency Protocols

## Part II Change Log: Changes by Element Name (alpha order)

### D Elements

#### **dAgency.05 – Agency Service Area States**

##### Comment Change

**Old:** Element added to document all of the states in which the EMS agency provides services. Each state listed is associated with the counties, census tracts, and ZIP codes within the EMS Agency Service Area for each state. GNIS Codes Website: [http://geonames.usgs.gov/domestic/download\\_data.htm](http://geonames.usgs.gov/domestic/download_data.htm)

**New:** Each state is captured as a group where the EMS agency provides service. The group includes dAgency.05, dAgency.06, dAgency.07, and Agency.08.

Element added to document all of the states in which the EMS agency provides services. Each state listed is associated with the counties, census tracts, and ZIP codes within the EMS Agency Service Area for each state.

GNIS Codes Website: [http://geonames.usgs.gov/domestic/download\\_data.htm](http://geonames.usgs.gov/domestic/download_data.htm)

## dAgency.25 – National Provider Identifier

### Definition Change

**Old:** The state assigned Fire Department ID Number for EMS Agency(ies) operating within a Fire Department.

**New:** The National Provider Identifier issued by CMS.

### New Comment

**New:** Only EMS Agencies billing for service will have an NPI number.

CMS (Centers for Medicare and Medicaid Services) NPI Registry lookup:

<https://npiregistry.cms.hhs.gov/NPPESRegistry/NPIRegistryHome.do>

## dConfiguration.02 – State Certification Licensure Levels

### Name change

**Old:** State Certification Licensure

**New:** State Certification/Licensure Levels

## dConfiguration.07 – EMS Agency Procedures

### Comment Change

**Old:** This is associated with the EMS Agency Number (dAgency.02) since each EMS Agency Number may have different capabilities. Each procedure is associated with the EMS professional certification levels permitted to perform the procedure. EMS Agencies may identify additional SNOMEDCT procedure codes based on medical direction and their own need. If an agency resides in a state with statewide approved procedures, they should be listed/implemented here. Code list is represented in SNOMEDCT: Reference the NEMESIS Suggested Lists at:

<http://nemsis.org/v3/resources.html> SNOMEDCT Website:

[http://www.nlm.nih.gov/research/umls/Snomed/snomed\\_main.html](http://www.nlm.nih.gov/research/umls/Snomed/snomed_main.html) Product: Product - UMLS

Metathesaurus. The EMS agency should submit "Not Applicable" and "Nil" to the state system for the demographic export. The state EMS system does not need to import this information into their database. It is the responsibility of the state to submit this element to the national EMS database (NEMESIS). Reference the Demographic Dataset Submission Guide for further details.

**New:** This is associated with the EMS Agency Number (dAgency.02) since each EMS Agency Number may have different capabilities. Each procedure is associated with the EMS professional certification levels permitted to perform the procedure. EMS Agencies may identify additional SNOMEDCT procedure codes based on medical direction and their own need. If an agency resides in a state with statewide approved procedures, they should be listed/implemented here. Code list is represented in SNOMEDCT: Reference the NEMESIS Suggested Lists at:

<http://nemsis.org/v3/resources.html> SNOMEDCT Website:

[http://www.nlm.nih.gov/research/umls/Snomed/snomed\\_main.html](http://www.nlm.nih.gov/research/umls/Snomed/snomed_main.html) Product: Product - UMLS

Metathesaurus

## dConfiguration.09 – EMS Agency Medications

### Comment Change

**Old:** The medication list is stored as the RxNorm (RXCU) Code. This is associated with the EMS Agency Number (dAgency.02) since each EMS Agency Number may have different capabilities.

The EMS agency should submit "Not Applicable" and "Nil" to the state system for the demographic export. The state EMS system does not need to import this information into their database. It is the responsibility of the state to submit this element to the national EMS database (NEMESIS). Reference the Demographic Dataset Submission Guide for further details.

