

MONTANA EMS PERFORMANCE MEASURE DEFINITIONS

These measures are defined for NEMSIS v3 only.

Stroke QI Measures

1 SUSPECTED STROKE MEASURES

All of the measures in this section can be accessed via the [Biospatial EMS Performance Dashboard: Stroke QI Measures](#)

Suspected Stroke Syndrome Definition

A record is labeled as “Suspected stroke” if one or more of the following are true:

- Provider primary or secondary impression (eSituation.11/eSituation.12) indicate any of the following ICD-10-CM codes (sub-codes included): I60, I61, I63, G45, G46.3, G46.4
- Stroke scale score (eVitals.19) = “Positive”
- Destination Team Pre-Arrival Alert or Activation (eDisposition.24) is 4224015: "Yes - Stroke"
- Protocols used (eProtocols.01) is 9914145: "Medical-Stroke/TIA" (*This element is not currently on the State ePCR*)

1.1 Coverdell 01: On-scene time < 15 minutes*

Measure	Percentage of suspected-stroke 911 transports with an on-scene time less than 15 minutes
Purpose	The purpose of this measure is to assess timeliness once EMS has arrived on-scene, as an important link in the stroke chain of survival. The American Heart Association/American Stroke Association recommends an on-scene time of less than 15 minutes.
Numerator	The difference between the unit arrival on scene time (eTimes.06) and the unit left scene time (eTimes.09) is less than 15 minutes.
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none">• Record meets suspected stroke syndrome criteria• Emergency Response• Patient Transport

1.2 Coverdell 02: Glucose check documented*

Measure	Percentage of suspected-stroke 911 transports with glucose check documented
Purpose	The purpose of this measure is to identify assessment of blood glucose as an important pre-hospital intervention in the stroke chain of survival. Hypoglycemia is frequently found in patients with stroke-like symptoms; administering glucose may resolve neurological deficits.
Numerator	The patient’s blood glucose level (eVitals.18) is documented and specifies a valid value.
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none">• Record meets suspected stroke syndrome criteria• Emergency Response• Patient Transport

Stroke QI Measures

1.3 Coverdell 03: Stroke Alert to Hospital*

Measure	Percentage of suspected-stroke 911 transports where EMS called in and documented a stroke alert pre- notification to the receiving hospital
Purpose	It is important for EMS to alert the receiving hospital before they arrive with the stroke patient, in order to reduce elapsed time before treatment and ensuring appropriate hospital resources are mobilized before patient arrival to the hospital.
Numerator	Destination team pre-arrival alert or activation (eDisposition.24) is 4224015: "Stroke".
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none"> Record meets suspected stroke syndrome criteria Emergency Response Patient Transport

1.4 Coverdell 04: Stroke Screen*

Measure	Percentage of suspected-stroke 911 transports that had a stroke screen or severity scale completed and documented
Purpose	The purpose of this measure is to identify the use of stroke screening tools in the pre-hospital setting. Screening tools (BEFAST, Cincinnati, & FAST) help to identify stroke patients and ensure priority triage for them. Severity scales (VAN and LAMS) can determine the severity of stroke symptoms.
Numerator	Stroke Scale Score (eVitals.29) is any of the following: 3329001: Negative 3329003: Non-Conclusive 3329005: Positive
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none"> Record meets suspected stroke syndrome criteria Emergency Response Patient Transport

1.5 Coverdell 05: Last Known Well Time*

Measure	Percentage of suspected-stroke 911 transports that had a documented time last known to be well
Purpose	Last Known Well (LKW) is the date and time at which the patient was last known to be without the signs and symptoms of the current stroke or at their prior baseline. Correctly identifying a patient's LKW time is critical for determining a patient's eligibility for time-dependent acute ischemic stroke treatments such as IV Alteplase (also known as IV tPA) and mechanical intervention.
Numerator	Date/Time Last Known Well (eSituation.18) is documented and occurs prior to the incident time.
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none"> Record meets suspected stroke syndrome criteria Emergency Response Patient Transport

Stroke QI Measures

1.6 Coverdell 06: Symptom Onset (Time of Discovery)*

Measure	Percentage of suspected-stroke 911 transports that had a documented Symptom Onset time
Purpose	Symptom Onset time (sometimes referred to as Time of Discovery) is The date and time of the start of the patient's symptoms, or the earliest time that patient was known to have symptoms. If the event was witnessed, then the LKW time and the Symptom Onset time will be identical. Record both, even if identical.
Numerator	Date/Time of Symptom onset (eSituation.01) is documented and occurs prior to the incident time.
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none"> • Record meets suspected stroke syndrome criteria • Emergency Response • Patient Transport

1.7 Coverdell 07: Thrombolytic checklist*

Measure	Percentage of suspected-stroke 911 transports that had a thrombolytic stroke check completed
Purpose	The purpose of this measure is to identify the use of thrombolytic stroke checklist tools in the pre-hospital setting. Thrombolytic stroke checks may help determine next treatment steps, including eligibility for thrombolytic therapy.
Numerator	Reperfusion Checklist (eVitals.31) specifies any of the following values: 3331001: Definite Contraindications to Thrombolytic Use 3331003: No contraindications to Thrombolytic Use 3331005: Possible Contraindications to Thrombolytic Use
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none"> • Record meets suspected stroke syndrome criteria • Emergency Response • Patient Transport

CP/STEMI QI Measures

2 CARDIAC CHEST PAIN AND SUSPECTED STEMI MEASURES

All of the measures in this section can be accessed via the [Biospatial EMS Performance Dashboard: CP/STEMI QI Measures](#)

Cardiac Chest Pain Syndrome Definition

An EMS record is labeled suspected Cardiac Chest pain If one or more of the following are true:

- Provider primary or secondary impression (eSituation.11/eSituation.12) of I20-I25, R07.9
(Note: R07.89 is not included as cardiac chest pain)

Suspected STEMI Syndrome definition

An EMS record is labeled as “Suspected STEMI” If one or more of the following are true:

