



# California EMS System Core Quality Measures

**Emergency Medical Services Authority  
California Health and Human Services Agency**

EMSA #166 - Appendix E  
EMS System Quality Improvement Program Guidelines





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## STATUTORY AUTHORITY

The California EMS Authority (EMSA or authority) is charged with creating a “statewide system for emergency medical services” and the responsibility for the “coordination and integration of all state activities concerning emergency medical services” (HS 1797.1). Moreover, the authority is required to assess each EMS area or the system’s service area, utilizing regional and local information, for “the purpose of determining the need for additional emergency medical services, coordination of emergency medical services and the effectiveness of emergency medical services” (HS1797.102). And local EMS agencies are required to plan, implement, and evaluate an EMS system (HS 1797.204).

Health and Safety Code 1797.103 identifies that one of the required elements of an EMS system is data collection and evaluation. Additionally, the development of quality improvement guidelines must be established (HS 1797.174). As a result of this statutory mandate, EMSA has developed regulations requiring the system data collection and evaluation, collection of prehospital care reports (CCR, Title 22, Division 9, Chapter 4, Section 100147, 100169, 100170).

Additionally, EMS system quality improvement regulations have been established (CCR, Title 22, Division 9, Chapter 12) that define the requirements for local EMS agencies, EMS service providers, and base hospitals in their role as part of the EMS system. These requirements include, but are not limited to the implementation of an EMSA approved EMS Quality Improvement program (EMS QI) and the use of defined indicators to assess the local EMS system as found in EMSA #166, Appendix E. This evaluation and EMS QI information must be submitted annually to EMSA, as part of its required EMS plan (HS 1797.254), in order to allow EMSA to evaluate if the plan effectively meets the needs of the persons served.

A report to the Legislature must be made on the effectiveness of EMS systems annually related to the EMS system’s impact on death and disability (HS 1797.121).

In order to achieve this mandate to evaluate system impact on patients, the continuum of care from dispatch to pre-hospital to hospital disposition must be connected. Only in this way, we can begin to understand how care provided by EMS personnel translates to improved outcomes and system effectiveness.

## PROJECT HISTORY

The purpose of the EMS system core measures project is to increase the accessibility and accuracy of pre-hospital data for public, policy, academic and research purposes to facilitate EMS system evaluation and improvement through a grant from the California Health Care Foundation (CHCF). Ultimately, the project highlights opportunities to improve the quality of patient care delivered within an EMS system.

During a 1 year period, from April 1, 2012 to April 30, 2013, The California EMS Authority (EMSA) is performing the following activities to deliver a set of publicly available data reports:

1. Assess the capacity of the California Emergency Medical Services Information System to deliver core performance measures.
2. Create a formal data system profile and written analysis to identify areas for data quality improvement and inform an action plan to address the issues.
3. Work to reveal opportunities for both short-term and long-term data improvement plans.
4. Focus on achieving reliable measures that are high value and feasible within a short-term time frame.
5. Define and publish core measure sets that describe the coordination and effectiveness of EMS utilizing regional and local information for California. This project focuses upon the following core measure sets:
  - Trauma
  - Acute Coronary Syndrome/Heart Attack
  - Cardiac Arrest
  - Stroke
  - Respiratory
  - Pain Intervention
  - Pediatric
  - Skill Performance by EMS Providers
  - EMS Response and Transport
  - Public Education Bystander CPR
6. Submit California EMS data to the National EMS Information System (NEMSIS) to evaluate the statewide system from a national perspective.
7. Conduct three data workshops for local EMS agencies across the state to implement improved data collection and reporting practices with those Local Emergency Medical Services Agencies who participate in California Emergency Medical Services Information System.

## WHAT ARE CORE MEASURES?

They are the use of standardized – or core – performance measures or quality indicators in examining an EMS system or treating an identified patient condition.

## CORE MEASURES DEFINITION

The preliminary California EMS Core Measures were derived largely from a set of quality indicators developed through a project by the National Quality Forum. Additionally, NHSTA has published Performance Measures for emergency medical services. These California core measures will begin to benchmark the performance of EMS systems, perform recommended treatments determined to get the best results for patients with certain medical conditions, and transport patients to the most appropriate hospital. Information about these treatments are taken from the pre-hospital care reports and converted into a percentage.

The measures are based on scientific evidence about processes and treatments that are known to get the best results for a condition or illness. Core Measures help emergency medical services systems improve the quality of patient care by focusing on the actual results of care.

## COMPARING PERFORMANCE

Emergency medical services systems across the state will be measured and compared on their performance in these Core Measures. There will be a delay between when data is reported from EMS systems and when it is available for review. This is because EMSA will have to wait for all local systems in the state to be compiled before it can post its quality data for a given period. This way, EMS systems and consumers can compare California program from the same time period.

In the future, EMS providers should utilize these core measures to assist in continuous quality improvement activities.

## SYSTEM EVALUATION

The recurring theme in evaluation of the EMS system using these core measures consists of:

- Arrival at the scene in a timely manner,
- Timely, focused patient assessment,
- Delivery of time-sensitive prehospital therapy, and
- Transport to a hospital capable of providing necessary care



## **FUTURE CORE MEASURES**

It is anticipated that the proposed EMS system cores measures may be modified and future core measures added in the future.

## **CORE MEASURES TASK FORCE**

A task force has been convened to review the core measures and make recommendations. The task force consists of key data and quality leaders from local EMS agencies, medical directors, hospitals, and pre-hospital EMS providers.

## **QUALIFYING DATA**

The data derived for all measures will come from the calendar years of 2009, 2010, and 2011. Reports will be run by calendar year to obtain longitudinal comparisons.

## **STANDARD ELEMENTS FOR EVERY MEASURE**

The following standard elements are necessary to sort by time and location:

- Date/Time E05\_01
- County E08\_13
- LEMSA C01\_01

## **REFERENCE INFORMATION**

The California EMS System Core Quality Measures contains various references and coding from other documents. All data elements and values referenced in the Core Measures are coded using CEMSIS data standards, except where otherwise specified as NEMSIS. Please refer to the following documents regarding the codes found in each measure:

EMSA #164: CEMSIS Data System Standards  
(<http://www.emsa.ca.gov/pubs/pdf/emsa164.pdf>)

NEMSIS 2.2.1 Data Dictionary – Updated 4/9/2012  
([http://www.nemsis.org/v2/downloads/documents/NEMSIS\\_Data\\_Dictionary\\_v2.2.1\\_04092012.pdf](http://www.nemsis.org/v2/downloads/documents/NEMSIS_Data_Dictionary_v2.2.1_04092012.pdf))

NHTSA: Emergency Medical Services Performance Measures – Updated 12/2009  
([www.ems.gov/pdf/811211.pdf](http://www.ems.gov/pdf/811211.pdf))

## EMS SYSTEM CORE MEASURES FOR CALIFORNIA

CCR Title 22, Div 9, Chap 12 100404	SET NAME	SET ID	PERFORMANCE MEASURE NAME	YEAR BEGIN TO BE MEASURED
<b>D Clinical Care and Patient Outcome</b>	<b>Trauma (n=2)</b>	TRA-1	Scene time for severely injured trauma patients	2013
		TRA-2	Direct transport to trauma center for severely injured trauma patients meeting criteria	2013
	<b>Acute Coronary Syndrome (n=5)</b>	ACS-1	Aspirin administration for chest pain/discomfort	2013
		ACS-2	12 lead EKG performance	2013
		ACS-3	Scene time for suspected heart attack patients	2013
		ACS-4	Advance hospital notification for suspected acute coronary syndrome	2014
		ACS-5	Direct transport to PCI center for suspected acute coronary syndrome (ACS) patients meeting criteria	2013
	<b>Cardiac Arrest (n=4)</b>	CAR-1	AED application prior to EMS Arrival	2014
		CAR-2	Out-of-hospital cardiac arrests return of spontaneous circulation	2013
		CAR-3	Out-of-hospital cardiac arrests survival to emergency department discharge	2013
		CAR-4	Out-of-hospital cardiac arrests survival to hospital discharge	2013
	<b>Stroke (n=5)</b>	STR-1	Identification of suspected stroke in the field	2014
		STR-2	Glucose testing for suspected stroke patients	2013
		STR-3	Scene time for suspected stroke patients	2013
		STR-4	Advance hospital notification for suspected stroke	2014
		STR-5	Direct transport to stroke center for suspected stroke patients meeting criteria	2013
	<b>Respiratory (n=2)</b>	RES-1	CPAP given for patients with respiratory distress	2014
		RES-2	Beta2 agonist administration	2013
	<b>Pediatric (n=2)</b>	PED-1	Pediatric asthma patients receiving bronchodilators	2013
		PED-2	Transport to pediatric trauma center	2014
	<b>Pain Intervention (n=2)</b>	PAI-1	Pain intervention	2013
		PAI-2	Results of pain intervention	2014

(Continued)

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CCR Title 22, Div 9, Chap 12 100404	SET NAME	SET ID	PERFORMANCE MEASURE NAME	YEAR BEGIN TO BE MEASURED
<b>E</b> <b>Skills Maintenance and Competency</b>	<b>Performance of Skills (n=2)</b>	SKL-1	Endotracheal intubation success rate	2013
		SKL-2	End-Tidal CO2 performed on any successful endotracheal intubation	2013
<b>F</b> <b>Transportation and Facilities</b>	<b>Response and Transport (n=3)</b>	RST-1	Ambulance response time by ambulance zone (Emergency)	2013
		RST-2	Ambulance response time by ambulance zone (Non-Emergency)	2013
		RST-3	Transport of patients to hospital	2013
<b>G</b> <b>Public Education</b>	<b>Cardiopulmonary Resuscitation (n=1)</b>	PUB-1	Out-of-hospital cardiac arrests receiving bystander (non-EMS Personnel/Responder) CPR	2014

## **Core Measures Specification Sheets**

## SCENE TIME FOR SEVERELY INJURED TRAUMA PATIENTS

<b>MEASURE SET</b>	Trauma	
<b>SET MEASURE ID #</b>	TRA-1	
<b>PERFORMANCE MEASURE NAME</b>	Scene time for severely injured trauma patients	
<b>Description</b>	On-Scene Time (90 <sup>th</sup> percentile) of severely injured Trauma Patients who were transported from the scene by ambulance	
<b>Type of Measure</b>	Process	
<b>Reporting Value and Units</b>	Time (Minutes and Seconds)	
<b>Continuous Variable Statement (Population)</b>	Time (in minutes) from time ambulance arrives at the scene until the time ambulance departs from the scene for Trauma patients, meeting criteria for transport to a trauma center (using revised trauma score or RTS<5), who received transport by ambulance to a hospital by EMS personnel (EMT, AEMT, and Paramedic).	
<b>Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>• All events for which E02_04 “type of service requested” has value 30 “911 response (scene),”; and vehicle type corresponds to ground ambulance;</li> <li>• E02_20 “response mode to scene” has a value of 390 “lights and sirens”</li> <li>• Values for “arrived at scene” E05_06 and “unit left scene” E05_09 are present and logical;</li> <li>• Patients with E09_15 “provider primary impression” value 1740 “blunt injury” or 1741 “penetrating injury”, <u>or</u> E09_16 “provider secondary impression” value 1875 “blunt injury” or 1876 “penetrating injury” <u>and</u>:</li> <li>• patients with E14_27 “Revised Trauma Score” &lt;5;</li> </ul> <p><u>OR</u></p> <ul style="list-style-type: none"> <li>• All events for which E02_04 “type of service requested” has value 30 “911 response (scene),”; and vehicle type corresponds to ground</li> </ul>	<ul style="list-style-type: none"> <li>• Type of Service Requested (E02_04)</li> <li>• Response mode to scene (E02_20)</li> <li>• Arrived at Scene (E05_06)</li> <li>• Unit Left Scene (E05_09)</li> <li>• Provider Primary Impression (E09_15)</li> <li>• Provider Secondary Impression (E09_16)</li> <li>• Revised Trauma Score (E14_27)</li> <li>• Systolic Blood Pressure (E14_04)</li> <li>• Total GCS Value (E14_19)</li> <li>• Respiratory Rate (E14_11)</li> <li>• Date of Birth (E06_16)</li> <li>• Age Units (E06_15)</li> <li>• Age (E06_14)</li> </ul>

	<p>ambulance; and E02_20 “response mode to scene” has a value of 390 “lights and sirens” and values for “arrived at scene” E05_06 and “unit left scene” E05_09 are present and logical;</p> <ul style="list-style-type: none"> <li>• Patients with E09_15 “provider primary impression” values 1740 “blunt injury” or 1741 “penetrating injury”, or E09_16 “provider secondary impression” values 1875 “blunt injury” or 1876 “penetrating injury” <u>and:</u></li> <li>• E14_19 “Total Glasgow Coma Score” value &lt; 14; or</li> <li>• E14_04 “systolic blood pressure” value &lt; 90; or</li> <li>• E14_11 “respiratory rate” value &lt; 10 or &gt; 29 for patients aged 1 year or older or E14_11 “respiratory rate” value &lt; 20 for patients less than 1 year of age</li> </ul>	
<b>Exclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	None	
<b>Indicator Formula Numeric Expression</b>	The formula is the 90 <sup>th</sup> Percentile of the given numbers or distribution in their ascending order.	
<b>Example of Final Reporting Value (number and units)</b>	14 minutes, 34 seconds (14:34)	
<b>Sampling</b>	Yes	
<b>Aggregation</b>	Yes	
<b>Blinded</b>	Yes	
<b>Minimum Data Values</b>	30	
<b>Data Collection Approach</b>	<input type="checkbox"/> Retrospective data sources for required data elements include administrative data and pre-hospital care records. <input type="checkbox"/> Variation may exist in the assignment of coding; therefore, coding practices may require evaluation to ensure consistency.	
<b>Suggested Display Format &amp;</b>	Process control or run chart by month	

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<b>Frequency</b>	
<b>Suggested Statistical Measures</b>	90 <sup>th</sup> Percentile Measurement. Aggregate measure of central tendency and quantile (fractile) measurement to determine the span of frequency distributions.
<b>Trending Analysis</b>	Yes
<b>Benchmark Analysis</b>	(TBD)
<b>Rationale for Data</b>	<input type="checkbox"/> The rapid transport of severe trauma patients from the scene to trauma centers has been well documented as a key indicator of survival.
<b>References</b>	NEMSIS Core Measure, Indicator 10.4