List of medications based on RxNorm (RXCU) code. Reference the NEMESIS Suggested Lists at:

<http://nemsis.org/v3/resources.html> RxNorm Website - <http://uts.nlm.nih.gov>

Product - UMLS Metathesaurus Website

<http://www.nlm.nih.gov/research/umls/rxnorm/docs/rxnormfiles.html> Product - RxNorm Full Monthly Release

**New:** The medication list is stored as the RxNorm (RXCU) Code. This is associated with the EMS Agency Number (dAgency.02) since each EMS Agency Number may have different capabilities.

List of medications based on RxNorm (RXCU) code. Reference the NEMESIS Suggested Lists at:

[http://nemesis.org/v3/resources.html](http://nemis.org/v3/resources.html) RxNorm Website - <http://uts.nlm.nih.gov>

Product - UMLS Metathesaurus Website -

<http://www.nlm.nih.gov/research/umls/rxnorm/docs/rxnormfiles.html> Product - RxNorm Full Monthly Release

## dState.01 – State Required Element

### Comment Added

Added: This element was created to document elements required by the state. The TIMESTAMP attribute describes the active date of the element.

## E Elements

### eArrest.01 – Cardiac Arrest

#### Definition Change

**Old:** Indication of the presence of a cardiac arrest at any time.

**New:** Indication of the presence of a cardiac arrest at any time during this EMS event.

#### Comment Change

**Old:** This element is a component of the Utstein Cardiac Arrest Criteria.

**New:** This element is a component of the Utstein Cardiac Arrest Criteria. If the patient has a history of cardiac arrest do not document Cardiac Arrest (eArrest.01) with "Yes, Prior to EMS Arrival" or "Yes, After EMS Arrival" during this encounter.

### eArrest.12 – Any Return of Spontaneous Circulation

#### Comment Change

**Old:** This element is a component of the Utstein Cardiac Arrest Criteria as identified in the American Heart Association journal "Resuscitation" from 2004 entitled "Cardiac Arrest and Cardiopulmonary Resuscitation Outcome Reports". <http://circ.ahajournals.org/cgi/content/full/110/21/3385>

This element needs to be documented when the patient has been in cardiac or respiratory arrest and transported to a healthcare facility to show the change in patient condition, if any. The cardiac rhythm list has been updated to be the same for eVitals.03 (Cardiac Rhythm Electrocardiography (ECG)). They are using the common type: CardiacRhythm. ST segment changes consistent (or not consistent) with STEMI criteria should be documented as Ischemia in the appropriate location

**New:** This element is a component of the Utstein Cardiac Arrest Criteria as identified in the American Heart Association journal "Resuscitation" from 2004 entitled "Cardiac Arrest and Cardiopulmonary Resuscitation Outcome Reports". <http://circ.ahajournals.org/cgi/content/full/110/21/3385>

This element needs to be documented when the patient has been in cardiac arrest and transported to a healthcare facility to show the change in patient condition, if any. Any ROSC is defined as any brief (approximately >30 seconds) restoration of spontaneous circulation that provides evidence of more than an occasional gasp, occasional fleeting palpable pulse, or arterial waveform.

## eArrest.18 – End of EMS Cardiac Arrest Event

### Comment Change

**Old:** A resuscitation event is deemed to have ended when death is declared or spontaneous circulation is restored and sustained for 20 minutes or longer.