- Provider primary or secondary impression (eSituation.11, eSituation.12) indicate any of the following ICD-10-CM codes (sub-codes included): I21.0, I21.1, I21.2, I21.3.
- Destination Team Pre-Arrival Alert or Activation (eDisposition.24) is "4224013 Yes - STEMI"
- Has a STEMI-positive ECG Result:
 - Cardiac Rhythm / Electrocardiography (ECG) (eVitals.03) is one of the following:
 - 9901051 - STEMI Anterior Ischemia
 - 9901053 - STEMI Inferior Ischemia
 - 9901055 - STEMI Lateral Ischemia
 - 9901057 - STEMI Posterior Ischemia
 - 9901058 – STEMI Septal Ischemia
 - Medical Device Event Type (eDevice.03) = “4103001” 12-Lead ECG and Medical Device ECG Interpretation (eDevice.08) matches regular expression pattern “STEMI|ST ELEVATION”
- Protocols used (eProtocols.01) is "9914143 - Medical-ST-Elevation Myocardial Infarction (STEMI)" *(This element is not currently on the State ePCR)*

2.1 Chest Pain/STEMI: Aspirin Administration

Measure	Percentage of suspected cardiac chest pain or STEMI 911 responses with aspirin administration documented
Purpose	This indicator measures appropriate treatment of patients with cardiac chest pain or STEMI. Research has shown that early aspirin administration is beneficial in patients with STEMI.
Numerator	Medications administered (eMedications.03) is Aspirin (1191). Exclude if medications administered (eMedications.03) pertinent negatives are: 8801001: Contraindication Noted, 8801003: Denied by Order, 8801007: Medication Allergy, 8801009: Medication Already Taken, 8801019: Refused, 8801023: Unable to Complete
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none">• Record meets Cardiac Chest Pain syndrome OR STEMI syndrome criteria• Patient age (ePatient.15, ePatient.16) is greater than or equal to 35 years.• Emergency Response• Patient Contact

CP/STEMI QI Measures

2.2 Chest Pain/STEMI: 12-Lead ECG Performed

Measure	Percentage of suspected cardiac chest pain or STEMI 911 responses with a 12 lead ECG performed
Purpose	It is important to determine if a patient with chest pain is experiencing a STEMI prior to aspirin or nitroglycerine administration as these may change the ECG results
Numerator	<p>12-Lead ECG Done (At least one of the following)</p> <ul style="list-style-type: none"> ECG Type (eVitals.04) with a value of any of the following: 3304007: 12 Lead-Left Sided (Normal), 3304009: 12 Lead-Right Sided, 3304011: 15 Lead, 3304013: 18 Lead Procedure done (eProcedures.03) indicates 268400002 – 12-Lead ECG obtained, 429163003 – 15-Lead ECG obtained, 425808002 – 18-Lead ECG obtained Medical Device Event type (eDevice.03) 4103001 – 12-Lead ECG
Denominator	<p>The following must be true for a record to be considered:</p> <ul style="list-style-type: none"> Record meets Cardiac Chest Pain syndrome OR STEMI syndrome criteria Patient age (ePatient.15, ePatient.16) is greater than or equal to 35 years. Emergency Response Patient Contact

2.3 Chest Pain/STEMI: EMS arrival to 12-Lead <10 Minutes

Measure	Percentage of suspected cardiac chest pain or STEMI 911 responses with less than 10 minutes elapsed from EMS Arrival to first 12 Lead ECG
Purpose	The purpose of this measure is to assess timeliness once EMS has arrived on-scene, as an important link in the CV chain of survival. The American Heart Association/has established this as a benchmark for recognition of STEMI
Numerator	<p>The difference between the unit arrival on scene time (eTimes.06) and the time of 12-Lead ECG is less than ten minutes.</p> <p>Use earliest time that is after eTimes.06:</p> <ul style="list-style-type: none"> Date/Time Vital Signs Taken (eVitals.01) for the 12 Lead ECG Type (eVitals.04) Date/Time of Event (per medical device (eDevice.02) for 12-Lead ECG Event Type (eDevice.03) Date/Time procedure performed (eProcedures.01) for 12-Lead Procedure (eProcedures.03)
Denominator	<p>The following must be true for a record to be considered:</p> <ul style="list-style-type: none"> Record meets Cardiac Chest Pain syndrome OR STEMI syndrome criteria Patient age (ePatient.15, ePatient.16) is greater than or equal to 35 years. Emergency Response Patient Contact 12-Lead ECG Done (See Measure 2.2 Numerator)

CP/STEMI QI Measures

2.4 STEMI: On-scene Time <15 Minutes*

Measure	Percentage of STEMI 911 Transports with on-scene time under 15 minutes
Purpose	The purpose of this measure is to assess timeliness once EMS has arrived on-scene, as an important link in the CV chain of survival. The American Heart Association recommends an on-scene time of less than 15 minutes.
Numerator	The difference between the unit arrival on scene time (eTimes.06) and the unit left scene time (eTimes.09) is less than 15 minutes.
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none"> Record meets STEMI syndrome criteria Patient age (ePatient.15, ePatient.16) is greater than or equal to 35 years. Emergency Response Patient Transport

2.5 STEMI: STEMI Alert to Hospital <10 Minutes from ECG*

Measure	Percentage of 911 transports with STEMI positive 12-lead ECG where EMS called in and documented a STEMI alert within 10 minutes of the ECG result
Purpose	It is important for EMS to alert the receiving hospital before they arrive with the STEMI patient, to reduce elapsed time before treatment and ensuring appropriate hospital resources are mobilized before patient arrival to the hospital.
Numerator	<p>Destination Team Pre-Arrival Alert or Activation (eDisposition.24) is 4224013: Yes-STEMI</p> <p>The difference between Date/Time of Destination Prearrival Alert or Activation (eDisposition.25) and Date/Time of first STEMI-positive 12-Lead ECG is less than or equal to 10 minutes.</p> <p>For time of first STEMI-positive 12-lead ECG, use earliest time that is before eDisposition.25:</p> <ul style="list-style-type: none"> Date/Time Vital Signs Taken (eVitals.01) where: <ul style="list-style-type: none"> ECG Type (eVitals.04) is any of: 3304007: 12-Lead-Left Sided (Normal), 3304009: 12-Lead-Right Sided, 3304011: 15 Lead, 3304013: 18 Lead Cardiac Rhythm/Electrocardiography (ECG) (eVitals.03) is any of: 9901051: STEMI Anterior Ischemia, 9901053: STEMI Inferior Ischemia, 9901055: STEMI Lateral Ischemia, 9901057: STEMI Posterior Ischemia, 9901058: STEMI Septal Ischemia Date/Time of Event (per medical device (eDevice.02) where: <ul style="list-style-type: none"> Medical Device Event Type (eDevice.03) = “4103001” 12-Lead ECG Medical Device ECG Interpretation (eDevice.08) matches regular expression pattern “STEMI ST ELEVATION”
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none"> Patient age (ePatient.15, ePatient.16) is greater than or equal to 35 years. Emergency Response Patient Transport Has a STEMI positive ECG result (See STEMI syndrome definition)

