California EMS System

Core Quality Measures

Instruction Manual

Emergency Medical Services Authority
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ACKNOWLEDGEMENTS

Additional information about the Core Quality Measures Project is accessible via the California Emergency Medical Services Authority Quality Improvement website at https://emsa.ca.gov/quality-improvement/.

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CONTENTS

PROJECT BACKGROUND

The Core Quality Measures Project was formally established by the California Emergency Medical Services Authority (EMSA) in 2012 with grant funding from the California Health Care Foundation (CHCF). The report on the CHCF grant objectives and accomplishments can be viewed on EMSA's website here. EMSA engaged with emergency medical services (EMS) organizations, stakeholders, and partners from government to develop quality measures for statewide EMS evaluation and performance. The preliminary Core Quality Measures were derived largely from a set of performance measures developed through projects by the National Highway Traffic Safety Administration (NHSTA), National Quality Forum, and the National Association of State EMS Officials' EMS Compass Project. A taskforce consisting of EMSA representatives and EMS stakeholders convened to discuss and develop the original measure set based on the questions posed in the publication "Emergency Medical Services Performance Measures" by NHSTA. The measures were then refined by the taskforce overtime to align with measures developed in the EMS Compass Project. In 2018, the EMS Compass Project was transitioned to The National EMS Quality Alliance (NEMSQA). NEMSQA published a set of re-specified measures in 2019, which were updated in 2021. The Core Quality Measures Project currently includes 6 of 11 National EMS Quality Measures. The six measures are:

- TRA-2: Transport of Trauma Patients to a Trauma Center
- HYP-1: Treatment Administered for Hypoglycemia
- STR-1: Prehospital Screening for Suspected Stroke Patients
- PED-3: Respiratory Assessment for Pediatric Patients
- RST-4: 911 Requests for Services That Included a Lights and/or Sirens Response
- RST-5: 911 Requests for Services That Included a Lights and/or Sirens Transport

The Core Quality Measures Project allows EMS systems across California to review their performance and compare their results to similar regions. Ultimately, the project highlights opportunities to improve the quality of patient care delivered within an EMS system. EMSA continues to utilize the Core Quality Measures Project to collect information on an annual basis.

WHAT ARE CORE QUALITY MEASURES?

DEFINITION

The Core Quality Measures (measures) are a set of standardized performance measures intended to examine an EMS system or the treatment of an identified patient condition. Performance measures are tools that define data, communicate information about current activities or processes, establish a consensus, and inspire discussion and action based on the results. The measures are the key tools to evaluate the quality of EMS performance, and motivate change and improvement within the system. The measures drive practice, protocols, spending, and behaviors across healthcare. Measures may reflect the performance of EMS systems; arrival at the scene in a timely manner; timely, focused patient assessment; delivery of time-sensitive prehospital treatment and care for patients with certain medical conditions; and transport of patients to the most appropriate hospital.

PURPOSE

The primary purpose of the measures is to facilitate EMS system evaluation and quality improvement of patient care. This is achieved by increasing the accessibility and reliability of prehospital data for public, policy, academic, and research purposes. EMS professionals may utilize the measures to assist with quality assurance and continuous quality improvement activities in their region. Further, the measures serve as a mechanism to reflect LEMSA activity as accurately as possible so that EMSA can better fulfill its obligation to assess the effectiveness of emergency medical services and provide useful quality improvement information. The collection and analysis of the measures provide the best means to achieve this. The data will become even more useful through further development of compatible data systems, standardized data collection regimes at various levels of the EMS system, and increased participation and coordination by LEMSAs, providers, and hospitals.

MEASURE DEVELOPMENT PROCESS

METHODOLOGY

The measure specifications included in this manual were drafted by a work group consisting of EMSA and LEMSA representatives, referred to as the Core Quality Measures Workgroup. The workgroup meets twice a year, at a minimum, and corresponds throughout the year to discuss specifications and develop the measures appropriately. The process for developing the measures includes discussion, research, specification (or re-specification), and testing. In developing the measures, the workgroup considers feedback from the local EMS agencies and their recommendations from previous reporting years. Agreed upon changes are incorporated into the most current version of this manual. EMSA publishes the revised manual and requests Core Quality Measures data from the 34 single and multi-county LEMSAs in California. Data is extracted from the prehospital care reports utilizing the instructions in this manual and aggregated by the LEMSAs. The results are reported to EMSA on an annual basis and presented in the Core Quality Measures Report. EMSA allows time for the data to be compiled before it posts quality data for a given period (i.e., data collected in 2022 is aggregated, reviewed, and subsequently reported in 2023), so there is a delay between when data is collected by LEMSAs and when it becomes available for publication.