This element is a component of the Utstein Cardiac Arrest Criteria as identified in the American Heart Association journal "Resuscitation" from 2004 entitled "Cardiac Arrest and Cardiopulmonary Resuscitation Outcome Reports". <http://circ.ahajournals.org/cgi/content/full/110/21/3385>

**New:** This element is a component of the Utstein Cardiac Arrest Criteria as identified in the American Heart Association journal "Resuscitation" from 2004 entitled "Cardiac Arrest and Cardiopulmonary Resuscitation Outcome Reports". <http://circ.ahajournals.org/cgi/content/full/110/21/3385>

### Codes Added

**Code:** 3018007 **Description:** ROSC in the Field

**Code:** 3018009 **Description:** ROSC in the ED

**Code:** 3018011 **Description:** Ongoing Resuscitation by Other EMS

## eCustomResults.01 - Custom Data Element Result

### Definition Change

**Old:** The actual value or values chosen (if values listed in dCustomConfiguration.06) or result (free text, Date/Time, or number) documented for the Custom Data Element

**New:** The actual value or values chosen (if values listed in eCustomConfiguration.06) or result (free text, Date/Time, or number) documented for the Custom Data Element

## eDispatch.01 – Complaint Reported by Dispatch

### Code Added

**Code:** 2301083 **Description:** Airmedical Transport

### Comment Change

**Old:** Added Pandemic/Epidemic/Outbreak. Added Automated Crash Notification Added Healthcare Professional Admission Added Interfacility/Evaluation/Transfer - Other entries expanded based on current national EMD Dispatch List

**New:** Added Pandemic/Epidemic/Outbreak. Added Automated Crash Notification Added Healthcare Professional Admission Added Transfer/Interfacility/Palliative Care - Other entries expanded based on current national EMD Dispatch List

## eDisposition.12 - Incident/Patient Disposition

### Code Definition Updates

**Code:** 4212009

**Old Description:** No Patient Contact (Canceled on Scene)

**New Description:** Canceled on Scene (No Patient Contact)

**Code:** 4212011

**Old Description:** No Patient Found (Canceled on Scene)

**New Description:** Canceled on Scene (No Patient Found)

**Code:** 4212031

**Old Description:** Patient Treated, Transferred Care to Another EMS Professional

**New Description:** Patient Treated, Transferred Care to Another EMS Unit

**Code:** 4212033

**Old Description:** Patient Treated, Transported by EMS

**New Description:** Patient Treated, Transported by this EMS Unit

**Code:** 4212043 **Old Description:** Transport of Body Parts or Organs Only

**New Description:** Transport Non-Patient, Organs, etc.

## **eDisposition.21 – Type of Destination**

### Codes Added

**Code:** 4221021 **Description:** Urgent Care

**Code:** 4221023 **Description:** Freestanding Emergency Department

## **eDisposition.24 – Destination Team Pre-Arrival Activation**

### Element Name Change

**Old:** Destination Team Pre-Arrival Activation

**New:** Destination Team Pre-Arrival Alert or Activation

### Definition Change

**Old:** Activation by EMS of the appropriate destination healthcare facility team. The activation should occur prior to the EMS Unit arrival at the destination with the patient.

**New:** Indication that an alert (or activation) was called by EMS to the appropriate destination healthcare facility team. The alert (or activation) should occur prior to the EMS Unit arrival at the destination with the patient.

### Code Added

**Code:** 4224017 **Description:** Yes - Trauma (General)

## **eDisposition.25 – Date/Time of Destination Prearrival Activation**

### Element Name Change

**Old:** Date/Time of Destination Prearrival Activation

**New:** Date/Time of Destination Prearrival Alert or Activation

### Definition Change

**Old:** Date/Time EMS Notified/Activated the Destination Healthcare Facility Team prior to EMS arrival for acute ill or injured patient.

**New:** The Date/Time EMS alerted, notified, or activated the Destination Healthcare Facility prior to EMS arrival. The EMS assessment identified the patient as acutely ill or injured based on exam and possibly specified alert criteria.

## **eInjury.04 - Vehicular, Pedestrian, or Other Injury Risk Factor**

### Definition Change

**Old:** The kind of risk factor predictors present at the incident

**New:** Field Triage Criteria for transport to a trauma center as defined by the Centers for Disease Control and Prevention and the American College of Surgeons-Committee on Trauma.