3 OUT-OF-HOSPITAL CARDIAC ARREST MEASURES

All of the measures in this section can be accessed via the Biospatial [Resuscitation Dashboard](#)

Out-of-Hospital Cardiac Arrest Syndrome Definition

An EMS record is labeled as “OHCA” if any of the following are true:

- Cardiac Arrest (eArrest.01) = “Yes, Prior to Any EMS Arrival” or “Yes, After Any EMS Arrival” where EMS includes Transport EMS & Medical First Responders
- Provider primary/secondary impressions (eSituation.11/eSituation.12) indicate any of the following ICD-10-CM codes (sub-codes included): I46.

3.1 EMS/First Responder Arrival to 1st CPR < 2 Minutes

Measure	Percent of out-of-hospital cardiac arrest events where EMS or First Responders initiated CPR within less than 2 minutes elapsed from arrival
Purpose	Early recognition and initiation of CPR improves chance of positive outcome. Every 10 minutes of arrest decreases chance of survival by approximately 10% so quick initiation of CPR improves chances of survival. With no bystander CPR, immediate intervention by EMS is critical. This may also be a good indicator for the need of emergency medical dispatch (EMD) to initiate bystander CPR.
Numerator	<p>If eArrest.01=Prior to any EMS arrival:</p> <ul style="list-style-type: none"> • If Who First initiated CPR= EMS Responder/Transport unit: <ul style="list-style-type: none"> ○ The difference between the unit arrival on scene time (eTimes.06) and the time of initial CPR (eArrest.19) is less than two minutes. • If Who First initiated CPR = First Responder EMS/LE/Non-EMS Fire <ul style="list-style-type: none"> ○ The difference between the Initial Responder Arrived on Scene time (eScene.05) and the time of initial CPR (eArrest.19) is less than two minutes. <p>If eArrest.01=After any EMS arrival:</p> <ul style="list-style-type: none"> • The difference between the Cardiac arrest time (eArrest.14) and the time of initial CPR (eArrest.19) is less than two minutes.
Denominator	<p>The following must be true for a record to be considered:</p> <ul style="list-style-type: none"> • Record meets Out-of-Hospital Cardiac Arrest syndrome criteria • Cardiac Arrest Etiology != “Traumatic” • Emergency Response • Patient Contact • eArrest.20 – Who First Initiated CPR = “First Responder” (including EMS/LE/Non-EMS Fire) or “EMS Responder (Transport EMS)”

OHCA QI Measures

3.2 OHCA: Sustained ROSC among unwitnessed

Measure	Percent of unwitnessed out-of-hospital cardiac arrest events for which sustained ROSC was attained.
Purpose	Every 10 minutes of arrest decreases chance of survival by approximately 10%. Attaining ROSC in this group is difficult and uncommon and should be separated from witnessed arrests for tracking purposes.
Numerator	Patients with ROSC sustained for 20 minutes (eArrest.12): <ul style="list-style-type: none"> • ‘3012007’: Yes, Sustained for 20 consecutive minutes
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none"> • Cardiac Arrest (eArrest.01) is "Yes, Prior to EMS Arrival". • Cardiac Arrest Etiology != “Traumatic” • Emergency Response • Patient Contact • Arrest Witnessed By (eArrest.04) is "Not Witnessed".

3.3 OHCA: Sustained ROSC among bystander witnessed

Measure	Percent of bystander witnessed out-of-hospital cardiac arrest events for which sustained ROSC was attained.
Purpose	Measures successful resuscitation attempts where patients had a better chance of survival due to bystander intervention and EMS care. Every 10 minutes of arrest decreases chance of survival by approximately 10%; bystander initiation of CPR improves chances of survival by maintaining viability until advanced EMS care arrives. This measure also indicates need for community training in CPR if bystander intervention rates are low. This may also be a good indicator for the need of emergency medical dispatch (EMD) to initiate bystander CPR.
Numerator	Patients with ROSC sustained for 20 minutes (eArrest.12): <ul style="list-style-type: none"> • ‘3012007’: Yes, Sustained for 20 consecutive minutes
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none"> • Cardiac Arrest (eArrest.01) is "Yes, Prior to EMS Arrival". • Cardiac Arrest Etiology != “Traumatic” • Emergency Response • Patient Contact • Arrest Witnessed by (eArrest.04) is ‘3004003’: Arrest witnessed by family member, ‘3004005’: Arrest witnessed by healthcare provider, ‘3004007’: Arrest witnessed by lay person

OHCA QI Measures

3.4 OHCA: Sustained ROSC among EMS witnessed

Measure	Percent of EMS witnessed out-of-hospital cardiac arrest events for which sustained ROSC was attained.
Purpose	Measures successful resuscitation attempts where patients had the best chance of survival due to immediate EMS care. EMS-witnessed arrests may have near immediate CPR and/or defibrillation which provides the best chance of survival.
Numerator	Patients with ROSC sustained for 20 minutes (eArrest.12): <ul style="list-style-type: none">• ‘3012007’: Yes, Sustained for 20 consecutive minutes
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none">• Cardiac Arrest (eArrest.01) is "Yes, After EMS Arrival".• Cardiac Arrest Etiology != “Traumatic”• Emergency Response• Patient Contact

3.5 OHCA: Initial Cardiac Rhythm documented

Measure	Percent of out-of-hospital cardiac arrests with initial cardiac rhythm documented
Purpose	This measure is to evaluate the chance of survival as patients in VF or VT have a higher survival rate than PEA or asystole
Numerator	First Monitored Arrest rhythm of the patient (eArrest.11) is not missing
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none">• Record meets Out-of-Hospital Cardiac Arrest syndrome criteria• Cardiac Arrest Etiology != “Traumatic”• Emergency Response• Patient Contact