ANNUAL MAINTENANCE

The measures adopted in the Core Quality Measures Project are reviewed on a continuous basis to ensure they provide increasing value to the EMS community. The dynamic nature of the project leads to collaboration between EMSA and various EMS stakeholders. EMSA established the Core Quality Measures Workgroup by engaging members from various LEMSAs to assist in the ongoing review and revision process of the measures. EMSA compiles the recommendations from the workgroup, with consideration for LEMSA responses from previous year reporting, and incorporates pertinent changes into the Core Quality Measures Instruction Manual.

Adjustments to the measures are made to clarify the measures' intent and more accurately report EMS performance in the field. A measure(s) may be retired from the measure set for a variety of reasons, such as achievement of the previously agreed upon end point or improvement, feasibility issues, changes in clinical processes or procedures, and barriers to data interoperability. Retired measures will be re-specified and approved for inclusion in future years. In 2019,

four measures were retired from the measure set due to a need to improve focus on a smaller number of metrics while developing improved coordination nationally. The four retired measures are:

- ACS-1 Aspirin Administration for STEMI or Suspected Cardiac Chest Pain
- ACS-4 Advanced Hospital Notification for STEMI Patients
- STR-2 Glucose Testing for Suspected Stroke Patients
- STR-4 Advanced Hospital Notification for Stroke Patients

If additional measures are adopted, EMSA will strive to provide LEMSAs with ample notice to ensure that the appropriate data systems are established in each local region for proper data collection and reporting.

TABLE 1: MEASURE CHANGE LOG

The measure specifications in this manual were revised from the 2021 reporting year for the 2022 and 2023 reporting years. A summary of the changes is provided in the table below as a quick reference tool. Please refer to the measure specifications (pages 13-26) for the complete criteria.

Measure ID	Updated Denominator Inclusion Criteria	Updated Numerator Inclusion Criteria	Updated Denominator Exclusion Criteria	Updated Numerator Exclusion Criteria
TRA-2	None	Added: • eDisposition.02 Destination/Transferred To, Code = [Insert all destination/transferred to codes from the Trauma Center List that apply to your LEMSA. The Trauma Center List is provided in Table 2 on pages #27-29.]	None	None
HYP-1	None	Added: • eMedications.03 Medication Given = "Contains any dextrose"	None	None
STR-1	None	None	None	None
PED-3	None	Added: • eVitals.14 Respiratory Rate = 8801019 "Refused" 8801023 "Unable to Complete" • eVitals.12 Pulse Oximetry = 8801005 "Exam Finding Not Present" 8801019 "Refused" 8801023 "Unable to Complete"		

		• eVitals.16 End Tidal Carbon Dioxide (ETCO2) = 8801005 "Exam Finding Not Present" 8801019 "Refused" 8801023 "Unable to Complete"		
RST-4	None	None	None	None
RST-5	None	None	None	None

ESSENTIAL DATA ELEMENTS

The table below lists all essential data elements found in this instruction manual. Each data element plays a vital role in EMSA's ability to collect and report on the Core Quality Measures Project. EMS providers and LEMSAs should ensure that these data elements are appropriately captured and populated in every patient care record. To achieve this, providers shall collect and submit data to the LEMSA utilizing a National Emergency Medical Services Information System (NEMSIS) compliant software vendor. Providers shall include fields identified in the NEMSIS standard as mandatory, required, recommended and optional, and the California Emergency Medical Services Information System (CEMSIS) approved value lists. Descriptive values shall be used in the compliant submission of data to the LEMSA with minimal use of not and null values and limited only to situations where no other value is appropriate for documentation of a given situation. Additional information about CEMSIS can be viewed on EMSA's website at https://emsa.ca.gov/cemsis/.