## DIRECT TRANSPORT TO TRAUMA CENTER FOR SEVERELY INJURED TRAUMA PATIENTS MEETING CRITERIA

<b>MEASURE SET</b>	Trauma	
<b>SET MEASURE ID #</b>	TRA-2	
<b>PERFORMANCE MEASURE NAME</b>	Direct transport to trauma center for severely injured trauma patients meeting criteria	
<b>Description</b>	Trauma Patients who were transported from the scene directly to a Trauma Center	
<b>Type of Measure</b>	Process	
<b>Reporting Value and Units</b>	(%) Percentage	
<b>Denominator Statement (population)</b>	All trauma patients, meeting trauma criteria (using a Revised Trauma Score or RTS<5) for transport from scene to a trauma center	
<b>Denominator Inclusion Criteria</b>	<b>Criteria</b>	<b>Data Elements</b>
	<ul style="list-style-type: none"> <li>• All events for which E02_04 “type of service requested” has value 30 “911 response (scene),”; and vehicle type corresponds to ground ambulance;</li> <li>• E02_20 “response mode to scene” has a value of 390 “lights and sirens”</li> <li>• Values for “arrived at scene” E05_06 and “unit left scene” E05_09 are present and logical;</li> <li>• Patients with E09_15 “provider primary impression” value 1740 “blunt injury” or 1741 “penetrating injury”, <u>or</u> E09_16 “provider secondary impression” value 1875 “blunt injury” or 1876 “penetrating injury” <u>and</u>:</li> <li>• patients with E14_27 “Revised Trauma Score” &lt;5;</li> </ul> <p><u>OR</u></p> <ul style="list-style-type: none"> <li>• All events for which E02_04 “type of service requested” has value 30 “911 response (scene),”; and vehicle type corresponds to ground ambulance; and E02_20 “response mode to scene” has a value of 390 “lights and sirens” and values for “arrived at scene” E05_06 and “unit left scene” E05_09 are present and logical;</li> </ul>	<ul style="list-style-type: none"> <li>• Provider Primary Impression (E09_15)</li> <li>• Provider Secondary Impression (E09_16)</li> <li>• Type of Service Requested (E02_04)</li> <li>• Revised Trauma Score (E14_27)</li> <li>• Systolic Blood Pressure (E14_04)</li> <li>• Total GCS Value (E14_19)</li> <li>• Respiratory Rate (E14_11)</li> <li>• Date of Birth (E06_16)</li> <li>• Age Units (E06_15)</li> <li>• Age (E06_14)</li> </ul>



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	<ul style="list-style-type: none"> <li>Patients with E09_15 “provider primary impression” values 1740 “blunt injury” or 1741 “penetrating injury”, or E09_16 “provider secondary impression” values 1875 “blunt injury” or 1876 “penetrating injury” <u>and</u>:</li> <li>E14_19 “Total Glasgow Coma Score” value &lt; 14; or</li> <li>E14_04 “systolic blood pressure” value &lt; 90; or</li> <li>E14_11 “respiratory rate” value &lt; 10 or &gt; 29 for patients aged 1 year or older or E14_11 “respiratory rate” value &lt; 20 for patients less than 1 year of age</li> </ul>	
<b>Exclusion Criteria</b>	<b>Criteria</b>	<b>Data Elements</b>
	<ul style="list-style-type: none"> <li>All patients who were not transported to trauma center</li> </ul>	
<b>Numerator Statement (sub-population)</b>	Trauma patients, meeting criteria for transport to a trauma center, who received transport by ambulance directly to a trauma center by Ambulance	
<b>Numerator Inclusion Criteria</b>	<b>Criteria</b>	<b>Data Elements</b>
	<ul style="list-style-type: none"> <li>All events for which E02_04 “type of service requested” has value 30 “911 response (scene),”; and vehicle type corresponds to ground ambulance; and E02_20 “response mode to scene” has a value of 390 “lights and sirens” and values for “arrived at scene” E05_06 and “unit left scene” E05_09 are present and logical;</li> <li>Patients with E09_15 “provider primary impression” value 1740 “blunt injury” or 1741 “penetrating injury”, or E09_16 “provider secondary impression” value 1875 “blunt injury” or 1876 “penetrating injury” <u>and</u>:</li> <li>patients with E14_27 “Revised Trauma Score” &lt;5; <u>And</u></li> <li>Patients who have “destination/transferred to” code (E20_02) of a trauma center</li> </ul> <p><b><u>OR</u></b></p>	<ul style="list-style-type: none"> <li>Revised Trauma Score (E14_27)</li> <li>Incident/Patient Disposition (E20_10)</li> <li>Hospital Destination (E20_02)</li> </ul>

	<ul style="list-style-type: none"> <li>• All events for which E02_04 “type of service requested” has value 30 “911 response (scene),”; and vehicle type corresponds to ground ambulance; and E02_20 “response mode to scene” has a value of 390 “lights and sirens” and values for “arrived at scene” E05_06 and “unit left scene” E05_09 are present and logical;</li> <li>• Patients with E09_15 “provider primary impression” values 1740 “blunt injury” or 1741 “penetrating injury”, or E09_16 “provider secondary impression” values 1875 “blunt injury” or 1876 “penetrating injury” <u>and:</u></li> <li>• E14_19 “Total Glasgow Coma Score” value &lt; 14; or</li> <li>• E14_04 “systolic blood pressure” value &lt; 90; or</li> <li>• E14_11 “respiratory rate” value &lt; 10 or &gt; 29 for patients aged 1 year or older or E14_11 “respiratory rate” value &lt; 20 for patients less than 1 year of age <u>And</u></li> <li>• Patients who have “destination/transferred to” code (E20_02) of a trauma center</li> </ul>	
<b>Exclusion Criteria</b>	<b>Criteria</b>	<b>Data Elements</b>
	None	
<b>Indicator Formula Numeric Expression</b>	The formula is to divide (/) the numerator (N) by the denominator (D) and then multiply (x) by 100 to obtain the (%) value the indicator is to report. Therefore the indicator expressed numerically is N/D =%	
<b>Example of Final Reporting Value (number and units)</b>	90%	
<b>Sampling</b>	Yes	
<b>Aggregation</b>	Yes	
<b>Blinded</b>	Yes	
<b>Minimum Data Values</b>	30	

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<b>Data Collection Approach</b>	<input type="checkbox"/> Retrospective data sources for required data elements include administrative data and pre-hospital care records. <input type="checkbox"/> Variation may exist in the assignment of coding; therefore, coding practices may require evaluation to ensure consistency.
<b>Suggested Display Format &amp; Frequency</b>	Process control or run chart by month
<b>Suggested Statistical Measures</b>	Mean (x); Mode (m)
<b>Trending Analysis</b>	Yes
<b>Benchmark Analysis</b>	(TBD)
<b>Rationale for Data</b>	<input type="checkbox"/> The rapid transport of trauma patients to trauma centers has been well documented as a key indicator of survival.
<b>References</b>	NEMSIS Core Measure, Indicator 5

**ASPIRIN ADMINISTRATION FOR CHEST PAIN/DISCOMFORT RATE**

<b>MEASURE SET</b>	Acute Coronary Syndrome (ACS)	
<b>SET MEASURE ID #</b>	ACS-1	
<b>PERFORMANCE MEASURE NAME</b>	Aspirin administration for chest pain/discomfort rate	
<b>Description</b>	Patients aged 35 years and older with suspected cardiac chest pain who received aspirin by EMS personnel	
<b>Type of Measure</b>	Process	
<b>Reporting Value and Units</b>	(%) Percentage	
<b>Improvement Noted As</b>	An increase in the rate in terms of the percentage	
<b>Denominator Statement (population)</b>	Number of patients over age 35 creating a provider impression of chest pain/discomfort who are eligible for aspirin administration	
<b>Denominator Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>Patients with E09_15 1650 “Chest pain – suspected cardiac origin” or E09_16 value 1785 “chest pain – suspected cardiac origin”;</li> <li>Patients aged 35 years and older</li> </ul>	<ul style="list-style-type: none"> <li>Provider Primary Impression (E09_15)</li> <li>Provider Secondary Impression (E09_16)</li> <li>Age (E06_14)</li> <li>Age Units E06_15)</li> <li>Date of Birth ( E06_16)</li> </ul>
<b>Exclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	None	
<b>Numerator Statement (sub-population)</b>	Number of patients creating a provider impression of chest pain/discomfort who are eligible for and receive aspirin administration	
<b>Numerator Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>

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	<ul style="list-style-type: none"> <li>• Patients with E09_15 1650 “Chest pain – suspected cardiac origin “or E09_16 value 1785 “chest pain – suspected cardiac origin”;</li> <li>• Patients aged 35 years and older <u>And</u></li> <li>• E18_03 “medications given” equal to 8625 “aspirin”</li> </ul>	<ul style="list-style-type: none"> <li>• Medications given (E18_03)</li> </ul>
<b>Exclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	None	
<b>Indicator Formula Numeric Expression</b>	The formula is to divide (/) the numerator (N) by the denominator (D) and then multiply (x) by 100 to obtain the (%) value the indicator is to report. Therefore the indicator expressed numerically is N/D =%	
<b>Example of Final Reporting Value (number and units)</b>	90%	
<b>Sampling</b>	Yes	
<b>Aggregation</b>	Yes	
<b>Blinded</b>	Yes	
<b>Minimum Data Values</b>	30	
<b>Data Collection Approach</b>	<input type="checkbox"/> Retrospective data sources for required data elements include administrative data and pre-hospital care records. <input type="checkbox"/> Variation may exist in the assignment of coding; therefore, coding practices may require evaluation to ensure consistency.	
<b>Suggested Display Format &amp; Frequency</b>	Process control or run chart by month	
<b>Suggested Statistical Measures</b>	Mean (x); Mode (m)	
<b>Trending Analysis</b>	Yes	
<b>Benchmark Analysis</b>	(TBD)	

<p><b>Rationale for Data</b></p>	<p>□ The early use of aspirin in patients with acute myocardial infarction results in a significant reduction in adverse events and subsequent mortality. The benefits of aspirin therapy on mortality are comparable to fibrinolytic therapy. The combination of aspirin and fibrinolytics provides additive benefits for patients with ST-elevation myocardial infarction (ISIS-2, 1988).</p> <p>□ Aspirin is also effective in patients with non-ST-elevation myocardial infarction (Theroux, 1988 and RISC Group, 1990). National guidelines strongly recommend early aspirin for patients hospitalized with AMI (Antman, 2004; Antman, 2008; and Wright, 2011).</p>
<p><b>References</b></p>	<p>NEMSIS Core Measure, Indicator 8</p>

## 12 LEAD ECG PERFORMANCE

<b>MEASURE SET</b>	Acute Coronary Syndrome (ACS)	
<b>SET MEASURE ID #</b>	ACS-2	
<b>PERFORMANCE MEASURE NAME</b>	12 Lead ECG Performance	
<b>Description</b>	Acute Coronary Syndrome (ACS) patients who received ECG by Paramedics	
<b>Type of Measure</b>	Process	
<b>Reporting Value and Units</b>	(%) Percentage	
<b>Denominator Statement (population)</b>	Number of patients creating a provider impression of chest pain/discomfort	
<b>Denominator Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>Patients with E09_15 1650 Chest pain – suspected cardiac origin or E09_16 value 1785 “chest pain – suspected cardiac origin”;</li> <li>Patients aged 35 years and older</li> </ul>	<ul style="list-style-type: none"> <li>Provider Primary Impression (E09_15)</li> <li>Provider Secondary Impression (E09_16)</li> <li>Age (E06_14)</li> <li>Age Units (E06_15)</li> <li>Date of Birth (E06_16)</li> </ul>
<b>Exclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	None	
<b>Numerator Statement (sub-population)</b>	Number of patients creating a provider impression of chest pain/discomfort who have 12-lead EKG performed	
<b>Numerator Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>Patients with E09_15 1650 Chest pain – suspected cardiac origin or E09_16 value 1785 “chest pain – suspected cardiac origin”; and</li> <li>Patients aged 35 years and older</li> <li><u>and</u></li> <li>Have a E19_03 “procedure” value 89.820 “12 lead -(Obtain)” or 89.821 “12 Lead (Transmitted)</li> </ul>	<ul style="list-style-type: none"> <li>Provider Primary Impression (E09_15)</li> <li>Provider Secondary Impression (E09_16)</li> <li>Age (E06_14)</li> <li>Age Units (E06_15)</li> <li>Date of Birth (E06_16)</li> <li>Procedures Performed (E19_03)</li> </ul>

<b>Exclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	None	
<b>Indicator Formula Numeric Expression</b>	The formula is to divide (/) the numerator (N) by the denominator (D) and then multiply (x) by 100 to obtain the (%) value the indicator is to report. Therefore the indicator expressed numerically is $N/D = \%$	
<b>Example of Final Reporting Value (number and units)</b>	90%	
<b>Sampling</b>	Yes	
<b>Aggregation</b>	Yes	
<b>Blinded</b>	Yes	
<b>Minimum Data Values</b>	30	
<b>Data Collection Approach</b>	<input type="checkbox"/> Retrospective data sources for required data elements include administrative data and pre-hospital care records. <input type="checkbox"/> Variation may exist in the assignment of coding; therefore, coding practices may require evaluation to ensure consistency.	
<b>Suggested Display Format &amp; Frequency</b>	Process control or run chart by month	
<b>Suggested Statistical Measures</b>	Mean (x); Mode (m)	
<b>Trending Analysis</b>	Yes	
<b>Benchmark Analysis</b>	(TBD)	
<b>Rationale for Data</b>	<input type="checkbox"/> Guidelines recommend patients presenting with chest discomfort or symptoms suggestive of ST-segment elevation myocardial infarction (STEMI) have a 12-lead electrocardiogram (ECG) performed within a target of 10 minutes of emergency department arrival (Krumholz, 2008). Evidence supports reperfusion benefits patients with identified STEMI (Antman 2004). <input type="checkbox"/> The diagnosis and management of STEMI patients is dependent upon practices within the emergency department. Timely ECGs assist in identifying STEMI patients and impact the choice of reperfusion strategy (Peacock, 2007). This measure will identify if 12-lead ECG for chest pain for AMI patients are being performed.	
<b>References</b>	NEMSIS Core Measure Indicator 7	



## SCENE TIME FOR SUSPECTED HEART ATTACK PATIENTS

<b>MEASURE SET</b>	Acute Coronary Syndrome	
<b>SET MEASURE ID #</b>	ACS-3	
<b>PERFORMANCE MEASURE NAME</b>	Scene time for suspected heart attack patients	
<b>Description</b>	Scene Time of patients with field 12 lead ECG indicated ST Elevation Myocardial Infarction (STEMI)	
<b>Type of Measure</b>	Process	
<b>Reporting Value and Units</b>	Minutes	
<b>Continuous Variable Statement (Population)</b>	The 90 <sup>th</sup> percentile time interval in an emergency from EMS “arrived at scene” to “unit left scene”, for a given period of time, of patients having a recorded “STEMI” value for an indicator like E14_03 “cardiac rhythm”	
<b>Denominator Inclusion Criteria</b>	<b>Criteria</b>	<b>Data Elements</b>
	<ul style="list-style-type: none"> <li>• All events for which E02_04 “type of service requested” has value 30 “911 response (scene),”; and vehicle type corresponds to ground ambulance; and</li> <li>• E02_20 “response mode to scene” has a value of 390 “lights and sirens”</li> <li>• Values for “arrived at scene” E05_06 and “unit left scene” E05_09 are present and logical;</li> <li>• Patients aged 35 years and older</li> <li>• Patient has a “STEMI” value recorded for an indicator like E14_03 “cardiac rhythm”, such as 3005, 3010, 3015</li> </ul>	<ul style="list-style-type: none"> <li>• Type of Service Requested (E02_04)</li> <li>• Arrived at Scene (E05_06)</li> <li>• Unit Left Scene (E05_09)</li> <li>• Cardiac Rhythm (E14_03)</li> <li>• Age (E06_14)</li> <li>• Age Units (E06_15)</li> <li>• Date of Birth (E06_16)</li> </ul>
<b>Exclusion Criteria</b>	<b>Criteria</b>	<b>Data Elements</b>
	None	
<b>Indicator Formula Numeric Expression</b>	The formula is the 90 <sup>th</sup> Percentile of the given numbers or distribution in their ascending order.	
<b>Example of Final Reporting Value (number and units)</b>	14 minutes, 20 seconds (14:20)	
<b>Sampling</b>	Yes	