3.6 OHCA: Cardiac arrest alert to hospital*

Measure	Percentage of out-of-hospital cardiac arrests where EMS called in and documented pre-arrival alert to the receiving hospital.
Purpose	It is important for EMS to alert the receiving hospital before they arrive with the OHCA patient, to reduce elapsed time before treatment and ensuring appropriate hospital resources are mobilized before patient arrival to the hospital.
Numerator	Destination team pre-arrival alert or activation (eDisposition.24) is 4224005: “Cardiac Arrest”.
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none">• Record meets Out-of-Hospital Cardiac Arrest syndrome criteria• Cardiac Arrest Etiology != “Traumatic”• Emergency Response• Patient Transport

Safety QI Measures

4 SAFETY

All of the measures in this section can be access via the [Biospatial EMS Performance Dashboard: Safety QI Measures](#)

4.1 Safety: No lights and sirens during response to scene

Measure	Percentage of 911 responses in which lights and sirens were not used during response.
Purpose	Systems that implement enhanced medical screening at the 9-1-1 center can safely reduce the use of lights and sirens during response to a call for a minor injury and illness. This protects the ambulance crew and public from potential danger, as a consequence of lights and sirens use.
Numerator	Additional Response Mode Descriptors (eResponse.24) is "No Lights or Sirens".
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none">• Emergency Response• Patient Contact

4.2 Safety: No lights and sirens during patient transport*

Measure	Percentage of 911 transports during which lights and sirens were not used during patient transport.
Purpose	This measure focuses on the judicious use of lights and sirens during patient transport. There are strong guidelines and published studies that support the limited use of lights and sirens to protect not only the public but also EMS providers and patients from potential danger, as a consequence of lights and sirens use.
Numerator	Additional Transport Mode Descriptors (eDisposition.18) is "No Lights or Sirens".
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none">• Emergency Response• Patient Transport

5 TRAUMATIC BRAIN INJURY (TBI) MEASURES

Some of the measures in this section (5.1-5.4, 5.8A) can be accessed via the [Biospatial EMS Performance Dashboard: TBI QI Measures](#).

TBI Syndrome Definition

An EMS record is labeled as TBI-related if one or more of the following are true:

- Provider primary or secondary impression (eSituation.11/eSituation.12) of S09.90, S02, S04.02, S04.03, S04.04, S06, S07.1, T74.4

5.1 TBI: Total GCS Documented

Measure	Percentage of 911 responses for TBI with Complete GCS Recorded
Purpose	GCS is important for detecting early deterioration in a patient's level of consciousness and can raise provider suspicion of TBI in trauma patients.
Numerator	Total Glasgow Coma Score (eVitals.23) is documented in the range of 3-15.
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none"> • Record meets TBI Syndrome criteria • Emergency Response • Patient Contact

5.2 TBI: HR Documented

Measure	Percentage of 911 responses for TBI with heart rate recorded.
Purpose	Changes in heart rate can indicate impending hypotension and can help indicate the need for fluid resuscitation.
Numerator	Heart rate (eVitals.10) is documented with a valid integer value.
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none"> • Record meets TBI Syndrome criteria • Emergency Response • Patient Contact

5.3 TBI: RR Documented

Measure	Percentage of 911 responses for TBI with respiratory rate recorded.
Purpose	Early detection of hypoventilation is essential to preventing secondary brain injury from hypoxia and can indicate the need for positive pressure ventilation.
Numerator	Respiratory rate (eVitals.14) is documented with a valid integer value.
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none"> • Record meets TBI Syndrome criteria • Emergency Response • Patient Contact

TBI QI Measures

5.4 TBI: SBP Documented

Measure	Percentage of 911 responses for TBI with systolic blood pressure recorded.
Purpose	A single episode of SBP <90 mmHg is independently associated with at least a doubling of mortality; repeated episodes of hypotension can increase the risk of death by as much as eight times.
Numerator	Systolic Blood Pressure (eVitals.06) is documented with a valid integer value.
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none">• Record meets TBI Syndrome criteria• Emergency Response• Patient Contact

5.5 TBI: SpO2 Documented

Measure	Percentage of 911 responses for TBI with Pulse Oximetry Measurement recorded.
Purpose	Pulse oximetry monitoring is used to identify declining blood oxygen levels in order to prevent or treat hypoxia. In TBI patients, a single non-spurious episode of hypoxia (SPO2 <90%) is associated with a doubling of mortality.
Numerator	SpO2 (eVitals.12) is documented with a valid integer value.
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none">• Record meets TBI Syndrome criteria• Emergency Response• Patient Contact

5.6 TBI: Blood Glucose Documented

Measure	Percentage of 911 responses for TBI with blood glucose level recorded
Purpose	Hypoglycemia can mimic symptoms of head injury such as altered mental status, confusion, and lethargy. Hyperglycemia can exacerbate brain injury and affect neurological outcomes. Knowing the patients BGL helps in determining treatment
Numerator	Blood Glucose (eVitals.18) is documented with a valid integer value.
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none">• Record meets TBI Syndrome criteria• Emergency Response• Patient Contact

TBI QI Measures

5.7 TBI: Dextrose administration for BG <70 mg/dL

Measure	Dextrose is administered for blood glucose findings less than 70mg/dL.
Purpose	In hypoglycemic patients, prompt administration of dextrose can reverse neurological symptoms
Numerator	Medications administered (eMedications.03) includes any of the following Glucose – 4850, Glucagon-4832. Glucose oral gel- 377980 dextrose 5 % Injectable Solution – 309778 dextrose 10 % Injectable Solution – 237648, 317630 dextrose 250 MG/ML Injectable Solution – 260258 dextrose 50 % Injectable Solution – 237653
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none"> • Record meets TBI Syndrome criteria • Emergency Response • Patient Contact • Any Blood Glucose (eVitals.18) measurement <70mg/dL

5.8 (A) TBI: Oxygen Administration

Measure	Percentage of 911 responses for TBI with Supplemental Oxygen Administered
Purpose	Continuous high-flow oxygen should be administered to all suspected TBI patients as soon as possible to minimize risk of secondary brain injury from hypoxia.
Numerator	Medications administered (eMedications.03) is Oxygen (7806)
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none"> • Record meets TBI Syndrome criteria • Emergency Response • Patient Contact

5.9 (A) TBI: No Hypotension

Measure	Percentage of 911 responses for TBI with No instances of Systolic Blood Pressure less than 90 mmHg
Purpose	A single episode of SBP <90 mmHg is independently associated with at least a doubling of mortality; repeated episodes of hypotension can increase the risk of death by as much as eight times.
Numerator	No instances of measured Systolic Blood Pressure (eVitals.06) less than 90 mmHg.
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none"> • Record meets TBI Syndrome criteria • Emergency Response • Patient Contact