### Comment Change

**Old:** Added additional mechanism or risk indicators based on CDC 2011 Guidelines for the Field Triage of Injured Patients Step 3.

**New:** Assesses mechanism of injury and evidence of high-energy impact (Step 3) AND Assess special patient or system considerations (Step 4) based on CDC 2011 Guidelines for the Field Triage of Injured Patients Step 3 and 4. Website: <http://www.cdc.gov/FieldTriage/>.

### Codes Added

**Code:** 2904017 **Description:** SBP < 110 for age > 65

**Code:** 2904019 **Description:** Anticoagulants and Bleeding Disorders

**Code:** 2904021 **Description:** Pregnancy > 20 weeks

**Code:** 2904023 **Description:** EMS Provider Judgment

## Changes exclusive to AZ-PIERS 1,2

**Code:** it2904.101 Burn, with trauma mechanism

**Code:** it2904.100 Burn, without other trauma

### ePatient.05 – Patient's Home Address

#### Definition Change

**Old:** The patient's home mailing or street address

**New:** Patient's address of residence

### ePatient.06 – Patient's Home City

#### Definition Change

**Old:** The patient's home city or township or residence

**New:** The patient's primary city or township of residence.

#### Comment Change

**Old:** Based on GNIS Civil Code or Populated Place code.

GNIS Codes Website: [http://geonames.usgs.gov/domestic/download\\_data.htm](http://geonames.usgs.gov/domestic/download_data.htm)

**New:** City codes are based on GNIS Feature Class. The primary Feature Class to use is "Civil" with "Populated Place"" and "Military" code as additional options.

Definitions for each GNIS City Feature Class can be found on the GNIS Codes website.

GNIS Codes Website: [http://geonames.usgs.gov/domestic/download\\_data.htm](http://geonames.usgs.gov/domestic/download_data.htm)

### ePatient.07 – Patient's Home County

#### Definition Change

**Old:** The patient's home county or parish or residence

**New:** The patient's home county or parish of residence.

### ePatient.08 – Patient's Home State

#### Definition Change

**Old:** The patient's home state, territory, or province, or District of Columbia, where the patient resides.

**New:** The state, territory, or province where the patient resides.

### ePatient.09 – Patient's Home ZIP Code

#### Definition Change

**Old:** The patient's home ZIP code of residence

**New:** The patient's ZIP code of residence.

### ePatient.10 – Patient's Home Country

#### Definition Change

**Old:** The country in which the patient lives.

**New:** The country of residence of the patient.

### ePayment.01 – Primary Method of Payment

#### New Codes

**Code:** 2601015 **Description:** Payment by Facility

**Code:** 2601017 **Description:** Contracted Payment

**Code:** 2601019 **Description:** Community Network

**Code:** 2601021 **Description:** No Insurance Identified

**Code:** 2601023 **Description:** Other Payment Option

## eResponse.07 – Primary Role of the Unit

### New Codes

**Code:** 2207011 **Description:** Air Transport-Helicopter

**Code:** 2207013 **Description:** Air Transport-Fixed Wing

## eResponse.09 – Type of Response Delay

### New Code

**Code:** 2209031 **Description:** Mechanical Issue-Unit, Equipment, etc

**Code:** 2209033 **Description:** Flight Planning

## eResponse.10 – Type of Scene Delay

### New Code

**Code:** 2210039 **Description:** Mechanical Issue-Unit, Equipment, etc

## eResponse.11 – Type of Transport Delay

### New Code

**Code:** 2211031 **Description:** Patient Condition Change (e.g. Unit Stopped)

## eResponse.12 – Type of Turn-Around Delay

### New Code

**Code:** 2212033 **Description:** EMS Crew Accompanies Patient for Facility Procedure

## eScene.17 – Incident City

### Comment Change

**Old:** Based on GNIS Civil Code or Populated Place code.

GNIS Codes Website: [http://geonames.usgs.gov/domestic/download\\_data.htm](http://geonames.usgs.gov/domestic/download_data.htm)

**New:** City codes are based on GNIS Feature Class. The primary Feature Class to use is "Civil" with "Populated Place" and "Military" code as additional options.