Data Element Name	Data Element Number
Destination/Transferred To, Code	eDisposition.02
Incident/Patient Disposition	eDisposition.12
Additional Transport Mode Descriptors	eDisposition.18
Hospital Capability	eDisposition.23
Trauma Center Criteria	eInjury.03
Vehicular, Pedestrian, or Other Injury Risk Factor	eInjury.04
Medication Given	eMedications.03
Age	ePatient.15
Age Units	ePatient.16
Procedure	eProcedures.03
Type of Service Requested	eResponse.05
Primary Role of the Unit	eResponse.07
Additional Response Mode Descriptors	eResponse.24
Provider's Primary Impression	eSituation.11
Provider's Secondary Impressions	eSituation.12
Pulse Oximetry	eVitals.12
Respiratory Rate	eVitals.14
End Tidal Carbon Dioxide (ETCO2)	eVitals.16
Blood Glucose Level	eVitals.18
Stroke Scale Score	eVitals.29

QUALIFYING DATA FOR CALENDAR YEARS 2022 - 2023

EMSA requests that each LEMSA report data for all measures for the calendar year 2022, at which time NEMSIS Version 3.4.0 standard was utilized. For consistency, only data from this version of NEMSIS should be reported to EMSA as the measurement specifications are designed for NEMSIS Version 3.4.0. Instructions and a reporting spreadsheet will be provided to each LEMSA to report qualifying data for the annual Core Quality Measures Report.

EMSA will begin transitioning to NEMSIS Version 3.5.0 in the calendar year 2023. The measure specifications as described in this manual will be updated accordingly, as some data elements will be affected by the upgrade to Version 3.5.0. EMSA plans to publish two sets of core quality measure specifications (one for NEMSIS Version 3.4.0 and one for NEMSIS Version 3.5.0) for all LEMSAs to utilize. Additional information and instructions to be provided by EMSA.

INSTRUCTIONS FOR EXECUTING CORE QUALITY MEASURE

The following pages contain specification sheets for each measure. Consistency is key to comparing the reported results at the statewide and nationwide levels. EMSA requests that all LEMSAs utilize this same approach (a single specification/query for the entire state). Only data elements and codes found in this document shall be used to calculate each indicator. Execute each measure exactly as specified. Do not use custom elements or fields specific to a local jurisdiction or an EMS provider unless otherwise directed.

EMSA may allow local EMS agencies the option to report additional data for the measures using custom specifications and rationale. For example, if an agency has a preferred method for executing a report that differs from the measure specifications in this manual, the LEMSA may submit a separate reporting spreadsheet to EMSA at the time of reporting qualifying data for the annual Core Quality Measures Report. This will allow the State to improve understanding of regional variations and how they impact performance measurement. Please note, reports executed outside of the measure specifications described in this manual should not replace them. Specific instructions on reporting will be provided to all LEMSAs when the data is requested by EMSA.

CORE QUALITY MEASURES:

TRANSPORT OF TRAUMA PATIENTS TO A TRAUMA CENTER

Measure Set	Trauma
Measure ID #	TRA-2
Measure Name	Transport of Trauma Patients to a Trauma Center
Measure Description	Percentage of trauma patients meeting CDC Field Trauma Triage Criteria Step 1 or 2 or 3 that were transported to a trauma center originating from a 911 response.
Type of Measure	Process
Reporting Value & Unit	Percentage (%)
Denominator Statement (Population)	Number of trauma patients meeting CDC Field Trauma Triage Criteria Step 1 or 2 or 3 originating from a 911 response.
Denominator Inclusion Criteria	*All events where:* • eResponse.05 Type of Service Requested = 2205001 "911 Response (Scene)" *AND* • eDisposition.12 Incident/Patient Disposition = 4212033 "Patient Treated, Transported by this EMS Unit" *AND* • (eInjury.03 Trauma Center Criteria = 2903001 "Amputation proximal to wrist or ankle" 2903003 "Crushed, degloved, mangled, or pulseless extremity" 2903005 "Chest wall instability or deformity (e.g., flail chest)" 2903007 "Glasgow Coma Score ≤13" 2903009 "Open or depressed skull fracture" 2903011 "Paralysis" 2903013 "Pelvic fractures" 2903015 "All penetrating injuries to head, neck, torso, and extremities proximal to elbow or knee" 2903017 "Respiratory Rate <10 or >29 breaths per minute (<20 in infants aged <1 year) or need for ventilatory support" 2903019 "Systolic Blood Pressure <90 mmHg" 2903021 "Two or more proximal long-bone fractures" *OR* • eInjury.04 Vehicular, Pedestrian, or Other Injury Risk Factor = 2904001 "Auto v. Pedestrian/Bicyclist Thrown, Run Over, or > 20 MPH Impact"