TBI QI Measures

5.10 (A) TBI: No Hypoxia (90%)

Measure	Percentage of 911 responses for TBI with no instances of Pulse Oximetry Measurement less than 90%.
Purpose	In TBI patients, a single non-spurious episode of hypoxia (SPO2 <90%) is associated with a doubling of mortality.
Numerator	No instances of measured Pulse Oximetry (eVitals.12) less than 90%.
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none"> • Record meets TBI Syndrome criteria • Emergency Response • Patient Contact

5.11 (A) TBI: No Hyperventilation with PPV

Measure	Percentage of 911 responses for TBI with PPV and no instances of measured End Tidal Carbon Dioxide <35 mmHg
Purpose	In positive pressure ventilation, hyperventilation is independently associated with at least a doubling of mortality and some studies have shown that even moderate hyperventilation can increase the risk of death by six times.
Numerator	No instances of measured End Tidal Carbon Dioxide (eVitals.16) <35 mmHg.
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none"> • Record meets TBI Syndrome criteria • Emergency Response • Patient Contact • Either of the following are true: <ul style="list-style-type: none"> ○ Airway Device Being Confirmed (eAirway.03) is Any Non-null value OR Procedure (eProcedures.03) of BVM, ETI, or SGA ○ Medication administered (eMedications.03) = Oxygen (7806) and Route (eMedications.04) = 9927065 BVM

6 SEVERE TRAUMA MEASURES

All of the measures in this section can be accessed via the [Biospatial EMS Performance Dashboard: Severe Trauma QI Measures](#).

Severe Trauma Syndrome Definition

An EMS record is labeled as Severe Trauma if both of the following are true:

- The provider primary or secondary impressions (eSituation.11, eSituation.12) must match on one or more of the following ICD-10-CM codes (sub-codes included):
 - G89.11: Acute pain due to trauma
 - S00-S99: Anatomic Injuries
 - R58: Hemorrhage, not elsewhere classified
 - O71.9: Obstetric Trauma, unspecified
 - T79 Certain early complications of trauma, not elsewhere classified
 - T15-T34, L55.0-L55.2 Foreign bodies, burns, corrosions, frostbite
 - T07, T14.8, T14.90: Injury, unspecified
- The record matches RED (high risk for serious injury) trauma field triage criteria (eInjury.03- Note: Biospatial also considers eExam, eInjury, and eVitals elements to determine the applicable trauma triage criteria levels of the patient).
 - Amputation proximal to wrist or ankle
 - Crushed, degloved, mangled, or pulseless extremity
 - Chest wall instability of deformity (e.g. flail chest)
 - Glasgow Coma Score ≤ 13 (*DEPRECATED in NEMSIS 3.5*)
 - Skull deformity, suspected skull fracture
 - Paralysis (*DEPRECATED in NEMSIS 3.5*)
 - Suspected pelvic fracture
 - Penetrating injuries to head, neck, torso, and proximal extremities
 - Respiratory Rate <10 or >29 breaths per minute (<20 in infants aged <1 year) or need for ventilatory support (*DEPRECATED in NEMSIS 3.5*)
 - Systolic Blood Pressure <90 mmHg (*DEPRECATED in NEMSIS 3.5*)
 - Suspected fracture of two or more proximal long bones
 - Active bleeding requiring a tourniquet or wound packing with continuous pressure (*ADDED in NEMSIS 3.5*)
 - Age ≥ 10 years: HR $>$ SBP (*ADDED in NEMSIS 3.5*)
 - Age ≥ 65 years: SBP < 110 mmHg (*ADDED in NEMSIS 3.5*)
 - Age 0-9 years: SBP < 70 mm Hg + (2 x age in years) (*ADDED in NEMSIS 3.5*)
 - Age 10-64 years: SBP < 90 mmHg (*ADDED in NEMSIS 3.5*)
 - Respiratory distress or need for respiratory support (*ADDED in NEMSIS 3.5*)
 - Room-air pulse oximetry $< 90\%$ (*ADDED in NEMSIS 3.5*)
 - RR < 10 or > 29 breaths/min (*ADDED in NEMSIS 3.5*)
 - Suspected spinal injury with new motor or sensory loss (*ADDED in NEMSIS 3.5*)
 - Unable to follow commands (motor GCS < 6) (*ADDED in NEMSIS 3.5*)

Severe Trauma QI Measures

6.1 Severe Trauma: Total GCS Documented

Measure	Percentage of 911 responses for Severe Trauma with Complete GCS Recorded
Purpose	GCS is important for detecting early deterioration in a patient's level of consciousness. Documenting GCS facilitates multi-disciplinary communication and care coordination between the multiple teams of healthcare providers participating in the care of injured patients.
Numerator	Total Glasgow Coma Score (eVitals.23) is documented in the range of 3-15.
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none">• Record meets Severe Trauma syndrome criteria• Emergency Response• Patient Contact

6.2 Severe Trauma: HR Documented

Measure	Percentage of 911 responses for Severe Trauma with Heart Rate Recorded
Purpose	Pulse is significant to measure for assessing the physiological and pathological processes affecting the body. Monitoring basic vital signs is important for patient triage, and early detection of changes in vital signs is key to timely intervention.
Numerator	Heart rate (eVitals.10) is documented with a valid integer value.
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none">• Record meets Severe Trauma syndrome criteria• Emergency Response• Patient Contact

6.3 Severe Trauma: RR Documented

Measure	Percentage of 911 responses for Severe Trauma with Respiratory Rate Recorded
Purpose	Respiratory rate is a fundamental vital sign that is sensitive to different pathological conditions and stressors. Monitoring it is important for patient triage, and early detection of changes in vital signs is key to timely intervention.
Numerator	Respiratory rate (eVitals.14) is documented with a valid integer value.
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none">• Record meets Severe Trauma syndrome criteria• Emergency Response• Patient Contact

6.4 Severe Trauma: SBP Documented

Measure	Percentage of 911 responses for Severe Trauma with Blood Pressure Recorded
Purpose	Blood pressure is an essential vital sign to comprehend the hemodynamic condition of the patient. Monitoring basic vital signs is important for patient triage, and early detection of changes in vital signs is key to timely intervention.
Numerator	Systolic Blood Pressure (eVitals.06) is documented with a valid integer value.
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none">• Record meets Severe Trauma syndrome criteria• Emergency Response• Patient Contact