<b>Aggregation</b>	Yes
<b>Blinded</b>	Yes
<b>Minimum Data Values</b>	30
<b>Data Collection Approach</b>	<input type="checkbox"/> Retrospective data sources for required data elements include administrative data and pre-hospital care records. <input type="checkbox"/> Variation may exist in the assignment of coding; therefore, coding practices may require evaluation to ensure consistency.
<b>Suggested Display Format &amp; Frequency</b>	Process control or run chart by month
<b>Suggested Statistical Measures</b>	Mean (x); Mode (m)
<b>Trending Analysis</b>	Yes
<b>Benchmark Analysis</b>	(TBD)
<b>Rationale for Data</b>	
<b>References</b>	NEMSIS Core Measure Indicator 10.4

## ADVANCE HOSPITAL NOTIFICATION FOR SUSPECTED ACS

<b>MEASURE SET</b>	Acute Coronary Syndrome	
<b>SET MEASURE ID #</b>	ACS-4 (To Be Measured in 2014)	
<b>PERFORMANCE MEASURE NAME</b>	Advance hospital notification for suspected Acute Coronary Syndrome	
<b>Description</b>	Advance hospital notification by EMS personnel to the receiving hospital via radio or telephone of patients identified in the prehospital setting as experiencing a STEMI	
<b>Type of Measure</b>	Process	
<b>Reporting Value and Units</b>	(%) Percentage	
<b>Denominator Statement (population)</b>	Number of patients having a recorded “STEMI” value for an indicator like E14_03 “cardiac rhythm”	
<b>Denominator Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>Patients aged 35 years and older</li> <li>Patients having E14_03 “cardiac rhythm” recorded with a “STEMI” value, such as 30005, 3010, 3015</li> </ul>	<ul style="list-style-type: none"> <li>Age (E06_14)</li> <li>Age Units (E06_15)</li> <li>Date of Birth (E06_16)</li> <li>Cardiac Rhythm (E14_03)</li> </ul>
<b>Exclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	None	
<b>Numerator Statement (sub-population)</b>	Number of patients having a recorded “STEMI” value for an indicator like E14_03 “cardiac rhythm” that have an E20_02 “destination/transferred to code” of an interventional cardiac cath center (STEMI Center) and advance hospital notification/activation/alert occurred	
<b>Numerator Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>Patients aged 35 years and older</li> <li>Patients having E14_03 “cardiac rhythm” recorded with a “STEMI” value, such as 30005, 3010, 3015</li> <li><u>And</u></li> <li>have an E20_02 “destination/transferred to code” of (STEMI Center) an interventional cardiac cath center; and</li> <li>have hospital received advance</li> </ul>	<ul style="list-style-type: none"> <li>Age (E06_14)</li> <li>Age Units (E06_15)</li> <li>Date of Birth (E06_16)</li> <li>Cardiac Rhythm (E14_03)</li> <li>Destination/Transferred to Code (E20_02)</li> <li>Hospital STEMI Alert Notification</li> </ul>

	notification/activation/alert	
<b>Exclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	None	
<b>Indicator Formula Numeric Expression</b>	The formula is to divide (/) the numerator (N) by the denominator (D) and then multiply (x) by 100 to obtain the (%) value the indicator is to report. Therefore the indicator expressed numerically is $N/D = \%$	
<b>Example of Final Reporting Value (number and units)</b>	90%	
<b>Sampling</b>	Yes	
<b>Aggregation</b>	Yes	
<b>Blinded</b>	Yes	
<b>Minimum Data Values</b>	30	
<b>Data Collection Approach</b>	<input type="checkbox"/> Retrospective data sources for required data elements include administrative data and pre-hospital care records. <input type="checkbox"/> Variation may exist in the assignment of coding; therefore, coding practices may require evaluation to ensure consistency.	
<b>Suggested Display Format &amp; Frequency</b>	Process control or run chart by month	
<b>Suggested Statistical Measures</b>	Mean (x); Mode (m)	
<b>Trending Analysis</b>	Yes	
<b>Benchmark Analysis</b>	(TBD)	
<b>Rationale for Data</b>	<input type="checkbox"/> Advance hospital notification by EMS personnel may reduce the time to receive time sensitive diagnostics and therapy upon arrival at the emergency department. <input type="checkbox"/> Improved access to diagnostic imaging assists clinicians in the decision making process and treatment plans.	
<b>References</b>	CEMSIS Core Measures	

## DIRECT TRANSPORT TO PCI CENTER FOR SUSPECTED ACUTE CORONARY SYNDROME (ACS) PATIENTS MEETING CRITERIA

<b>MEASURE SET</b>	Acute Coronary Syndrome	
<b>SET MEASURE ID #</b>	ACS-5	
<b>PERFORMANCE MEASURE NAME</b>	Direct transport to PCI center for suspected acute coronary syndrome (ACS) patients meeting criteria	
<b>Description</b>	Suspected Acute Coronary Syndrome (ACS) patients who were transported from the scene directly to a STEMI Center capable of PCI	
<b>Type of Measure</b>	Process	
<b>Reporting Value and Units</b>	(%) Percentage	
<b>Denominator Statement (population)</b>	Number of patients having a recorded “STEMI” value for an indicator like E14_03 “cardiac rhythm”	
<b>Denominator Inclusion Criteria</b>	<b>Criteria</b>	<b>Data Elements</b>
	<ul style="list-style-type: none"> <li>Patients aged 35 years and older</li> <li>Patients having E14_03 “cardiac rhythm” recorded with a “STEMI” value, such as 30005, 3010, 3015</li> </ul>	<ul style="list-style-type: none"> <li>Age (E06_14)</li> <li>Age Units (E06_15)</li> <li>Date of Birth (E06_16)</li> <li>Cardiac Rhythm (E14_03)</li> </ul>
<b>Exclusion Criteria</b>		
	None	
<b>Numerator Statement (sub-population)</b>	Number of patients having a recorded “STEMI” value for an indicator like E14_03 “cardiac rhythm” that have an E20_02 “destination/ transferred to code” of an interventional cardiac cath center (STEMI Center)	
<b>Numerator Inclusion Criteria</b>	<b>Criteria</b>	<b>Data Elements</b>
	<ul style="list-style-type: none"> <li>Patients aged 35 years and older</li> <li>Patients having E14_03 “cardiac rhythm” recorded with a “STEMI” value, such as 30005, 3010, 3015</li> <li><u>And</u></li> <li>that have an E20_02 “destination/transferred to</li> </ul>	<ul style="list-style-type: none"> <li>Age (E06_14)</li> <li>Age Units (E06_15)</li> <li>Date of Birth (E06_16)</li> <li>Cardiac Rhythm (E14_03)</li> <li>Cardiac Rhythm (E14_03)</li> <li>Destination/Transferred to Code (E20_02)</li> </ul>

	code” of an interventional cardiac cath center (STEMI Center)	
<b>Exclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	None	
<b>Indicator Formula Numeric Expression</b>	The formula is to divide (/) the numerator (N) by the denominator (D) and then multiply (x) by 100 to obtain the (%) value the indicator is to report. Therefore the indicator expressed numerically is $N/D = \%$	
<b>Example of Final Reporting Value (number and units)</b>	90%	
<b>Sampling</b>	Yes	
<b>Aggregation</b>	Yes	
<b>Blinded</b>	Yes	
<b>Minimum Data Values</b>	30	
<b>Data Collection Approach</b>	<input type="checkbox"/> Retrospective data sources for required data elements include administrative data and pre-hospital care records. <input type="checkbox"/> Variation may exist in the assignment of coding; therefore, coding practices may require evaluation to ensure consistency.	
<b>Suggested Display Format &amp; Frequency</b>	Process control or run chart by month	
<b>Suggested Statistical Measures</b>	Mean (x); Mode (m)	
<b>Trending Analysis</b>	Yes	
<b>Benchmark Analysis</b>	(TBD)	
<b>Rationale for Data</b>		
<b>References</b>	NEMESIS Core Measure Indicator 9	

## AED PRIOR TO EMS ARRIVAL

<b>MEASURE SET</b>	Cardiac Arrest	
<b>SET MEASURE ID #</b>	CAR-1 (To Be Measured in 2014)	
<b>PERFORMANCE MEASURE NAME</b>	AED prior to EMS arrival	
<b>Description</b>	Application by bystander (non-EMS personnel/responders) of AED to cardiac arrest patient prior to EMS Arrival	
<b>Type of Measure</b>	Process	
<b>Reporting Value and Units</b>	Numeric Value	
<b>Denominator Statement (population)</b>	All patients in Cardiac Arrest	
<b>Denominator Inclusion Criteria</b>	<b>Criteria</b>	<b>Data Elements</b>
	<ul style="list-style-type: none"> <li>Patients having a recorded E11_01 “cardiac arrest” value of 2240 “yes, Prior to EMS arrival” or value of 2245 “yes, after EMS arrival”;</li> <li>E11_02 “cardiac arrest etiology” value of 2250 “presumed cardiac”</li> <li>E11_03 “resuscitation attempted” values 2280 “attempted defibrillation” or 2285 “attempted ventilation” or 2290 “initiated chest compressions”</li> </ul>	<ul style="list-style-type: none"> <li>Cardiac Arrest (E11_01)</li> <li>Cardiac Arrest Etiology (E11_02)</li> <li>Resuscitation Attempted (E11_03)</li> </ul>
<b>Exclusion Criteria</b>	<b>Criteria</b>	<b>Data Elements</b>
	None	
<b>Numerator Statement (sub-population)</b>	Patients in Cardiac Arrest who had AED application prior to arrival of EMS personnel	
<b>Numerator Inclusion Criteria</b>	<b>Criteria</b>	<b>Data Elements</b>
	<ul style="list-style-type: none"> <li>Patients having a recorded E11_01 “cardiac arrest” value of 2240 “yes, Prior to EMS arrival” or value of 2245 “yes, after EMS arrival”;</li> <li>E11_02 “cardiac arrest etiology” value of 2250 “presumed cardiac”</li> <li>E11_03 “resuscitation attempted” values 2280 “attempted defibrillation” or 2285 “attempted</li> </ul>	<ul style="list-style-type: none"> <li>Cardiac Arrest (E11_01)</li> <li>Cardiac Arrest Etiology (E11_02)</li> <li>Resuscitation Attempted (E11_03)</li> <li>Prior Aid Performed by (E09_02)</li> <li>Automated External Defibrillation (AED) Performed</li> </ul>

	<p>ventilation” or 2290 “initiated chest compressions”</p> <p><u>And</u></p> <ul style="list-style-type: none"> <li>• E09_02 “prior aid performed by” has a value of 1205 “lay person”, 1200 “law enforcement”, 1210 “other health care provider”, and</li> <li>• Automated External Defibrillation (AED) was performed.</li> </ul>	
<b>Exclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	None	
<b>Indicator Formula Numeric Expression</b>	The formula is to divide (/) the numerator (N) by the denominator (D) and then multiply (x) by 100 to obtain the (%) value the indicator is to report. Therefore the indicator expressed numerically is $N/D = \%$	
<b>Example of Final Reporting Value (number and units)</b>	90%	
<b>Sampling</b>	Yes	
<b>Aggregation</b>	Yes	
<b>Blinded</b>	Yes	
<b>Minimum Data Values</b>	30	
<b>Data Collection Approach</b>	<input type="checkbox"/> Retrospective data sources for required data elements include administrative data and pre-hospital care records. <input type="checkbox"/> Variation may exist in the assignment of coding; therefore, coding practices may require evaluation to ensure consistency.	
<b>Suggested Display Format &amp; Frequency</b>	Process control or run chart by month	
<b>Suggested Statistical Measures</b>	Mean (x); Mode (m)	
<b>Trending Analysis</b>	Yes	
<b>Benchmark Analysis</b>	(TBD)	
<b>Rationale for Data</b>		
<b>References</b>	CEMSIS Core Measures	



## OUT-OF-HOSPITAL CARDIAC ARRESTS RETURN OF SPONTANEOUS CIRCULATION

<b>MEASURE SET</b>	Cardiac Arrest	
<b>SET MEASURE ID #</b>	CAR-2	
<b>PERFORMANCE MEASURE NAME</b>	Out-of-hospital cardiac arrests return of spontaneous circulation	
<b>Description</b>	Number of patients experiencing cardiac origin cardiac arrest who have Return of Spontaneous Circulation (ROSC) at any time (Utstein) in a given period	
<b>Type of Measure</b>	Process	
<b>Reporting Value and Units</b>	(%) Percentage	
<b>Denominator Statement (population)</b>	Total number of patients in a given period experiencing cardiac origin cardiac arrest	
<b>Denominator Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>Patients having a recorded E11_01 “cardiac arrest” value of 2240 “yes, Prior to EMS arrival” or value of 2245 “yes, after EMS arrival”;</li> <li>E11_02 “cardiac arrest etiology” value of 2250 “presumed cardiac”</li> <li>E11_03 “resuscitation attempted” values 2280 “attempted defibrillation” or 2285 “attempted ventilation” or 2290 “initiated chest compressions”</li> </ul>	<ul style="list-style-type: none"> <li>Cardiac Arrest (E11_01)</li> <li>Cardiac Arrest Etiology (E11_02)</li> <li>Resuscitation Attempted (E11_03)</li> <li>Age (E06_14)</li> <li>Age Units (E06_15)</li> <li>Date of Birth (E06_16)</li> </ul>
<b>Exclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	None	
<b>Numerator Statement (sub-population)</b>	Number of patients experiencing cardiac origin cardiac arrest who have a return of spontaneous circulation (ROSC)	
<b>Numerator Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>Patients having a recorded E11_01 “cardiac arrest” value of 2240 “yes, Prior to EMS arrival” or value of 2245 “yes, after EMS arrival”;</li> </ul>	<ul style="list-style-type: none"> <li>Cardiac Arrest (E11_01)</li> <li>Cardiac Arrest Etiology (E11_02)</li> <li>Resuscitation Attempted (E11_03)</li> </ul>

	<ul style="list-style-type: none"> <li>E11_02 “cardiac arrest etiology” value of 2250 “presumed cardiac”</li> <li>E11_03 “resuscitation attempted” values 2280 “attempted defibrillation” or 2285 “attempted ventilation” or 2290 “initiated chest compressions” <u>And</u></li> <li>E11_06 “any return of spontaneous circulation” values 2370 “yes, prior to ED Arrival Only” or 2375 “yes, prior to ED arrival and at the ED”</li> </ul>	<ul style="list-style-type: none"> <li>Any Return to Spontaneous Circulation (E11_06)</li> </ul>
<b>Exclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	None	
<b>Indicator Formula Numeric Expression</b>	The formula is to divide (/) the numerator (N) by the denominator (D) and then multiply (x) by 100 to obtain the (%) value the indicator is to report. Therefore the indicator expressed numerically is N/D =%	
<b>Example of Final Reporting Value (number and units)</b>	25%	
<b>Sampling</b>	No	
<b>Aggregation</b>	Yes	
<b>Blinded</b>	Yes	
<b>Minimum Data Values</b>	30	
<b>Data Collection Approach</b>	<input type="checkbox"/> Retrospective data sources for required data elements include administrative data and pre-hospital care records. <input type="checkbox"/> Variation may exist in the assignment of coding; therefore, coding practices may require evaluation to ensure consistency.	
<b>Suggested Display Format &amp; Frequency</b>	Process control or run chart by month	
<b>Suggested Statistical Measures</b>	Mean (x); Mode (m)	
<b>Trending Analysis</b>	Yes	
<b>Benchmark Analysis</b>	(TBD)	
<b>Rationale for Data</b>	<input type="checkbox"/> Definitive care for ACS	
<b>References</b>	NEMSIS Core Measure Indicator 18	