Definitions for each GNIS City Feature Class can be found on the GNIS Codes website.

GNIS Codes Website: [http://geonames.usgs.gov/domestic/download\\_data.htm](http://geonames.usgs.gov/domestic/download_data.htm)

## eState.01 – State Required Element

### Comment Added

**Added:** This element was created to document elements required by the state. The TIMESTAMP attribute describes the active date of the element.

## eVitals.04 – ECG Type

**Code:** 3304015

**Old Description:** Other (Not Listed)

**New Description:** Other (AED, Not Listed)

## eVitals.16 – Carbon Dioxide (CO2)

### Definition Change

**Old:** The patient's end-tidal or other CO2 level.

**New:** The numeric value of the patient's end-tidal CO2 level.

### New Comment

**New:** Generally the numeric CO2 level is measured in millimeters of mercury (mmHg). End-tidal is the same as exhaled.

## eVitals.GlasgowScoreGroup

### Documentation Tag Change

**Old:** Group Tag to hold the details of patient's glasgow score.

**New:** Group Tag to hold the details of patient's glasgow coma scale.

## eVitals.27 –Pain Scale

### Name Change

**Old:** Pain Scale

**New:** Pain Scale Score

## eVitals.29 –Stroke Scale Score

### Definition Change

**Old:** The patient's Stroke Scale Results.

**New:** The findings or results of the Stroke Scale Type (eVitals.30) used to assess the patient exhibiting stroke-like symptoms.

## eVitals.30 – Stroke Scale Type

### Code Added

**Code:** 3330013 **Description:** F.A.S.T. Exam

## eVitals.30 – Stroke Scale Type

### Spelling Fix

Definition: The type of stroke pain scale used Changed to: Definition: The type of stroke scale used

## Part III Change Log: Deprecated Codes by Element (alpha order)

### dAgency.11 - Level of Service

**Code:** 9917017 **Description:** Nurse

### dConfiguration.02 - State Certification/Licensure Levels

**Code:** 9911017 **Description:** Nurse

### dConfiguration.05 - Protocols Permitted by the State

**Code:** 9914039 **Description:** Exposure-Carbon Monoxide/Smoke Inhalation

### dConfiguration.06 - EMS Certification Levels Permitted to Perform Each Procedure

**Code:** 9917017 **Description:** Nurse

### dConfiguration.08 - EMS Certification Levels Permitted to Administer Each Medication

**Code:** 9917017 **Description:** Nurse

### dConfiguration.10 - EMS Agency Protocols

**Code:** 9914039 **Description:** Exposure-Carbon Monoxide/Smoke Inhalation

### eResponse.07 - Primary Role of the Unit

**Code:** 2207001 **Description:** Air Transport

## **eCrew.02 - Crew Member Level**

**Code:** 9925021 **Description:** Nurse

## **eArrest.11 - First Monitored Arrest Rhythm of the Patient**

**Code:** 3011003 **Description:** Bradycardia

## **eProtocols.01 - Protocols Used**

**Code:** 9914039 **Description:** Exposure-Carbon Monoxide/Smoke Inhalation

## **eMedications.08 - Medication Complication**

**Code:** 3708027 **Description:** Itching/Urticaria

## **eVitals.30 - Stroke Scale Type**

Spelling Fix

**Code:** 3330011 **Description:** Other Stroke Scale Type

## **Foot Notes**

1 (the NEMSIS code 2904027 will later replace the above code for Burn, with trauma mechanism but is not required nationally until Jan. 1, 2016)

2 (the NEMSIS code 2904025 will later replace the above code for Burn, without other trauma but is not required nationally until Jan. 1, 2016)