Severe Trauma QI Measures

6.5 Severe Trauma: Oxygen Administration

Measure	Percentage of 911 responses for Severe trauma supplemental oxygen administered.
Purpose	Supplemental oxygen treatment is recommended in ATLS and PHTLS, which often leads to a 'default' administration of oxygen even without an indication. Supplemental oxygen treatment is provided to prevent or correct hypoxia, as this may cause tissue hypoxia with organ injury. However, oxygen administration also introduces a risk of hyperoxemia, which comes with other complications.
Numerator	Medications administered (eMedications.03) is Oxygen (7806).
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none"> Record meets Severe Trauma syndrome criteria Emergency Response Patient Contact

6.6 Severe Trauma: On-scene Time <10 Minutes*

Measure	Percentage of 911 transports for Severe trauma with scene time less than 10 minutes.
Purpose	Patients with serious trauma require rapid assessment, treatment, and transportation to a designated trauma center for evaluation by a physician, critical interventions, and surgery. While research has not shown that short scene times actually improve survival outcomes in trauma patients, EMS believes that rapid care in a hospital is good for the patient because it can expedite how quickly a patient may receive critical care and necessary surgical interventions.
Numerator	The difference between the unit arrival on scene time (eTimes.06) and the unit left scene time (eTimes.09) is less than 10 minutes.
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none"> Record meets Severe Trauma syndrome criteria Emergency Response Patient Transport

6.7 Severe Trauma: Trauma Alert to Hospital*

Measure	Percentage of 911 transports for Severe Trauma where EMS called in and documented a trauma alert to the receiving hospital
Purpose	EMS can play an important role by alerting the receiving hospital of an incoming trauma patient prior to arrival. This allows the hospital to assemble the necessary providers and mobilize resources before patient arrival. Depending on the criteria of the receiving hospital, EMS can also activate the trauma team from the field.
Numerator	Destination team pre-arrival alert or activation (eDisposition.24) is any of the following: 4224003 – Adult Trauma 4224011 – Pediatric Trauma 4224017 - Trauma – General
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none"> Record meets Severe Trauma syndrome criteria Emergency Response Patient Transport

7 MOTOR VEHICLE CRASH

The measures in this section are not yet available in Biospatial. The [Biospatial MVC Dashboard](#) can be used to further explore your data.

Motor Vehicle Crash Syndrome Definition

An EMS record is categorized as MVC-related if any of the following are true:

- Two or more of the following fields are present and valid within the record:
 - Area of vehicle impacted (eInjury.05)
 - Location of patient in vehicle (eInjury.06)
 - Occupant safety equipment (eInjury.07); "None" value is excluded.
 - Airbag deployment (eInjury.08)
 - eInjury.04 (*NEMSIS 3.4- Vehicular, pedestrian, or other injury risk factors; NEMSIS 3.5- Trauma Triage Criteria Moderate Risk for Serious Injury*) is one of the following values:
 - 2904001: Pedestrian/bicycle rider thrown, run over, or with significant impact
 - 2904007: Auto Crash: Death in passenger compartment
 - 2904009: Auto Crash: Partial or complete ejection
 - 2904011: Auto Crash: Significant intrusion (including roof): >12 inches occupant site; >18 inches any site; need for extrication
 - 2904013: Auto Crash: Vehicle telemetry data consistent with severe injury
 - 2904015: Motorcycle Crash > 20 MPH (*DEPRECATED in NEMSIS 3.5*)
 - 2904029: Auto Crash: Child (age 0-9 years) unrestrained or in unsecured child safety seat (*ADDED in NEMSIS 3.5*)
 - 2904035: Rider separated from transport vehicle with significant impact (e.g., Motorcycle, ATV, horse) (*ADDED in NEMSIS 3.5*)
- Dispatch complaint (eDispatch.01) is 2301069- "Traffic/Transportation Incident" or 2301009- "Automated Crash Notification".
- Narrative (eNarrative.01; E13_01) OR patient complaint (eSituation.04; E09_05, E09_08) contain an MVC-related term (e.g., "ATV", "traffic accident", "airbag deployment", "motorcycle crash", "snow-mobile collision", "MVC", "pedestrian struck", etc.)
- Provider primary/secondary impression (eSituation.11/eSituation.12) or cause of injury (eInjury.01) indicate any of the following ICD-10-CM codes (sub-codes included):
 - V02-V04, V09.0, V09.2, V09.3- Pedestrian injured in MVC
 - V12-V14, V19.0-V19.2, V19.4-V19.9- Pedal Cycle rider injured in MVC
 - V20-V79, V81-V88, V89.0, V89.2, V89.9- Motor vehicle occupant injured
 - V80.3-V80.5- Animal rider injured in MVC
 - V98.8-V99- Other/unspecified transport accidents
 - Y32- MVC undetermined intent
 - Y03, Y02.0- MVC Assault
 - X82, X81.0- MVC self-harm

MVC QI Measures

7.1 MVC: Location of the patient in vehicle documented

Measure	Percentage of emergency responses for MVC with location of patient in vehicle documented
Purpose	It's important for EMS personnel to accurately document the location of the patient in the vehicle at the time of the crash to explain factors surrounding the patient's injury, scene delays, or extrication. Understanding the circumstances, such as patient location, associated with different injury patterns and severities can guide safety campaigns, educational programs, and targeted interventions to reduce the risk of specific types of injuries.
Numerator	Location of patient in the vehicle (eInjury.06) is documented
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none"> Record meets Motor Vehicle Crash syndrome criteria Emergency Response Patient Contact

7.2 MVC: Occupant Safety equipment documented

Measure	Percentage of emergency responses for MVC with occupant safety equipment documented
Purpose	It's important for EMS personnel to accurately document use of occupant safety equipment at the time of the crash to explain factors surrounding the patient's injury, scene delays, or extrication. Understanding the circumstances, such as use of occupant safety equipment, associated with different injury patterns and severities can guide safety campaigns, educational programs, and targeted interventions to reduce the risk of specific types of injuries.
Numerator	Use of occupant safety equipment (eInjury.07) is documented
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none"> Record meets Motor Vehicle Crash syndrome criteria Emergency Response Patient Contact