## OUT-OF-HOSPITAL CARDIAC ARRESTS SURVIVAL TO ED DISCHARGE

<b>MEASURE SET</b>	Cardiac Arrest	
<b>SET MEASURE ID #</b>	CAR-3	
<b>PERFORMANCE MEASURE NAME</b>	Out-of-hospital Cardiac Arrests Survival to ED discharge	
<b>Description</b>	Number of patients experiencing cardiac origin cardiac arrest after EMS arrival who survive to discharge from the ED divided by the total number of patients experiencing cardiac origin cardiac arrest in a given period	
<b>Type of Measure</b>	Outcome	
<b>Reporting Value and Units</b>	(%) Percentage	
<b>Denominator Statement (population)</b>	Total number of patients experiencing cardiac origin cardiac arrest in a given period	
<b>Denominator Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>Patients having a recorded E11_01 “cardiac arrest” value of 2240 “yes, Prior to EMS arrival” or value of 2245 “yes, after EMS arrival”;</li> <li>E11_02 “cardiac arrest etiology” value of 2250 “presumed cardiac”</li> <li>E11_03 “resuscitation attempted” values 2280 “attempted defibrillation” or 2285 “attempted ventilation” or 2290 “initiated chest compressions”</li> </ul>	<ul style="list-style-type: none"> <li>Cardiac Arrest (E11_01)</li> <li>Cardiac Arrest Etiology (E11_02)</li> <li>Resuscitation Attempted (E11_03)</li> <li>Age (E06_14)</li> <li>Age Units (E06_15)</li> <li>Date of Birth (E06_16)</li> </ul>
<b>Exclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	None	
<b>Numerator Statement (sub-population)</b>	Number of patients experiencing cardiac origin cardiac arrest who survive to discharge from the ED	
<b>Numerator Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>Patients having a recorded E11_01 “cardiac arrest” value of 2240 “yes, Prior to EMS arrival” or value of 2245 “yes, after EMS arrival”;</li> <li>E11_02 “cardiac arrest etiology”</li> </ul>	<ul style="list-style-type: none"> <li>Cardiac Arrest (E11_01)</li> <li>Cardiac Arrest Etiology (E11_02)</li> <li>Resuscitation Attempted (E11_03)</li> <li>Emergency Department</li> </ul>

	<p>value of 2250 “presumed cardiac”</p> <ul style="list-style-type: none"> <li>E11_03 “resuscitation attempted” values 2280 “attempted defibrillation” or 2285 “attempted ventilation” or 2290 “initiated chest compressions”</li> </ul> <p><u>And</u></p> <ul style="list-style-type: none"> <li>E22_01 “emergency department disposition” values 5335 “admitted to hospital floor” or 5340 “admitted to hospital ICU” or 5355 “released” or 5360 “transferred”</li> </ul>	Disposition (E22_01)
<b>Exclusion Criteria</b>	<b>Criteria</b>	<b>Data Elements</b>
	None	
<b>Indicator Formula Numeric Expression</b>	The formula is to divide (/) the numerator (N) by the denominator (D) and then multiply (x) by 100 to obtain the (%) value the indicator is to report. Therefore the indicator expressed numerically is $N/D = \%$	
<b>Example of Final Reporting Value (number and units)</b>	25%	
<b>Sampling</b>	Yes	
<b>Aggregation</b>	Yes	
<b>Blinded</b>	Yes	
<b>Minimum Data Values</b>	30	
<b>Data Collection Approach</b>	<input type="checkbox"/> Retrospective data sources for required data elements include administrative data and pre-hospital care records. <input type="checkbox"/> Variation may exist in the assignment of coding; therefore, coding practices may require evaluation to ensure consistency.	
<b>Suggested Display Format &amp; Frequency</b>	Process control or run chart by month	
<b>Suggested Statistical Measures</b>	Mean (x); Mode (m)	
<b>Trending Analysis</b>	Yes	
<b>Benchmark Analysis</b>	(TBD)	
<b>Rationale for Data</b>	<input type="checkbox"/> Cardiac Arrest survival has been shown to increase with early CPR and Automated External Defibrillation	
<b>References</b>	NEMIS Core Measure Indicator 18.1	

## OUT-OF-HOSPITAL CARDIAC ARRESTS SURVIVAL TO HOSPITAL DISCHARGE

<b>MEASURE SET</b>	Cardiac Arrest	
<b>SET MEASURE ID #</b>	CAR-4	
<b>PERFORMANCE MEASURE NAME</b>	Out-of-hospital Cardiac Arrests Survival to hospital discharge	
<b>Description</b>	Number of patients experiencing cardiac origin cardiac arrest after EMS arrival who survive to discharge from the hospital divided by the total number of patients experiencing cardiac origin cardiac arrest	
<b>Type of Measure</b>	Outcome	
<b>Reporting Value and Units</b>	(%) Percentage	
<b>Denominator Statement (population)</b>	Total number of patients experiencing cardiac origin cardiac arrest in a given period	
<b>Denominator Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>Patients having a recorded E11_01 “cardiac arrest” value of 2240 “yes, Prior to EMS arrival” or value of 2245 “yes, after EMS arrival”;</li> <li>E11_02 “cardiac arrest etiology” value of 2250 “presumed cardiac”</li> <li>E11_03 “resuscitation attempted” values 2280 “attempted defibrillation” or 2285 “attempted ventilation” or 2290 “initiated chest compressions”</li> </ul>	<ul style="list-style-type: none"> <li>Cardiac Arrest (E11_01)</li> <li>Cardiac Arrest Etiology (E11_02)</li> <li>Resuscitation Attempted (E11_03)</li> <li>Age (E06_14)</li> <li>Age Units (E06_15)</li> <li>Date of Birth (E06_16)</li> </ul>
<b>Exclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	None	
<b>Numerator Statement (sub-population)</b>	Number of patients experiencing cardiac origin cardiac arrest who survive to discharge from the hospital	
<b>Numerator Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>Patients having a recorded E11_01 “cardiac arrest” value of 2240 “yes, Prior to EMS arrival” or value of 2245 “yes, after EMS arrival”;</li> <li>E11_02 “cardiac arrest etiology” value of 2250 “presumed</li> </ul>	<ul style="list-style-type: none"> <li>Cardiac Arrest (E11_01)</li> <li>Cardiac Arrest Etiology (E11_02)</li> <li>Resuscitation Attempted (E11_03)</li> <li>Hospital Disposition</li> </ul>

	cardiac” <ul style="list-style-type: none"> <li>E11_03 “resuscitation attempted” values 2280 “attempted defibrillation” or 2285 “attempted ventilation” or 2290 “initiated chest compressions”</li> </ul> <u>And</u> <ul style="list-style-type: none"> <li>E22_02 “hospital disposition” values 5370 “discharged” or 5375 “transfer to hospital” or 5380 “transfer to nursing home” or 5385 “transfer to other” or 5390 “transfer to rehabilitation facility”</li> </ul>	(E22_02)
<b>Exclusion Criteria</b>	<b>Criteria</b>	<b>Data Elements</b>
	None	
<b>Indicator Formula Numeric Expression</b>	The formula is to divide (/) the numerator (N) by the denominator (D) and then multiply (x) by 100 to obtain the (%) value the indicator is to report. Therefore the indicator expressed numerically is $N/D = \%$	
<b>Example of Final Reporting Value (number and units)</b>	25%	
<b>Sampling</b>	Yes	
<b>Aggregation</b>	Yes	
<b>Blinded</b>	Yes	
<b>Minimum Data Values</b>	30	
<b>Data Collection Approach</b>	<input type="checkbox"/> Retrospective data sources for required data elements include administrative data and pre-hospital care records. <input type="checkbox"/> Variation may exist in the assignment of coding; therefore, coding practices may require evaluation to ensure consistency.	
<b>Suggested Display Format &amp; Frequency</b>	Process control or run chart by month	
<b>Suggested Statistical Measures</b>	Mean (x); Mode (m)	
<b>Trending Analysis</b>	Yes	
<b>Benchmark Analysis</b>	(TBD)	
<b>Rationale for Data</b>	<input type="checkbox"/> Cardiac Arrest survival has been shown to increase with early CPR and Automated External Defibrillation	
<b>References</b>	NEMSIS Core Measure Indicator 18.2	

## IDENTIFICATION OF SUSPECTED STROKE IN THE FIELD

<b>MEASURE SET</b>	Stroke	
<b>SET MEASURE ID #</b>	STR-1 (To Be Measured in 2014)	
<b>PERFORMANCE MEASURE NAME</b>	Identification of Suspected Stroke in the Field	
<b>Description</b>	Identification of suspected stroke by EMS personnel in the field using a validated pre-hospital stroke screen (Los Angeles LAPSS or Cincinnati CPSS)	
<b>Type of Measure</b>	Process	
<b>Reporting Value and Units</b>	(%) Percentage	
<b>Denominator Statement (population)</b>	Patients with a Provider Primary Impression of Suspected Stroke	
<b>Denominator Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>Patients with E09_15 value 1730 value “neurological deficit (includes CVA/TIA)” or E09_16 value 1865 “neurological deficit (includes CVA/TIA)”</li> <li>Patients aged 18 years of age or older</li> </ul>	<ul style="list-style-type: none"> <li>Provider Primary Impression (E09_15)</li> <li>Provider Secondary Impression (E09_16)</li> <li>Age (E06_14)</li> <li>Age Units (E06_15)</li> <li>Date of Birth (E06_16)</li> </ul>
<b>Exclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	None	
<b>Numerator Statement (sub-population)</b>	Identification of a suspected stroke used a validated pre-hospital stroke screen (Los Angeles LAPSS or Cincinnati CPSS)	
<b>Numerator Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>Patients with E09_15 value 1730 value “neurological deficit (includes CVA/TIA)” or E09_16 value 1865 “neurological deficit (includes CVA/TIA)”</li> <li>Patients aged 18 years of age or older</li> </ul> <p><u>And</u></p> <ul style="list-style-type: none"> <li>Used a validated pre-hospital stroke screen, such as indicated by NEMSIS E16_24 “Neurological Assessment” values if available</li> </ul>	<ul style="list-style-type: none"> <li>Provider Primary Impression (E09_15)</li> <li>Provider Secondary Impression (E09_16)</li> <li>Validated Pre-Hospital Stroke Screen (E16_24)</li> </ul>
<b>Exclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>

	None	
<b>Indicator Formula Numeric Expression</b>	The formula is to divide (/) the numerator (N) by the denominator (D) and then multiply (x) by 100 to obtain the (%) value the indicator is to report. Therefore the indicator expressed numerically is $N/D = \%$	
<b>Example of Final Reporting Value (number and units)</b>	90%	
<b>Sampling</b>	Yes	
<b>Aggregation</b>	Yes	
<b>Blinded</b>	Yes	
<b>Minimum Data Values</b>	30	
<b>Data Collection Approach</b>	<input type="checkbox"/> Retrospective data sources for required data elements include administrative data and pre-hospital care records.	
<b>Suggested Display Format &amp; Frequency</b>	Process control or run chart by month	
<b>Suggested Statistical Measures</b>	Mean (x); Mode (m)	
<b>Trending Analysis</b>	Yes	
<b>Benchmark Analysis</b>	(TBD)	
<b>Rationale for Data</b>	<input type="checkbox"/> Prehospital assessment and advance hospital notification by EMS personnel may reduce the time to receive time sensitive diagnostics and therapy upon arrival at the emergency department. <input type="checkbox"/> Improved access to diagnostic imaging assists clinicians in the decision making process and treatment plans.	
<b>References</b>	CEMSIS Core Measure	



## GLUCOSE TESTING FOR SUSPECTED STROKE PATIENTS

<b>MEASURE SET</b>	Stroke	
<b>SET MEASURE ID #</b>	STR-2	
<b>PERFORMANCE MEASURE NAME</b>	Glucose Testing for Suspected Stroke patients	
<b>Description</b>	Patients with suspected stroke have assessment of blood glucose level.	
<b>Type of Measure</b>	Process	
<b>Reporting Value and Units</b>	(%) Percentage	
<b>Denominator Statement (population)</b>	All Suspected Stroke patients	
<b>Denominator Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>Patients with E09_15 value 1730 value “neurological deficit (includes CVA/TIA)” or E09_16 value 1865 “neurological deficit (includes CVA/TIA)”</li> <li>Patients aged 18 years of age or older</li> </ul>	<ul style="list-style-type: none"> <li>Provider Primary Impression (E09_15)</li> <li>Provider Secondary Impression (E09_16)</li> <li>Age (E06_14)</li> <li>Age Units (E06_15)</li> <li>Date of Birth (E06_16)</li> </ul>
<b>Exclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	None	
<b>Numerator Statement (sub-population)</b>	Glucose level Checked on all suspected Stroke patients	
<b>Numerator Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>Patients with E09_15 value 1730 value “neurological deficit (includes CVA/TIA)” or E09_16 value 1865 “neurological deficit (includes CVA/TIA)”</li> <li>Patients aged 18 years of age or older</li> <li><u>And</u></li> <li>Patient received glucose testing E19_03 “procedure” with a value of 38.995 “blood glucose analysis”</li> </ul>	<ul style="list-style-type: none"> <li>Provider Primary Impression (E09_15)</li> <li>Provider Secondary Impression (E09_16)</li> <li>Procedure (E19_03)</li> </ul>
<b>Exclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>

	None	
<b>Indicator Formula Numeric Expression</b>	The formula is to divide (/) the numerator (N) by the denominator (D) and then multiply (x) by 100 to obtain the (%) value the indicator is to report. Therefore the indicator expressed numerically is $N/D = \%$	
<b>Example of Final Reporting Value (number and units)</b>	90%	
<b>Sampling</b>	Yes	
<b>Aggregation</b>	Yes	
<b>Blinded</b>	Yes	
<b>Minimum Data Values</b>	30	
<b>Data Collection Approach</b>	<input type="checkbox"/> Retrospective data sources for required data elements include administrative data and pre-hospital care records. <input type="checkbox"/> Variation may exist in the assignment of coding; therefore, coding practices may require evaluation to ensure consistency.	
<b>Suggested Display Format &amp; Frequency</b>	Process control or run chart by month	
<b>Suggested Statistical Measures</b>	Mean (x); Mode (m)	
<b>Trending Analysis</b>	Yes	
<b>Benchmark Analysis</b>	(TBD)	
<b>Rationale for Data</b>	<input type="checkbox"/> <input type="checkbox"/>	
<b>References</b>	CEMSIS Core Measures	