7.3 MVC: Scene Location documented

Measure	Percentage of emergency responses for MVC where scene location elements are documented
Purpose	Documenting accurate scene location facilitates geolocating crashes which can play a crucial role in addressing road problems by informing infrastructure improvements, optimizing traffic flow, enhancing safety measures, and supporting targeted interventions. This data-driven approach is instrumental in creating safer road environments and reducing the incidence of accidents.
Numerator	All of the following elements must be documented Incident Street Address (eScene.15), Incident City (eScene.17), Incident State (eScene.18), Incident ZIP Code (eScene.19), Incident County (eScene.21)
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none"> Record meets Motor Vehicle Crash syndrome criteria Emergency Response Patient Contact

MVC QI Measures

7.4 MVC: Scene GPS documented

Measure	Percentage of emergency responses for MVC where scene location GPS coordinates were documented
Purpose	Documenting scene GPS allows for geolocating crashes which can play a crucial role in addressing road problems by informing infrastructure improvements, optimizing traffic flow, enhancing safety measures, and supporting targeted interventions. This data-driven approach is instrumental in creating safer road environments and reducing the incidence of accidents. Not all ePCRs allow for entry of GPS coordinates; if this is the case, documenting a complete and accurate address is a good alternative.
Numerator	Scene GPS Location (eScene.11) is documented.
Denominator	The following must be true for a record to be considered: <ul style="list-style-type: none">• Record meets Motor Vehicle Crash syndrome criteria• Emergency Response• Patient Contact

Definitions

DEFINITIONS

TYPE OF SERVICE REQUESTED

Emergency Response

Type of Service Requested (eResponse.05) is any of the following:

- 2205001 Emergency Response (Primary Response Area)
- 2205003 Emergency Response (Intercept)
- 2205009 Emergency Response (Mutual Aid)

(Applicable for NEMSIS 3.4 and 3.5)

DISPOSITION

Patient Contact

NEMSIS 3.4

Incident patient disposition (eDisposition.12) is:

- 4212013 Patient Dead at Scene-No Resuscitation Attempted (With Transport)
- 4212015 Patient Dead at Scene-No Resuscitation Attempted (Without Transport)
- 4212017 Patient Dead at Scene-Resuscitation Attempted (With Transport)
- 4212019 Patient Dead at Scene-Resuscitation Attempted (Without Transport)
- 4212021 Patient Evaluated, No Treatment/Transport Required
- 4212023 Patient Refused Evaluation/Care (With Transport)
- 4212025 Patient Refused Evaluation/Care (Without Transport)
- 4212027 Patient Treated, Released (AMA)
- 4212029 Patient Treated, Released (per protocol)
- 4212031 Patient Treated, Transferred Care to Another EMS Unit
- 4212033 Patient Treated, Transported by this EMS Unit
- 4212035 Patient Treated, Transported by Law Enforcement
- 4212037 Patient Treated, Transported by Private Vehicle

NEMSIS 3.5 (Both must be true)

Unit disposition (eDisposition.27) is:

- 4227001 Patient Contact Made

Patient Evaluation/Care (eDisposition.28) is:

- 4228001 Patient Evaluated and Care Provided
- 4228003 Patient Evaluated and Refused Care
- 4228005 Patient Evaluated, No Care Required
- 4228007 Patient Refused Evaluation/Care

Definitions

Patient Care Provided

NEMSIS 3.4

Incident patient disposition (eDisposition.12) is:

- 4212017 Patient Dead at Scene-Resuscitation Attempted (With Transport)
- 4212019 Patient Dead at Scene-Resuscitation Attempted (Without Transport)
- 4212027 Patient Treated, Released (AMA)
- 4212029 Patient Treated, Released (per protocol)
- 4212031 Patient Treated, Transferred Care to Another EMS Unit
- 4212033 Patient Treated, Transported by this EMS Unit
- 4212035 Patient Treated, Transported by Law Enforcement
- 4212037 Patient Treated, Transported by Private Vehicle

NEMSIS 3.5 (Both must be true)

Unit disposition (eDisposition.27) is:

- 4227001 Patient Contact Made

Patient Evaluation/Care (eDisposition.28) is:

- 4228001 Patient Evaluated and Care Provided

Patient Transport

NEMSIS 3.4

Incident patient disposition (eDisposition.12) is:

- 4212013 Patient Dead at Scene-No Resuscitation Attempted (With Transport)
- 4212017 Patient Dead at Scene-Resuscitation Attempted (With Transport)
- 4212033 Patient treated, transported by this EMS unit

NEMSIS 3.5 (The record must also meet the criteria for Patient Contact)

Transport disposition (eDisposition.30) is any of the following:

- 4230001 Transport by This EMS Unit (This Crew Only)
- 4230003 Transport by This EMS Unit, with a Member of Another Crew
- 4230007 Transport by Another EMS Unit, with a Member of This Crew

Definitions

SYNDROME DEFINITIONS

SUSPECTED STROKE

An EMS record is labeled as “Suspected stroke” if one or more of the following are true:

- Provider primary or secondary impression (eSituation.11/eSituation.12) indicate any of the following ICD-10-CM codes (sub-codes included): I60, I61, I63, G45, G46.3, G46.4
- Stroke scale score (eVitals.19) = “Positive”
- Destination Team Pre-Arrival Alert or Activation (eDisposition.24) is 4224015: "Yes - Stroke"
- Protocols used (eProtocols.01) is 9914145: "Medical-Stroke/TIA" *(This element is not currently on the State ePCR)*

CARDIAC CHEST PAIN

An EMS record is labeled suspected Cardiac Chest pain If one or more of the following are true:

- Provider primary or secondary impression (eSituation.11/eSituation.12) of I20-I25, R07.9 *(Note: R07.89 is not included as cardiac chest pain)*

SUSPECTED STEMI

An EMS record is labeled as “Suspected STEMI” If one or more of the following are true:

- Provider primary or secondary impression (eSituation.11, eSituation.12) indicate any of the following ICD-10-CM codes (sub-codes included): I21.0, I21.1, I21.2, I21.3.
- Destination Team Pre-Arrival Alert or Activation (eDisposition.24) is "4224013 Yes - STEMI"
- Has a STEMI-positive ECG Result:
 - Cardiac Rhythm / Electrocardiography (ECG) (eVitals.03) is one of the following:
 - 9901051 - STEMI Anterior Ischemia
 - 9901053 - STEMI Inferior Ischemia
 - 9901055 - STEMI Lateral Ischemia
 - 9901057 - STEMI Posterior Ischemia
 - 9901058 – STEMI Septal Ischemia
 - Medical Device Event Type (eDevice.03) = “4103001” 12-Lead ECG and Medical Device ECG Interpretation (eDevice.08) matches regular expression pattern “STEMI|ST ELEVATION”
- Protocols used (eProtocols.01) is "9914143 - Medical-ST-Elevation Myocardial Infarction (STEMI)" *(This element is not currently on the State ePCR)*

OUT-OF-HOSPITAL CARDIAC ARREST

An EMS record is labeled as “OHCA” if any of the following are true:

- Cardiac Arrest (eArrest.01) = “Yes, Prior to EMS Arrival” or “Yes, After EMS Arrival”
- Provider primary/secondary impressions (eSituation.11/eSituation.12) indicate any of the following ICD-10-CM codes (sub-codes included): I46.

Definitions

SEVERE TRAUMA

An EMS record is labeled as Severe Trauma if both of the following are true:

- The provider primary or secondary impressions must match on one or more of the following ICD-10-CM codes (sub-codes included):
 - G89.11: Acute pain due to trauma
 - S00-S99: Anatomic Injuries
 - R58: Hemorrhage, not elsewhere classified
 - O71.9: Obstetric Trauma, unspecified
 - T79 Certain early complications of trauma, not elsewhere classified
 - T15-T34, L55.0-L55.2 Foreign bodies, burns, corrosions, frostbite
 - T07, T14.8, T14.90: Injury, unspecified
- The record matches RED (high risk for serious injury) trauma field triage criteria (eInjury.03- Note: Biospatial also considers eExam, eInjury, and eVitals elements to determine the applicable trauma triage criteria levels of the patient).
 - Amputation proximal to wrist or ankle
 - Crushed, degloved, mangled, or pulseless extremity
 - Chest wall instability of deformity (e.g. flail chest)
 - Glasgow Coma Score ≤ 13 (*DEPRECATED in NEMSIS 3.5*)
 - Skull deformity, suspected skull fracture
 - Paralysis (*DEPRECATED in NEMSIS 3.5*)
 - Suspected pelvic fracture
 - Penetrating injuries to head, neck, torso, and proximal extremities
 - Respiratory Rate <10 or >29 breaths per minute (<20 in infants aged <1 year) or need for ventilatory support (*DEPRECATED in NEMSIS 3.5*)
 - Systolic Blood Pressure <90 mmHg (*DEPRECATED in NEMSIS 3.5*)
 - Suspected fracture of two or more proximal long bones
 - Active bleeding requiring a tourniquet or wound packing with continuous pressure (*ADDED in NEMSIS 3.5*)
 - Age ≥ 10 years: HR $>$ SBP (*ADDED in NEMSIS 3.5*)
 - Age ≥ 65 years: SBP < 110 mmHg (*ADDED in NEMSIS 3.5*)
 - Age 0-9 years: SBP < 70 mm Hg + (2 x age in years) (*ADDED in NEMSIS 3.5*)
 - Age 10-64 years: SBP < 90 mmHg (*ADDED in NEMSIS 3.5*)
 - Respiratory distress or need for respiratory support (*ADDED in NEMSIS 3.5*)
 - Room-air pulse oximetry $< 90\%$ (*ADDED in NEMSIS 3.5*)
 - RR < 10 or > 29 breaths/min (*ADDED in NEMSIS 3.5*)
 - Suspected spinal injury with new motor or sensory loss (*ADDED in NEMSIS 3.5*)
 - Unable to follow commands (motor GCS < 6) (*ADDED in NEMSIS 3.5*)

TRAUMATIC BRAIN INJURY

An EMS record is labeled as TBI-related if one or more of the following are true:

- Provider primary or secondary impression (eSituation.11/eSituation.12) of S09.90, S02, S04.02, S04.03, S04.04, S06, S07.1, T74.4

Definitions

MOTOR VEHICLE CRASH

An EMS record is categorized as MVC-related if any of the following are true:

- Two or more of the following fields are present and valid within the record:
 - Area of vehicle impacted (eInjury.05)
 - Location of patient in vehicle (eInjury.06)
 - Occupant safety equipment (eInjury.07); "None" value is excluded.
 - Airbag deployment (eInjury.08)
 - eInjury.04 (*NEMSIS 3.4- Vehicular, pedestrian, or other injury risk factors; NEMSIS 3.5- Trauma Triage Criteria Moderate Risk for Serious Injury*) is one of the following values:
 - 2904001: Pedestrian/bicycle rider thrown, run over, or with significant impact
 - 2904007: Auto Crash: Death in passenger compartment
 - 2904009: Auto Crash: Partial or complete ejection
 - 2904011: Auto Crash: Significant intrusion (including roof): >12 inches occupant site; >18 inches any site; need for extrication
 - 2904013: Auto Crash: Vehicle telemetry data consistent with severe injury
 - 2904015: Motorcycle Crash > 20 MPH (*DEPRECATED in NEMSIS 3.5*)
 - 2904029: Auto Crash: Child (age 0-9 years) unrestrained or in unsecured child safety seat (*ADDED in NEMSIS 3.5*)
 - 2904035: Rider separated from transport vehicle with significant impact (e.g., Motorcycle, ATV, horse) (*ADDED in NEMSIS 3.5*)
- Dispatch complaint (eDispatch.01) is 2301069- "Traffic/Transportation Incident" or 2301009- "Automated Crash Notification".
- Narrative (eNarrative.01; E13_01) OR patient complaint (eSituation.04; E09_05, E09_08) contain an MVC-related term (e.g., "ATV", "traffic accident", "airbag deployment", "motorcycle crash", "snow-mobile collision", "MVC", "pedestrian struck", etc.)
- Provider primary/secondary impression (eSituation.11/eSituation.12) or cause of injury (eInjury.01) indicate any of the following ICD-10-CM codes (sub-codes included):
 - V02-V04, V09.0, V09.2, V09.3- Pedestrian injured in MVC
 - V12-V14, V19.0-V19.2, V19.4-V19.9- Pedal Cycle rider injured in MVC
 - V20-V79, V81-V88, V89.0, V89.2, V89.9- Motor vehicle occupant injured
 - V80.3-V80.5- Animal rider injured in MVC
 - V98.8-V99- Other/unspecified transport accidents
 - Y32- MVC undetermined intent
 - Y03, Y02.0- MVC Assault
 - X82, X81.0- MVC self-harm