## SCENE TIME FOR SUSPECTED STROKE PATIENTS

<b>MEASURE SET</b>	Stroke	
<b>SET MEASURE ID #</b>	STR-3	
<b>PERFORMANCE MEASURE NAME</b>	Scene time for suspected stroke patients	
<b>Description</b>	Scene Time for Suspected Stroke Patients who were transported from the scene by ambulance	
<b>Type of Measure</b>	Process	
<b>Reporting Value and Units</b>	Minutes	
<b>Continuous Variable Statement (population)</b>	All suspected stroke patients	
<b>Denominator Inclusion Criteria</b>	<b>Criteria</b>	<b>Data Elements</b>
	<ul style="list-style-type: none"> <li>All events for which E02_04 “type of service requested” has value 30 “911 response (scene),” vehicle type corresponds to ground ambulance; and</li> <li>Values for “arrived at scene” E05_06 and “unit left scene” E05_09 are present and pass logic test;</li> <li>Patients with E09_15 value 1730 value “neurological deficit (includes CVA/TIA)” or E09_16 value 1865 “neurological deficit (includes CVA/TIA)”</li> <li>Patients aged 18 years of age or older</li> </ul>	<ul style="list-style-type: none"> <li>Provider Primary Impression (E09_15)</li> <li>Provider Secondary Impression (E09_16)</li> <li>Type of Service Requested (E02_04)</li> <li>Unit Arrived at Scene (E05_06)</li> <li>Unit Left Scene (E05_09)</li> <li>Age (E06_14)</li> <li>Age Units (E06_15)</li> <li>Date of Birth (E06_16)</li> </ul>
<b>Exclusion Criteria</b>	<b>Criteria</b>	<b>Data Elements</b>
	None	
<b>Indicator Formula Numeric Expression</b>	The formula is the 90 <sup>th</sup> Percentile of the given numbers or distribution in their ascending order.	
<b>Example of Final Reporting Value (number and units)</b>	14 minutes, 20 seconds (14:20)	
<b>Sampling</b>	Yes	
<b>Aggregation</b>	Yes	

<b>Blinded</b>	Yes
<b>Minimum Data Values</b>	30
<b>Data Collection Approach</b>	<input type="checkbox"/> Retrospective data sources for required data elements include administrative data and pre-hospital care records. <input type="checkbox"/> Variation may exist in the assignment of coding; therefore, coding practices may require evaluation to ensure consistency.
<b>Suggested Display Format &amp; Frequency</b>	Process control or run chart by month
<b>Suggested Statistical Measures</b>	Mean (x); Mode (m)
<b>Trending Analysis</b>	Yes
<b>Benchmark Analysis</b>	(TBD)
<b>Rationale for Data</b>	<input type="checkbox"/> The rapid transport of suspected stroke patients to stroke centers which have CT or MRI scan capabilities to assist clinicians in the decision making process and treatment plan has been documented as a key indicator of the quality of care a patient receives.
<b>References</b>	CEMSIS Core Measures

## ADVANCE HOSPITAL NOTIFICATION FOR SUSPECTED STROKE

<b>MEASURE SET</b>	Stroke	
<b>SET MEASURE ID #</b>	STR-4 (To Be Measured in 2014)	
<b>PERFORMANCE MEASURE NAME</b>	Advance hospital notification for suspected stroke	
<b>Description</b>	Advance hospital notification by EMS personnel to the receiving hospital via radio or telephone of patients identified in the prehospital setting as experiencing a suspected stroke, preferably using a validated pre-hospital stroke screen	
<b>Type of Measure</b>	Process	
<b>Reporting Value and Units</b>	(%) Percentage	
<b>Denominator Statement (population)</b>	Patients with a Provider Primary or Secondary Impression of Suspected Stroke	
<b>Denominator Inclusion Criteria</b>	<u><b>Criteria</b></u>	<u><b>Data Elements</b></u>
	<ul style="list-style-type: none"> <li>Patients with E09_15 value 1730 value “neurological deficit (includes CVA/TIA)” or E09_16 value 1865 “neurological deficit (includes CVA/TIA)”</li> <li>Patients aged 18 years of age or older</li> </ul>	<ul style="list-style-type: none"> <li>Provider Primary Impression (E09_15)</li> <li>Provider Secondary Impression (E09_16)</li> <li>Age (E06_14)</li> <li>Age Units (E06_15)</li> <li>Date of Birth (E06_16)</li> </ul>
<b>Exclusion Criteria</b>	<u><b>Criteria</b></u>	<u><b>Data Elements</b></u>
	None	
<b>Numerator Statement (sub-population)</b>	Receiving Hospitals who received advance notification/alert by EMS personnel (EMT, AEMT, and Paramedic) for patients with Suspected Stroke patients	
<b>Numerator Inclusion Criteria</b>	<u><b>Criteria</b></u>	<u><b>Data Elements</b></u>
	<ul style="list-style-type: none"> <li>Patients with E09_15 value 1730 value “neurological deficit (includes CVA/TIA)” or E09_16 value 1865 “neurological deficit (includes CVA/TIA)”</li> <li>Patients aged 18 years of age or older</li> <li><u>And</u></li> <li>Advance hospital Stroke notification/alert</li> </ul>	<ul style="list-style-type: none"> <li>Provider Primary Impression (E09_15)</li> <li>Provider Secondary Impression (E09_16)</li> <li>Hospital Disposition (E22_02)</li> <li>Advance Hospital Notification/Alert</li> </ul>

<b>Exclusion Criteria</b>	<b>Criteria</b>	<b>Data Elements</b>
	None	
<b>Indicator Formula Numeric Expression</b>	The formula is to divide (/) the numerator (N) by the denominator (D) and then multiply (x) by 100 to obtain the (%) value the indicator is to report. Therefore the indicator expressed numerically is $N/D = \%$	
<b>Example of Final Reporting Value (number and units)</b>	90%	
<b>Sampling</b>	Yes	
<b>Aggregation</b>	Yes	
<b>Blinded</b>	Yes	
<b>Minimum Data Values</b>	30	
<b>Data Collection Approach</b>	<input type="checkbox"/> Retrospective data sources for required data elements include administrative data and pre-hospital care records. <input type="checkbox"/> Variation may exist in the assignment of coding; therefore, coding practices may require evaluation to ensure consistency.	
<b>Suggested Display Format &amp; Frequency</b>	Process control or run chart by month	
<b>Suggested Statistical Measures</b>	Mean (x); Mode (m)	
<b>Trending Analysis</b>	Yes	
<b>Benchmark Analysis</b>	(TBD)	
<b>Rationale for Data</b>	<input type="checkbox"/> Improved access to diagnostic imaging assists clinicians in the decision making process and treatment plans. Over 143,579 people die each year from stroke (Stroke Center, 2009). Stroke is the third leading cause of death in the United States. Each year, about 795,000 people suffer a stroke. About 600,000 of these are first attacks, and 185,000 are recurrent attacks (AHA, 2009). Decreasing radiology turnaround times will enhance decision making capabilities for patients with TIA or Acute Ischemic Stroke. Of all strokes, 87 percent are ischemic, 10 percent are intracerebral hemorrhage, and 3 percent are subarachnoid hemorrhage (NINDS, 2004). Because of the therapeutic time window for treatment possibilities, timely completion and results of the CT or MRI scan are imperative and will directly impact the quality of care a patient receives. <input type="checkbox"/> Advance hospital notification by EMS personnel may reduce the time to receive time sensitive diagnostics and therapy upon arrival at the emergency department.	
<b>References</b>	CEMSIS Core Measures	

## DIRECT TRANSPORT TO STROKE CENTER FOR SUSPECTED STROKE PATIENTS MEETING CRITERIA

<b>MEASURE SET</b>	Stroke	
<b>SET MEASURE ID #</b>	STR-5	
<b>PERFORMANCE MEASURE NAME</b>	Direct transport to stroke center for suspected stroke patients meeting criteria	
<b>Description</b>	Suspected Stroke Patients who were transported from the scene directly to a Stroke Center	
<b>Type of Measure</b>	Process	
<b>Reporting Value and Units</b>	(%) Percentage	
<b>Denominator Statement (population)</b>	All stroke patients, meeting local stroke criteria for transport to a stroke center	
<b>Denominator Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>Patients with E09_15 value 1730 value “neurological deficit (includes CVA/TIA)” or E09_16 value 1865 “neurological deficit (includes CVA/TIA)”</li> <li>Patients aged 18 years of age or older</li> </ul>	<ul style="list-style-type: none"> <li>Provider Primary Impression (E09_15)</li> <li>Provider Secondary Impression (E09_16)</li> <li>Age (E06_14)</li> <li>Age Units (E06_15)</li> <li>Date of Birth (E06_16)</li> </ul>
<b>Exclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	None	
<b>Numerator Statement (sub-population)</b>	Suspected Stroke patients, meeting criteria for transport to a stroke center, who received transport by ambulance directly to a stroke center	
<b>Numerator Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>Patients with E09_15 value 1730 value “neurological deficit (includes CVA/TIA)” or E09_16 value 1865 “neurological deficit (includes CVA/TIA)”</li> <li>Patients aged 18 years of age or older</li> <li><u>And</u></li> <li>E20_01 “Destination Transferred To,</li> </ul>	<ul style="list-style-type: none"> <li>Provider Primary Impression (E09_15)</li> <li>Provider Secondary Impression (E09_16)</li> <li>Destination/Transferred To (E20_01)</li> </ul>

	Name" represents a stroke center	
<b>Exclusion Criteria</b>	<b>Criteria</b>	<b>Data Elements</b>
	None	
<b>Indicator Formula Numeric Expression</b>	The formula is to divide (/) the numerator (N) by the denominator (D) and then multiply (x) by 100 to obtain the (%) value the indicator is to report. Therefore the indicator expressed numerically is $N/D = \%$	
<b>Example of Final Reporting Value</b>	90%	
<b>Sampling</b>	Yes	
<b>Aggregation</b>	Yes	
<b>Blinded</b>	Yes	
<b>Minimum Data Values</b>	30	
<b>Data Collection Approach</b>	<input type="checkbox"/> Retrospective data sources for required data elements include administrative data and pre-hospital care records. <input type="checkbox"/> Variation may exist in the assignment of coding; therefore, coding practices may require evaluation to ensure consistency.	
<b>Suggested Display Format &amp; Frequency</b>	Process control or run chart by month	
<b>Suggested Statistical Measures</b>	Mean (x); Mode (m)	
<b>Trending Analysis</b>	Yes	
<b>Benchmark Analysis</b>	(TBD)	
<b>Rationale for Data</b>	<input type="checkbox"/> The rapid transport of suspected stroke patients directly to stroke centers has been well documented to improve access to diagnostic imaging and treatment. Prehospital assessment and advance hospital notification by EMS personnel also reduces the time to receive time sensitive diagnostics and therapy upon arrival at the emergency department. <input type="checkbox"/> Improved access to diagnostic imaging assists clinicians in the decision making process and treatment plans. Over 143,579 people die each year from stroke (Stroke Center, 2009). Stroke is the third leading cause of death in the United States. Each year, about 795,000 people suffer a stroke. About 600,000 of these are first attacks, and 185,000 are recurrent attacks (AHA, 2009). Of all strokes, 87 percent are ischemic, 10 percent are intracerebral hemorrhage, and 3 percent are subarachnoid hemorrhage (NINDS, 2004). Because of the therapeutic time window for treatment possibilities, timely completion and results of the CT or MRI scan are imperative and will directly impact the quality of care a patient receives.	
<b>References</b>	CEMSIS Core Measures	



**CPAP GIVEN FOR PATIENTS WITH RESPIRATORY DISTRESS**

<b>MEASURE SET</b>	Respiratory	
<b>SET MEASURE ID #</b>	RES-1 (To Be Measured in 2014)	
<b>PERFORMANCE MEASURE NAME</b>	CPAP given for patients with respiratory distress	
<b>Description</b>	Patients with respiratory distress that have CPAP used in their treatment.	
<b>Type of Measure</b>	Process	
<b>Reporting Value and Units</b>	(%) Percentage	
<b>Denominator Statement (population)</b>	Number of patients creating a provider impression of respiratory distress	
<b>Denominator Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>Patients for whom E09_15 “provider’s primary impression” has value 1701 “shortness of breath – suspected asthma/COPD” or 1702 “shortness of breath – suspected pulmonary edema” or for whom E09_16 “provider’s secondary impression” has value 1835 – “shortness of breath – suspected asthma/COPD” or 1836 “shortness of breath – suspected pulmonary edema”</li> <li>Patients aged 14 years or older</li> </ul>	<ul style="list-style-type: none"> <li>Provider Primary Impression (E09_15)</li> <li>Provider Secondary Impression (E09_16)</li> <li>Age (E06_14)</li> <li>Age Units (E06_15)</li> <li>Date of Birth (E06_16)</li> </ul>
<b>Exclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	None	
<b>Numerator Statement (sub-population)</b>	Number of patients creating a provider impression of respiratory arrest/distress who receive CPAP	
<b>Numerator Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>Patients for whom E09_15 “provider’s primary impression” has value 1701 “shortness of breath – suspected asthma/COPD” or 1702 “shortness of breath – suspected pulmonary edema”</li> </ul>	<ul style="list-style-type: none"> <li>Provider Primary Impression (E09_15)</li> <li>Provider Secondary Impression (E09_16)</li> <li>Procedure (NEMESIS E19_03)</li> </ul>

	<p>or for whom E09_16 “provider’s secondary impression” has value 1835 – “shortness of breath – suspected asthma/COPD” or 1836 “shortness of breath – suspected pulmonary edema”</p> <ul style="list-style-type: none"> <li>• Patients aged 14 years or older</li> <li>• <u>And</u></li> <li>• who have a NEMSIS E19_03 value for 93.900 “CPAP”</li> </ul>	
<b>Exclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	None	
<b>Indicator Formula Numeric Expression</b>	The formula is to divide (/) the numerator (N) by the denominator (D) and then multiply (x) by 100 to obtain the (%) value the indicator is to report. Therefore the indicator expressed numerically is $N/D = \%$	
<b>Example of Final Reporting Value (number and units)</b>	90%	
<b>Sampling</b>	Yes	
<b>Aggregation</b>	Yes	
<b>Blinded</b>	Yes	
<b>Minimum Data Values</b>	30	
<b>Data Collection Approach</b>	<input type="checkbox"/> Retrospective data sources for required data elements include administrative data and pre-hospital care records. <input type="checkbox"/> Variation may exist in the assignment of coding; therefore, coding practices may require evaluation to ensure consistency.	
<b>Suggested Display Format &amp; Frequency</b>	Process control or run chart by month	
<b>Suggested Statistical Measures</b>	Mean (x); Mode (m)	
<b>Trending Analysis</b>	Yes	
<b>Benchmark Analysis</b>	(TBD)	
<b>Rationale for Data</b>	<input type="checkbox"/> <input type="checkbox"/>	
<b>References</b>	CEMSIS Core Measures	

## BETA2 AGONIST ADMINISTRATION

<b>Measure Set</b>	Respiratory	
<b>Set Measure ID #</b>	RES-2	
<b>Performance Measure Name</b>	Beta2 agonist administration	
<b>Description</b>	Frequency of beta2 agonist (i.e., Albuterol) administered by EMS personnel for patients with signs and symptoms of shortness of breath and/or suspected bronchospasm.	
<b>Type of Measure</b>	Process	
<b>Reporting Value and Units</b>	(%) Percentage	
<b>Denominator Statement (population)</b>	Number of adult patients creating a provider impression of respiratory distress	
<b>Denominator Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>Patients for whom E09_15 “provider’s primary impression” has value 1701 “shortness of breath – suspected asthma/COPD” or 1702 “shortness of breath – suspected pulmonary edema” or for whom E09_16 “provider’s secondary impression” has value 1835 – “shortness of breath – suspected asthma/COPD” or 1836 “shortness of breath – suspected pulmonary edema”</li> <li>Patients aged 14 years or older</li> </ul>	<ul style="list-style-type: none"> <li>Provider Primary Impression (E09_15)</li> <li>Provider Secondary Impression (E09_16)</li> <li>Age (E06_14)</li> <li>Age Units (E06_15)</li> <li>Date of Birth (E06_16)</li> </ul>
<b>Exclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	None	
<b>Numerator Statement (sub-population)</b>	Adult patients with signs and symptoms of shortness of breath and bronchospasm who receive a beta agonist by EMS personnel in the prehospital setting.	
<b>Numerator Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>Patients for whom E09_15 “provider’s primary impression” has value 1701 “shortness of</li> </ul>	<ul style="list-style-type: none"> <li>Provider Primary Impression (NEMESIS E09_15)</li> <li>Provider Secondary</li> </ul>

	<p>breath – suspected asthma/COPD” or 1702 “shortness of breath – suspected pulmonary edema” or for whom E09_16 “provider’s secondary impression” has value 1835 – “shortness of breath – suspected asthma/COPD” or 1836 “shortness of breath – suspected pulmonary edema”</p> <ul style="list-style-type: none"> <li>• Patients aged 14 years or older <u>And</u></li> <li>• Who have a CEMSIS E18_03 value 8620 “aerosolized or nebulized beta-2 specific bronchodilator”, 8635 “Beta agonist”, or 8700 “Ipratropium Bromide”.; or a NEMSIS E18_03 element indicating any of the above</li> </ul>	<p>Impression (NEMSIS E09_16)</p> <ul style="list-style-type: none"> <li>• Age (E06_14)</li> <li>• Age Units (E06_15)</li> <li>• Date of Birth (E06_16)</li> <li>• Medication Given (CEMSIS E18_03)</li> <li>• Medication Given (NEMSIS E18_03)</li> <li>• Medication Route (E18_04)</li> </ul>
<b>Exclusion Criteria</b>	<b>Criteria</b>	<b>Data Elements</b>
	None	
<b>Indicator Formula Numeric Expression</b>	The formula is to divide (/) the numerator (N) by the denominator (D) and then multiply (x) by 100 to obtain the (%) value the indicator is to report. Therefore the indicator expressed numerically is N/D =%	
<b>Example of Final Reporting Value (number and units)</b>	90%	
<b>Sampling</b>	Yes	
<b>Aggregation</b>	Yes	
<b>Blinded</b>	Yes	
<b>Minimum Data Values</b>	30	
<b>Data Collection Approach</b>	<input type="checkbox"/> Retrospective data sources for required data elements include administrative data and pre-hospital care records. <input type="checkbox"/> Variation may exist in the assignment of coding; therefore, coding practices may require evaluation to ensure consistency.	
<b>Suggested Display Format &amp; Frequency</b>	Process control or run chart by month	
<b>Suggested Statistical Measures</b>	Mean (x); Mode (m)	

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<b>Trending Analysis</b>	Yes
<b>Benchmark Analysis</b>	(TBD)
<b>Rationale for Data</b>	<p><input type="checkbox"/> Short-acting selective beta agonists (e.g., albuterol, levalbuterol) are the first line of therapy for the quick relief of acute asthma symptoms (e.g., shortness of breath, cough, wheeze, chest tightness) Beta agonists medications help to reduce the symptoms of acute bronchospasm by relaxing the bronchial smooth muscle walls. <a href="http://www.uptodate">http://www.uptodate</a> (2012).</p> <p><input type="checkbox"/> Guidelines for the management of Chronic Obstructive Lung Disease (COPD) have been published by the Global Initiative for Chronic Obstructive Lung Disease (GOLD) and the American Thoracic Society-European Respiratory Society. Bronchodilator medications are an important pharmacologic intervention for persons with COPD. Prevention strategies have been developed for acute exacerbations, and management strategies include using short-acting beta2-agonists, systemic corticosteroids, and antibiotics, in both at home and hospital settings. Review of guidelines and the literature in the treatment of acute bronchospasm in chronic obstructive pulmonary disease. Pharmacotherapy. 2006 Sep;26(9 Pt 2):156S-63S</p>
<b>References</b>	CEMSIS Core Measures

## PEDIATRIC ASTHMA PATIENTS RECEIVING BRONCHODILATORS

<b>MEASURE SET</b>	Pediatric	
<b>SET MEASURE ID #</b>	PED-1	
<b>PERFORMANCE MEASURE NAME</b>	Pediatric asthma patients receiving bronchodilators	
<b>Description</b>	Frequency of bronchodilators or beta2 agonists (i.e., Albuterol) administered by EMS personnel for patients younger than age 14 years with signs and symptoms of shortness of breath and/or suspected bronchospasm	
<b>Type of Measure</b>	Process	
<b>Reporting Value and Units</b>	(%) Percentage	
<b>Denominator Statement (population)</b>	All pediatric patients with respiratory distress from Asthma	
<b>Denominator Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>Patients for whom E09_15 “provider’s primary impression” has value 1701 “shortness of breath – suspected asthma/COPD” or for whom E09_16 “provider’s secondary impression” has value 1835 – “shortness of breath – suspected asthma/COPD”</li> <li>Patients less than 14 years of age</li> </ul>	<ul style="list-style-type: none"> <li>Provider Primary Impression (E09_15)</li> <li>Provider Secondary Impression (E09_16)</li> <li>Age (E06_14)</li> <li>Age Units (E06_15)</li> <li>Date of Birth (E06_16)</li> </ul>
<b>Exclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	None	
<b>Numerator Statement (sub-population)</b>	All pediatric patients with respiratory distress from Asthma receiving bronchodilators	
<b>Numerator Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>Patients for whom E09_15 “provider’s primary impression” has value 1701 “shortness of breath – suspected asthma/COPD” or for whom E09_16 “provider’s secondary impression” has value 1835 –</li> </ul>	<ul style="list-style-type: none"> <li>Provider Primary Impression (E09_15)</li> <li>Provider Secondary Impression (E09_16)</li> <li>Age (E06_14)</li> <li>Age Units (E06_15)</li> <li>Date of Birth (E06_16)</li> </ul>

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	<p>“shortness of breath – suspected asthma/COPD”</p> <ul style="list-style-type: none"> <li>• Patients less than 14 years of age</li> </ul> <p><u>And</u></p> <ul style="list-style-type: none"> <li>• Who have a CEMSIS E18_03 value 8620 “aerosolized or nebulized beta-2 specific bronchodilator”, 8635 “Beta agonist”, or 8700 “Ipratropium Bromide”; or a NEMSIS E18_03 element indicating any of the above</li> </ul>	<ul style="list-style-type: none"> <li>• Medication Given (CEMSIS E18_03)</li> <li>• Medication Given (NEMSIS E18_03)</li> </ul>
<b>Exclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	None	
<b>Indicator Formula Numeric Expression</b>	The formula is to divide (/) the numerator (N) by the denominator (D) and then multiply (x) by 100 to obtain the (%) value the indicator is to report. Therefore the indicator expressed numerically is N/D =%	
<b>Example of Final Reporting Value (number and units)</b>	90%	
<b>Sampling</b>	Yes	
<b>Aggregation</b>	Yes	
<b>Blinded</b>	Yes	
<b>Minimum Data Values</b>	30	
<b>Data Collection Approach</b>	<input type="checkbox"/> Retrospective data sources for required data elements include administrative data and pre-hospital care records. <input type="checkbox"/> Variation may exist in the assignment of coding; therefore, coding practices may require evaluation to ensure consistency.	
<b>Suggested Display Format &amp; Frequency</b>	Process control or run chart by month	
<b>Suggested Statistical Measures</b>	Mean (x); Mode (m)	
<b>Trending Analysis</b>	Yes	
<b>Benchmark Analysis</b>	(TBD)	
<b>Rationale for Data</b>	<input type="checkbox"/> <input type="checkbox"/>	

<b>References</b>	<ol style="list-style-type: none"><li>1. NEMSIS Core Measures</li><li>2. CEMSIS Core Measures</li></ol>
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## TRANSPORT TO PEDIATRIC TRAUMA CENTER

<b>MEASURE SET</b>	Pediatric	
<b>SET MEASURE ID #</b>	PED-2 (to be measured in 2014)	
<b>PERFORMANCE MEASURE NAME</b>	Transport to pediatric trauma center	
<b>Description</b>	Direct transport to pediatric trauma center for those severely injured pediatric patients, less than 14 years of age, meeting criteria	
<b>Type of Measure</b>	Process	
<b>Reporting Value and Units</b>	(%) Percentage	
<b>Denominator Statement (population)</b>	All pediatric Trauma patients	
<b>Denominator Inclusion Criteria</b>	<b>Criteria</b>	<b>Data Elements</b>
	<ul style="list-style-type: none"> <li>• All events for which E02_04 “type of service requested” has value 30 “911 response (scene),”; and vehicle type corresponds to ground ambulance;</li> <li>• E02_20 “response mode to scene” has a value of 390 “lights and sirens”</li> <li>• Values for “arrived at scene” E05_06 and “unit left scene” E05_09 are present and logical;</li> <li>• Patients with E09_15 “provider primary impression” value 1740 “blunt injury” or 1741 “penetrating injury”, <u>or</u> E09_16 “provider secondary impression” value 1875 “blunt injury” or 1876 “penetrating injury”</li> <li>• Patients less than 14 years old <u>and</u>:</li> <li>• patients with E14_27 “Revised Trauma Score” &lt;5;</li> </ul> <p><u>OR</u></p> <ul style="list-style-type: none"> <li>• All events for which E02_04 “type of service requested” has value 30 “911 response (scene),”; and vehicle type corresponds to ground ambulance; and E02_20</li> </ul>	<ul style="list-style-type: none"> <li>• Provider Primary Impression (E09_15)</li> <li>• Provider Secondary Impression (E09_16)</li> <li>• Type of Service Requested (E02_04)</li> <li>• Response mode to scene (E02_20)</li> <li>• Arrived at Scene (E05_06)</li> <li>• Unit left scene (E05_09)</li> <li>• Revised Trauma Score (E14_27)</li> <li>• Systolic Blood Pressure (E14_04)</li> <li>• Total GCS Value (E14_19)</li> <li>• Respiratory Rate (E14_11)</li> <li>• Date of Birth (E06_16)</li> <li>• Age Units (E06_15)</li> <li>• Age (E06_14)</li> </ul>

	<p>“response mode to scene” has a value of 390 “lights and sirens” and values for “arrived at scene” E05_06 and “unit left scene” E05_09 are present and logical;</p> <ul style="list-style-type: none"> <li>• Patients with E09_15 “provider primary impression” values 1740 “blunt injury” or 1741 “penetrating injury”, or E09_16 “provider secondary impression” values 1875 “blunt injury” or 1876 “penetrating injury”</li> <li>• Patients less than 14 years old <u>and</u>:</li> <li>• E14_19 “Total Glasgow Coma Score” value &lt; 14; or</li> <li>• E14_04 “systolic blood pressure” value &lt; 90; or</li> <li>• E14_11 “respiratory rate” value &lt; 10 or &gt; 29 for patients aged 1 year or older or E14_11 “respiratory rate” value &lt; 20 for patients less than 1 year of age</li> </ul>	
<b>Exclusion Criteria</b>	<b>Criteria</b>	<b>Data Elements</b>
	None	
<b>Numerator Statement (sub-population)</b>	Pediatric trauma patients transported to a pediatric trauma center	
<b>Numerator Inclusion Criteria</b>	<b>Criteria</b>	<b>Data Elements</b>
	<ul style="list-style-type: none"> <li>• All events for which E02_04 “type of service requested” has value 30 “911 response (scene),”; and vehicle type corresponds to ground ambulance;</li> <li>• E02_20 “response mode to scene” has a value of 390 “lights and sirens”</li> <li>• Values for “arrived at scene” E05_06 and “unit left scene” E05_09 are present and logical;</li> <li>• Patients with E09_15 “provider primary impression” value 1740 “blunt injury” or 1741 “penetrating injury”, or E09_16 “provider secondary impression”</li> </ul>	<ul style="list-style-type: none"> <li>• Provider Primary Impression (E09_15)</li> <li>• Provider Secondary Impression (E09_16)</li> <li>• Type of Service Requested (E02_04)</li> <li>• Response mode to scene (E02_20)</li> <li>• Arrived at Scene (E05_06)</li> <li>• Unit left scene (E05_09)</li> <li>• Revised Trauma Score (E14_27)</li> <li>• Systolic Blood Pressure (E14_04)</li> <li>• Total GCS Value (E14_19)</li> <li>• Respiratory Rate (E14_11)</li> </ul>

	<p>value 1875 “blunt injury” or 1876 “penetrating injury”</p> <ul style="list-style-type: none"> <li>• Patients less than 14 years old <u>and</u>:</li> <li>• patients with E14_27 “Revised Trauma Score” &lt;5; And</li> <li>• Patients who have “destination/transferred to” code (E20_02) of a pediatric trauma center</li> </ul> <p><u>OR</u></p> <ul style="list-style-type: none"> <li>• All events for which E02_04 “type of service requested” has value 30 “911 response (scene),”; and vehicle type corresponds to ground ambulance; and E02_20 “response mode to scene” has a value of 390 “lights and sirens” and values for “arrived at scene” E05_06 and “unit left scene” E05_09 are present and logical;</li> <li>• Patients with E09_15 “provider primary impression” values 1740 “blunt injury” or 1741 “penetrating injury”, or E09_16 “provider secondary impression” values 1875 “blunt injury” or 1876 “penetrating injury”</li> <li>• Patients less than 14 years old <u>and</u>:</li> <li>• E14_19 “Total Glasgow Coma Score” value &lt; 14; or</li> <li>• E14_04 “systolic blood pressure” value &lt; 90; or</li> <li>• E14_11 “respiratory rate” value &lt; 10 or &gt; 29 for patients aged 1 year or older or E14_11 “respiratory rate” value &lt; 20 for patients less than 1 year of age <u>And</u></li> <li>• Patients who have “destination/transferred to” code (E20_02) of a pediatric trauma center</li> </ul>	<ul style="list-style-type: none"> <li>• Date of Birth (E06_16)</li> <li>• Age Units (E06_15)</li> <li>• Age (E06_14)</li> <li>• Destination Transferred to (E20_02)</li> </ul>
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Exclusion Criteria	<u>Criteria</u>	<u>Data Elements</u>
	None	
<b>Indicator Formula Numeric Expression</b>	The formula is to divide (/) the numerator (N) by the denominator (D) and then multiply (x) by 100 to obtain the (%) value the indicator is to report. Therefore the indicator expressed numerically is $N/D = \%$	
<b>Example of Final Reporting Value (number and units)</b>	90%	
<b>Sampling</b>	Yes	
<b>Aggregation</b>	Yes	
<b>Blinded</b>	Yes	
<b>Minimum Data Values</b>	30	
<b>Data Collection Approach</b>	<input type="checkbox"/> Retrospective data sources for required data elements include administrative data and pre-hospital care records. <input type="checkbox"/> Variation may exist in the assignment of coding; therefore, coding practices may require evaluation to ensure consistency.	
<b>Suggested Display Format &amp; Frequency</b>	Process control or run chart by month	
<b>Suggested Statistical Measures</b>	Mean (x); Mode (m)	
<b>Trending Analysis</b>	Yes	
<b>Benchmark Analysis</b>	(TBD)	
<b>Rationale for Data</b>	<input type="checkbox"/> <input type="checkbox"/>	
<b>References</b>	CEMSIS Core Measures	

## PAIN INTERVENTION

<b>MEASURE SET</b>	Pain Intervention	
<b>SET MEASURE ID #</b>	PAI-1	
<b>PERFORMANCE MEASURE NAME</b>	Pain intervention	
<b>Description</b>	Percentage of patients age 14 and older reporting a pain value of 7 or greater on a 0-10 scale that received subsequent interventions associated with pain relief	
<b>Type of Measure</b>	Process	
<b>Reporting Value and Units</b>	Percentage	
<b>Denominator Statement (Population)</b>	The total number of events over a given period in which patients reported as having a pain value of 7 or greater during the continuum of the EMS call	
<b>Denominator Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>Events in which patients had recorded a pain value of 7 or greater for E14_23</li> <li>Patient aged 14 years or older (E06_14)</li> </ul>	<ul style="list-style-type: none"> <li>Pain Scale (E14_23)</li> <li>Age (E06_14)</li> <li>Age Units (E06_15)</li> <li>Date of Birth (E06_16)</li> </ul>
<b>Exclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>Patients with no value recorded for NEMSIS E14_01, who have no value for either NEMSIS E18_01 or NEMSIS E19_01, to indicate the intervention occurred after pain measurement;</li> </ul>	<ul style="list-style-type: none"> <li>Date Time Vitals Taken (NEMSIS E14_01)</li> <li>Date Time Medication Administered (NEMSIS E18_01)</li> <li>Date Time Procedure Performed Successfully (NEMSIS E19_01)</li> </ul>
<b>Numerator Statement (sub-population)</b>	The total number of events over a given period in which patients reported as having a pain value of 7 or greater during the continuum of the EMS call	
<b>Numerator Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>Events in which patients had recorded a pain value of 7 or greater for E14_23</li> <li>Patient aged 14 years or older (E06_14)</li> <li><u>And</u></li> <li>Associated value for NEMSIS E14_01,</li> <li>Who have at least one value for E18_03 or E19_03 representing</li> </ul>	<ul style="list-style-type: none"> <li>Pain Scale (E14_23)</li> <li>Age (E06_14)</li> <li>Age Units (E06_15)</li> <li>Date of Birth (E06_16)</li> <li>Date Time Vitals Taken (NEMSIS E14_01)</li> <li>Date Time Medication Administered (NEMSIS E18_01)</li> </ul>

	a accepted intervention recognized for pain relief, and the related NEMSIS E18_01 or NEMSIS E19_01 elements indicate the interventions occurred after the pain scale was assessed.	<ul style="list-style-type: none"> <li>• Medication Given (E18_03)</li> <li>• Procedure (E19_03)</li> </ul>
<b>Exclusion Criteria</b>	<b>Criteria</b>	<b>Data Elements</b>
	Patients with no value recorded for NEMSIS E14_01 associated with administration of the pain scale E14_23; or who have no logical values for E18_01 or E19_01 to indicate the intervention occurred after assessment of pain scale $\geq 7$	<ul style="list-style-type: none"> <li>• Date Time Vitals Taken (NEMSIS E14_01)</li> <li>• Date Time Medication Administered (NEMSIS E18_01)</li> <li>• Date Time Procedure Performed Successfully (NEMSIS E19_01)</li> </ul>
<b>Indicator Formula Numeric Expression</b>	The formula is to divide (/) the numerator (N) by the denominator (D) and then multiply (x) by 100 to obtain the (%) value the indicator is to report. Therefore the indicator expressed numerically is $N/D = \%$	
<b>Example of Final Reporting Value (number and units)</b>	90%	
<b>Sampling</b>	Yes	
<b>Aggregation</b>	Yes	
<b>Blinded</b>	Yes	
<b>Minimum Data Values</b>	30	
<b>Data Collection Approach</b>	<input type="checkbox"/> Retrospective data sources for required data elements include administrative data and pre-hospital care records. <input type="checkbox"/> Variation may exist in the assignment of coding; therefore, coding practices may require evaluation to ensure consistency.	
<b>Suggested Display Format &amp; Frequency</b>	Process control or run chart by month	
<b>Suggested Statistical Measures</b>	Mean (x); Mode (m)	
<b>Trending Analysis</b>	Yes	
<b>Benchmark Analysis</b>	(TBD)	
<b>Rationale for Data</b>	<input type="checkbox"/> Administration of pain treatment is important to determine the effectiveness of medicine given to patient to reduce patient pain scale level	
<b>References</b>	NEMSIS Core Measure, Indicator 6.4	

**RESULTS OF PAIN INTERVENTION**

<b>Measure Set</b>	Pain Intervention	
<b>Set Measure ID #</b>	PAI-2 (to be measured in 2014)	
<b>Performance Measure Name</b>	Results of pain intervention	
<b>Description</b>	Percentage of patients age 14 and older reported decreased pain subsequent to interventions associated with pain relief when comparing first and last pain scale (0-10) values	
<b>Type of Measure</b>	Outcome	
<b>Reporting Value and Units</b>	Percentage	
<b>Denominator Statement (Population)</b>	The total number of events over a given period in which patients had at least two “measurements” of pain during the continuum of the EMS call	
<b>Denominator Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>Events in which patients had recorded at least two values for E14_23 each with a different associated value for NEMSIS E14_01</li> <li>Patient aged 14 years or older (E06_14)</li> <li>Received Interventions for Pain Relief</li> </ul>	<ul style="list-style-type: none"> <li>Pain Scale (E14_23)</li> <li>Age (E06_14)</li> <li>Age Units (E06_15)</li> <li>Date of Birth (E06_16)</li> <li>Date/Time Vital Taken (NEMSIS E14_01)</li> <li>Date Time Medication Administered (NEMSIS E18_01)</li> <li>Date Time Procedure Performed Successfully (NEMSIS E19_01)</li> </ul>
<b>Exclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>Patients with one or no value recorded for NEMSIS E14_01, or who have at least two values for NEMSIS E14_23 but those values have no clear associated values for E14_01 or fail a logic test;</li> </ul>	
<b>Numerator Statement (sub-population)</b>	Number of events for a given period in which patients’ pain scale values decreased over the continuum of the EMS call	
<b>Numerator Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>

	<ul style="list-style-type: none"> <li>• Events in which patients had recorded at least two values for E14_23 each with a different associated value for NEMSIS E14_01</li> <li>• Patient aged 14 years or older (E06_14)</li> <li>• Received Interventions for Pain Relief <u>And</u></li> <li>• Values indicate a reduction in pain from the first E14_23 “pain scale” assessment to second E14_23 “pain scale” assessment</li> </ul>	<ul style="list-style-type: none"> <li>• Pain Scale (E14_23)</li> <li>• Age (E06_14)</li> <li>• Age Units (E06_15)</li> <li>• Date of Birth (E06_16)</li> <li>• Date/Time Vital Taken (NEMSIS E14_01)</li> <li>• Date Time Medication Administered (NEMSIS E18_01)</li> <li>• Date Time Procedure Performed Successfully (NEMSIS E19_01)</li> </ul>
<b>Exclusion Criteria</b>	<b>Criteria</b>	<b>Data Elements</b>
	<ul style="list-style-type: none"> <li>• Records with only one value for E14_23 or which fail a logic test; or have no value recorded for NEMSIS E14_01, or who have at least two but those values have no clear associated values for E14_01</li> </ul>	
<b>Indicator Formula Numeric Expression</b>	The formula is to divide (/) the numerator (N) by the denominator (D) and then multiply (x) by 100 to obtain the (%) value the indicator is to report. Therefore the indicator expressed numerically is $N/D = \%$	
<b>Example of Final Reporting Value (number and units)</b>	90%	
<b>Sampling</b>	Yes	
<b>Aggregation</b>	Yes	
<b>Blinded</b>	Yes	
<b>Minimum Data Values</b>	30	
<b>Data Collection Approach</b>	<input type="checkbox"/> Retrospective data sources for required data elements include administrative data and pre-hospital care records. <input type="checkbox"/> Variation may exist in the assignment of coding; therefore, coding practices may require evaluation to ensure consistency.	
<b>Suggested Display Format &amp; Frequency</b>	Process control or run chart by month	
<b>Suggested Statistical Measures</b>	Mean (x); Mode (m)	
<b>Trending Analysis</b>	Yes	



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<b>Benchmark Analysis</b>	(TBD)
<b>Rationale for Data</b>	<input type="checkbox"/> Administration of pain treatment is important to determine the effectiveness of medicine given to patient to reduce patient pain scale level
<b>References</b>	NEMSIS Core Measure, Indicator 6.1

**ENDOTRACHEAL INTUBATION SUCCESS RATE**

<b>MEASURE SET</b>	Performance of Skills	
<b>SET MEASURE ID #</b>	SKL-1	
<b>PERFORMANCE MEASURE NAME</b>	Endotracheal intubation success rate	
<b>Description</b>	Successful intubation within two attempts.	
<b>Type of Measure</b>	Process	
<b>Reporting Value and Units</b>	(%) Percentage	
<b>Denominator Statement (population)</b>	All endotracheal intubation attempts	
<b>Denominator Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>Events in which E19_03 “procedure” has values indicating intubation such as 96.040 “endotracheal intubation” or 96.041 “airway – intubation, other (stoma, nasal)” with related element E19_05 “number of procedure attempts”</li> </ul>	<ul style="list-style-type: none"> <li>Procedure (E19_03)</li> <li>Attempts (E19_05)</li> </ul>
<b>Exclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	None	
<b>Numerator Statement (sub-population)</b>	All Successful endotracheal intubations, defined as success within 2 attempts.	
<b>Numerator Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>Events in which E19_03 “procedure” has values indicating intubation such as 96.040 “endotracheal intubation” or 96.041 “airway – intubation, other (stoma, nasal)” with related element E19_05 “number of procedure attempts”</li> </ul> <p><b>And</b></p> <ul style="list-style-type: none"> <li>E19_05 “number of procedure attempts” value listed as one or two; and</li> <li>E19_06 “Procedure successful” noted as value of 1 “yes”</li> </ul>	<ul style="list-style-type: none"> <li>Procedure (E19_03)</li> <li>Attempts (E19_05)</li> <li>Procedure Successful (E19_06)</li> </ul>

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<b>Exclusion Criteria</b>	<b>Criteria</b>	<b>Data Elements</b>
	None	
<b>Indicator Formula Numeric Expression</b>	The formula is to divide (/) the numerator (N) by the denominator (D) and then multiply (x) by 100 to obtain the (%) value the indicator is to report. Therefore the indicator expressed numerically is $N/D = \%$	
<b>Example of Final Reporting Value (number and units)</b>	90%	
<b>Sampling</b>	Yes	
<b>Aggregation</b>	Yes	
<b>Blinded</b>	Yes	
<b>Minimum Data Values</b>	30	
<b>Data Collection Approach</b>	<input type="checkbox"/> Retrospective data sources for required data elements include administrative data and pre-hospital care records. <input type="checkbox"/> Variation may exist in the assignment of coding; therefore, coding practices may require evaluation to ensure consistency.	
<b>Suggested Display Format &amp; Frequency</b>	Process control or run chart by month	
<b>Suggested Statistical Measures</b>	Mean (x); Mode (m)	
<b>Trending Analysis</b>	Yes	
<b>Benchmark Analysis</b>	(TBD)	
<b>Rationale for Data</b>	<input type="checkbox"/> <input type="checkbox"/>	
<b>References</b>	CEMSIS Core Measures	

## END-TIDAL CO2 PERFORMED ON ANY ENDOTRACHEAL INTUBATION

<b>MEASURE SET</b>	Performance of Skills	
<b>SET MEASURE ID #</b>	SKL-2	
<b>PERFORMANCE MEASURE NAME</b>	End-tidal CO2 performed on any successful endotracheal intubation	
<b>Description</b>	Percentage of intubated patients where end-tidal CO2 or capnography is performed.	
<b>Type of Measure</b>	Process	
<b>Reporting Value and Units</b>	(%) Percentage	
<b>Denominator Statement (population)</b>	All successful endotracheal intubations	
<b>Denominator Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>Events in which E19_03 “procedure” has values indicating intubation such as 96.040 “endotracheal intubation” or 96.041 “airway – intubation, other (stoma, nasal)” with related element E19_05 “number of procedure attempts”</li> <li>E19_05 “number of procedure attempts” value listed as one or two; and</li> <li>E19_06 “Procedure successful” noted as value of 1 “yes”</li> </ul>	<ul style="list-style-type: none"> <li>Procedure (E19_03)</li> <li>Attempts (E19_05)</li> <li>Procedure Successful (E19_06)</li> </ul>
<b>Exclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	None	
<b>Numerator Statement (sub-population)</b>	All endotracheal intubations where End-Tidal CO2 measurement was performed	
<b>Numerator Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>Events in which E19_03 “procedure” has values indicating intubation such as 96.040 “endotracheal intubation” or 96.041 “airway – intubation, other (stoma, nasal)” with related element E19_05</li> </ul>	<ul style="list-style-type: none"> <li>Procedure (E19_03)</li> <li>Attempts (E19_05)</li> <li>Procedure Successful (E19_06)</li> </ul>

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	<p>“number of procedure attempts”</p> <ul style="list-style-type: none"> <li>• E19_05 “number of procedure attempts” value listed as one or two; and</li> <li>• E19_06 “Procedure successful” noted as value of 1 “yes”</li> </ul> <p><u>And</u></p> <ul style="list-style-type: none"> <li>• E19_03 “procedure” has values of 96.992 “airway-end tidal CO<sub>2</sub> intubation” or 89.391 “capnography”</li> </ul>	
<b>Exclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	None	
<b>Indicator Formula Numeric Expression</b>	The formula is to divide (/) the numerator (N) by the denominator (D) and then multiply (x) by 100 to obtain the (%) value the indicator is to report. Therefore the indicator expressed numerically is N/D =%	
<b>Example of Final Reporting Value (number and units)</b>	90%	
<b>Sampling</b>	Yes	
<b>Aggregation</b>	Yes	
<b>Blinded</b>	Yes	
<b>Minimum Data Values</b>	30	
<b>Data Collection Approach</b>	<input type="checkbox"/> Retrospective data sources for required data elements include administrative data and pre-hospital care records. <input type="checkbox"/> Variation may exist in the assignment of coding; therefore, coding practices may require evaluation to ensure consistency.	
<b>Suggested Display Format &amp; Frequency</b>	Process control or run chart by month	
<b>Suggested Statistical Measures</b>	Mean (x); Mode (m)	
<b>Trending Analysis</b>	Yes	
<b>Benchmark Analysis</b>	(TBD)	
<b>Rationale for Data</b>	<input type="checkbox"/> <input type="checkbox"/>	
<b>References</b>	CEMSIS Core Measures	

## AMBULANCE RESPONSE TIME BY AMBULANCE ZONE (EMERGENCY)

<b>MEASURE SET</b>	Response and Transport	
<b>SET MEASURE ID #</b>	RST-1	
<b>PERFORMANCE MEASURE NAME</b>	Ambulance response time by ambulance zone (Emergency)	
<b>Description</b>	90 <sup>th</sup> percentile time value of the Ambulance Response time in Ground Ambulance Transport Zone as defined by the EMS Plan	
<b>Type of Measure</b>	Process	
<b>Reporting Value and Units</b>	Time (minutes and seconds)	
<b>Continuous Variable Statement (population)</b>	Time (in minutes) from time ambulance is en route to arrival at the scene for emergency responses (Code 3) to patients by BLS, LALS, or ALS ambulances. The 90 <sup>th</sup> percentile time interval from “unit en route date/time” (E05-05) in an emergency to EMS “unit arrived on scene date/time” (E05-06), for a given period of time	
<b>Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>All events in a particular ambulance zone</li> <li>E02_04 “type of service requested” has value 30 “911 response (scene)”; and</li> <li>E02_05 “Primary role of the unit” value is 75 “transport”;</li> <li>E02_20 “response mode to scene” is 390 “lights and sirens”;</li> <li>Values for E05_05 “unit en route date/time” and E05_06 “unit arrived on scene date/time” are present and logical.</li> </ul>	<ul style="list-style-type: none"> <li>Ambulance Zone (Ground Ambulance Transport EOA area as defined by EMS plan)</li> <li>Primary role of unit (E02_05)</li> <li>Type of Service Requested (E02_04)</li> <li>Response Mode to Scene (E02_20)</li> <li>Unit En Route Date/Time (E05_05)</li> <li>Unit Arrived on Scene Date/Time (E05_06)</li> </ul>
<b>Exclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	None	
<b>Indicator Formula Numeric Expression</b>	The formula is the 90 <sup>th</sup> Percentile of the given numbers or distribution in their ascending order.	
<b>Example of Final Reporting Value (number and units)</b>	8 minutes 30 seconds	

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<b>Sampling</b>	Yes
<b>Aggregation</b>	Yes
<b>Blinded</b>	Yes
<b>Minimum Data Values</b>	30
<b>Data Collection Approach</b>	<input type="checkbox"/> Retrospective data sources for required data elements include administrative data and pre-hospital care records. <input type="checkbox"/> Variation may exist in the assignment of coding; therefore, coding practices may require evaluation to ensure consistency.
<b>Suggested Display Format &amp; Frequency</b>	Process control or run chart by month
<b>Suggested Statistical Measures</b>	90 <sup>th</sup> Percentile Measurement. Aggregate measure of central tendency and quantile (fractile) measurement to determine the span of frequency distributions.
<b>Trending Analysis</b>	Yes
<b>Benchmark Analysis</b>	(TBD)
<b>Rationale for Data</b>	<input type="checkbox"/> The early arrival of ambulance transport allows for the availability of those services to transport a patient from the scene in a timely manner. Common field protocols indicate that patients who have experienced severe traumatic injuries, chest pain, stroke, or other life-threatening emergencies should have a response time of less than 9 minutes. <input type="checkbox"/>
<b>References</b>	NEMSIS Core Measure Indicator 10.2

## AMBULANCE RESPONSE TIME BY AMBULANCE ZONE (NON-EMERGENCY)

<b>MEASURE SET</b>	Response and Transport	
<b>SET MEASURE ID #</b>	RST-2	
<b>PERFORMANCE MEASURE NAME</b>	Ambulance response time by ambulance zone (non-emergency)	
<b>Description</b>	90 <sup>th</sup> percentile time value of the Ambulance Response time in Ground Ambulance Transport Zone as defined by the EMS Plan	
<b>Type of Measure</b>	Process	
<b>Reporting Value and Units</b>	Time (minutes and seconds)	
<b>Continuous Variable Statement (population)</b>	Time (in minutes) from time ambulance is en route to arrival at the scene for non-emergency ( <b>Code 2</b> ) responses to patients by BLS, LALS, or ALS ambulances. The 90 <sup>th</sup> percentile time interval from “unit en route date/time” (E05_05) in an emergency to EMS “unit arrived on scene date/time” (E05_06), for a given period of time	
<b>Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>• All events in a particular ambulance zone</li> <li>• E02_04 “type of service requested” has value 30 “911 response (scene)”; and</li> <li>• E02_05 “Primary role of the unit” value is 75 “transport”;</li> <li>• E02_20 “response mode to scene” is 395 “no lights and sirens”;</li> <li>• Values for E05_05 “unit en route date/time” and E05_06 “unit arrived on scene date/time” are present and logical.</li> </ul>	<ul style="list-style-type: none"> <li>• Ambulance Zone (Ground Ambulance Transport EOA area as defined by EMS plan)</li> <li>• Primary role of unit (E02_05)</li> <li>• Type of Service Requested (E02_04)</li> <li>• Response Mode to Scene (E02_20)</li> <li>• Unit En Route Date/Time (E05_05)</li> <li>• Unit Arrived on Scene Date/Time (E05_06)</li> </ul>
<b>Exclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	None	
<b>Indicator Formula Numeric Expression</b>	The formula is the 90 <sup>th</sup> Percentile of the given numbers or distribution in their ascending order.	
<b>Example of Final Reporting Value (number and units)</b>	8 minutes 30 seconds	



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<b>Sampling</b>	Yes
<b>Aggregation</b>	Yes
<b>Blinded</b>	Yes
<b>Minimum Data Values</b>	30
<b>Data Collection Approach</b>	<input type="checkbox"/> Retrospective data sources for required data elements include administrative data and pre-hospital care records. <input type="checkbox"/> Variation may exist in the assignment of coding; therefore, coding practices may require evaluation to ensure consistency.
<b>Suggested Display Format &amp; Frequency</b>	Process control or run chart by month
<b>Suggested Statistical Measures</b>	90 <sup>th</sup> Percentile Measurement. Aggregate measure of central tendency and quantile (fractile) measurement to determine the span of frequency distributions.
<b>Trending Analysis</b>	Yes
<b>Benchmark Analysis</b>	(TBD)
<b>Rationale for Data</b>	<input type="checkbox"/> The early arrival of ambulance transport allows for the availability of those services to transport a patient from the scene in a timely manner. Common field protocols indicate that patients who have experienced severe traumatic injuries, chest pain, stroke, or other life-threatening emergencies should have a response time of less than 9 minutes. <input type="checkbox"/>
<b>References</b>	NEMSIS Core Measure Indicator 10.2

## TRANSPORT OF PATIENTS TO HOSPITAL

<b>MEASURE SET</b>	Response and Transport	
<b>SET MEASURE ID #</b>	RST-3	
<b>PERFORMANCE MEASURE NAME</b>	Transport of patients to hospital	
<b>Description</b>	The percentage of EMS Patients transported to a General Acute Care Hospital with a Basic Permit for emergency services.	
<b>Type of Measure</b>	Process	
<b>Reporting Value and Units</b>	(%) Percentage	
<b>Denominator Statement (population)</b>	All 911 incidents which requested or required a response by at least one EMS unit, and the unit arrived at scene	
<b>Denominator Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>All unique EMS incidents in a particular ambulance zone</li> <li>E02_04 “type of service requested” has value 30 “911 response (scene)”; and</li> <li>E02_05 “Primary role of the unit” value is 75 “transport”;</li> <li>E02_20 “response mode to scene” is 3905 “lights and sirens”;</li> <li>Values for E05_05 “unit en route date/time” and E05_06 “unit arrived on scene date/time” are present and logical.</li> </ul>	<ul style="list-style-type: none"> <li>Ambulance Zone (Ground Ambulance Transport EOA area as defined by EMS plan)</li> <li>Incident Number (E02_02)</li> <li>Primary role of unit (E02_05)</li> <li>Type of Service Requested (E02_04)</li> <li>Response Mode to Scene (E02_20)</li> <li>Unit En Route Date/Time (E05_05)</li> <li>Unit Arrived on Scene Date/Time (E05_06)</li> </ul>
<b>Exclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	None	
<b>Numerator Statement (sub-population)</b>	All patients who received transport to a General Acute Care Hospital, with a Basic Permit, by BLS, LALS, or ALS Ambulances	
<b>Numerator Inclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	<ul style="list-style-type: none"> <li>All unique EMS incidents in a particular ambulance zone</li> <li>E02_04 “type of service requested” has value 30 “911 response (scene)”; and</li> <li>E02_05 “Primary role of the unit” value is 75 “transport”;</li> <li>E02_20 “response mode to</li> </ul>	<ul style="list-style-type: none"> <li>Ambulance Zone (Ground Ambulance Transport EOA area as defined by EMS plan)</li> <li>Incident Number (E02_02)</li> <li>Primary role of unit (E02_05)</li> <li>Type of Service Requested (E02_04)</li> <li>Response Mode to Scene</li> </ul>

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	<p>scene” is 3905 “lights and sirens”;</p> <ul style="list-style-type: none"> <li>• Values for E05_05 “unit en route date/time” and E05_06 “unit arrived on scene date/time” are present and logical</li> </ul> <p><u>And</u></p> <ul style="list-style-type: none"> <li>• E20_17 has a value of 5050 “hospital”</li> </ul>	<p>(E02_20)</p> <ul style="list-style-type: none"> <li>• Unit En Route Date/Time (E05_05)</li> <li>• Unit Arrived on Scene Date/Time (E05_06)</li> <li>• Patient Destination (E20_17)</li> </ul>
<b>Exclusion Criteria</b>	<b>Criteria</b>	<b>Data Elements</b>
	None	
<b>Indicator Formula Numeric Expression</b>	The formula is to divide (/) the numerator (N) by the denominator (D) and then multiply (x) by 100 to obtain the (%) value the indicator is to report. Therefore the indicator expressed numerically is N/D =%	
<b>Example of Final Reporting Value (number and units)</b>	90%	
<b>Sampling</b>	Yes	
<b>Aggregation</b>	Yes	
<b>Blinded</b>	Yes	
<b>Minimum Data Values</b>	30	
<b>Data Collection Approach</b>	<input type="checkbox"/> Retrospective data sources for required data elements include administrative data and pre-hospital care records. <input type="checkbox"/> Variation may exist in the assignment of coding; therefore, coding practices may require evaluation to ensure consistency.	
<b>Suggested Display Format &amp; Frequency</b>	Process control or run chart by month	
<b>Suggested Statistical Measures</b>	Mean (x); Mode (m)	
<b>Trending Analysis</b>	Yes	
<b>Benchmark Analysis</b>	(TBD)	
<b>Rationale for Data</b>	<input type="checkbox"/> The early arrival of ambulance transport allows for the availability of those services to transport a patient from the scene in a timely manner. The highest risk of potential risk of harm and liability is non-transport decisions.	
<b>References</b>	CEMSIS Core Measures	

## OUT-OF-HOSPITAL CARDIAC ARRESTS RECEIVING BYSTANDER CPR

<b>MEASURE SET</b>	Cardiac Arrest	
<b>SET MEASURE ID #</b>	PUB-1 (To Be Measured in 2014)	
<b>PERFORMANCE MEASURE NAME</b>	Out-of-hospital cardiac arrests receiving bystander (non-EMS Personnel/Responder) CPR	
<b>Description</b>	Emergency patients experiencing cardiac arrest who received CPR by bystanders (non-EMS Personnel/Responder)	
<b>Type of Measure</b>	Process	
<b>Reporting Value and Units</b>	(%) Percentage	
<b>Denominator Statement (population)</b>	All cardiac arrest patients	
<b>Denominator Inclusion Criteria</b>	<b>Criteria</b>	<b>Data Elements</b>
	<ul style="list-style-type: none"> <li>Patients having a recorded E11_01 “cardiac arrest” value of 2240 “yes, Prior to EMS arrival” or value of 2245;</li> <li>E11_02 “cardiac arrest etiology” value of 2250 “presumed cardiac”;</li> <li>E11_03 “resuscitation attempted” values 2280 “attempted defibrillation” or 2285 “attempted ventilation” or 2290 “initiated chest compressions”</li> </ul>	<ul style="list-style-type: none"> <li>All unique EMS incidents in a particular ambulance zone</li> <li>Cardiac Arrest (E11_01)</li> <li>Cardiac Arrest Etiology (E11_02)</li> <li>Resuscitation Attempted (E11_03)</li> </ul>
<b>Exclusion Criteria</b>	<b>Criteria</b>	<b>Data Elements</b>
	None	
<b>Numerator Statement (sub-population)</b>	Patients experiencing cardiac arrest who received CPR by bystanders (non-EMS Personnel/Responder)	
<b>Numerator Inclusion Criteria</b>	<b>Criteria</b>	<b>Data Elements</b>
	<ul style="list-style-type: none"> <li>Patients having a recorded E11_01 “cardiac arrest” value of 2240 “yes, Prior to EMS arrival” or value of 2245;</li> <li>E11_02 “cardiac arrest etiology” value of 2250 “presumed cardiac”;</li> </ul>	<ul style="list-style-type: none"> <li>Cardiac Arrest (E11_01)</li> <li>Cardiac Arrest Etiology (E11_02)</li> <li>Resuscitation Attempted (E11_03)</li> <li>Prior Aid Performed By (E09_02)</li> </ul>

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	<ul style="list-style-type: none"> <li>E11_03 “resuscitation attempted” values 2280 “attempted defibrillation” or 2285 “attempted ventilation” or 2290 “initiated chest compressions” <u>And</u></li> <li>E09_02 “prior aid performed by” has a value of 1205 “lay person”, and CPR was performed.</li> </ul>	
<b>Exclusion Criteria</b>	<b><u>Criteria</u></b>	<b><u>Data Elements</u></b>
	None	
<b>Indicator Formula Numeric Expression</b>	The formula is to divide (/) the numerator (N) by the denominator (D) and then multiply (x) by 100 to obtain the (%) value the indicator is to report. Therefore the indicator expressed numerically is $N/D = \%$	
<b>Example of Final Reporting Value (number and units)</b>	90%	
<b>Sampling</b>	Yes	
<b>Aggregation</b>	Yes	
<b>Blinded</b>	Yes	
<b>Minimum Data Values</b>	30	
<b>Data Collection Approach</b>	<input type="checkbox"/> Retrospective data sources for required data elements include administrative data and pre-hospital care records. <input type="checkbox"/> Variation may exist in the assignment of coding; therefore, coding practices may require evaluation to ensure consistency.	
<b>Suggested Display Format &amp; Frequency</b>	Process control or run chart by month	
<b>Suggested Statistical Measures</b>	Mean (x); Mode (m)	
<b>Trending Analysis</b>	Yes	
<b>Benchmark Analysis</b>	(TBD)	
<b>Rationale for Data</b>	<input type="checkbox"/> Cardiac Arrest survival has been shown to increase with early CPR and Automated External Defibrillation <input type="checkbox"/>	
<b>References</b>	CEMSIS Core Measures	

# **California EMS System Core Quality Measures**

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