	2904003 "Fall Adults: > 20 ft. (one story is equal to 10 ft.)" 2904005 "Fall Children: > 10 ft. or 2-3 times the height of the child" 2904007 "Crash Death in Same Passenger Compartment" 2904009 "Crash Ejection (partial or complete) from automobile" 2904011 "Crash Intrusion, including roof: > 12 in. occupant site; > 18 in. any site" 2904013 "Crash Vehicle Telemetry Data (AACN) Consistent with High Risk of Injury" 2904015 "Motorcycle Crash > 20 MPH"**)** *Count by patients treated rather than by number of responses.*
Denominator Exclusion Criteria	None
Numerator Statement (Subpopulation)	Number of trauma patients meeting CDC Field Trauma Triage Criteria Step 1 or 2 or 3 transported to a trauma center originating from a 911 response.
Numerator Inclusion Criteria	*All events where:* • eResponse.05 Type of Service Requested = 2205001 "911 Response (Scene)" *AND* • eDisposition.12 Incident/Patient Disposition = 4212033 "Patient Treated, Transported by this EMS Unit" *AND* • **(**eInjury.03 Trauma Center Criteria = 2903001 "Amputation proximal to wrist or ankle" 2903003 "Crushed, degloved, mangled, or pulseless extremity" 2903005 "Chest wall instability or deformity (e.g., flail chest)" 2903007 "Glasgow Coma Score ≤13" 2903009 "Open or depressed skull fracture" 2903011 "Paralysis" 2903013 "Pelvic fractures" 2903015 "All penetrating injuries to head, neck, torso, and extremities proximal to elbow or knee" 2903017 "Respiratory Rate <10 or >29 breaths per minute (<20 in infants aged <1 year) or need for ventilatory support" 2903019 "Systolic Blood Pressure <90 mmHg" 2903021 "Two or more proximal long-bone fractures" *OR* • eInjury.04 Vehicular, Pedestrian, or Other Injury Risk Factor = 2904001 "Auto v. Pedestrian/Bicyclist Thrown, Run Over, or > 20 MPH Impact" 2904003 "Fall Adults: > 20 ft. (one story is equal to 10 ft.)" 2904005 "Fall Children: > 10 ft. or 2-3 times the height of the child" 2904007 "Crash Death in Same Passenger Compartment"

	2904009 "Crash Ejection (partial or complete) from automobile"
	2904011 "Crash Intrusion, including roof: > 12 in. occupant site;
	     > 18 in. any site"
	2904013 "Crash Vehicle Telemetry Data (AACN) Consistent with
	     High Risk of Injury"
	2904015 "Motorcycle Crash > 20 MPH"**)**
	AND
	• **(**eDisposition.23 Hospital Capability =
	9908021 "Trauma Center Level 1"
	9908023 "Trauma Center Level 2"
	9908025 "Trauma Center Level 3"
	9908027 "Trauma Center Level 4"
	OR
	• eDisposition.02 Destination/Transferred To, Code = [Insert all destination/transferred to codes from the Trauma Center List that apply to your LEMSA. The Trauma Center List is provided in Table 2 on pages #27-29.]**)**
	
	Count by patients treated rather than by number of responses.

Numerator Exclusion Criteria	None
Indicator Formula Numeric Expression	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 = %
Example of Final Reporting Value (Number & Unit)	95%
Measure Value Interpretation	For this measure, a higher value typically indicates better quality.
Sampling	No
Aggregation	Yes
Blinded	Yes
Data Collection Approach	• Retrospective data sources for required data elements include administrative data and prehospital care records. • Variation may exist in the assignment of coding; therefore, coding practices may require evaluation to ensure consistency.

TREATMENT ADMINISTERED FOR HYPOGLYCEMIA

Measure Set	Hypoglycemia
Measure ID #	HYP-1
Measure Name	Treatment Administered for Hypoglycemia
Measure Description	Percentage of patients that received treatment to correct their hypoglycemia originating from a 911 response.
Type of Measure	Process
Reporting Value & Unit	Percentage (%)
Denominator Statement (Population)	Number of patients who had a blood glucose level indicating hypoglycemia originating from a 911 response.
Denominator Inclusion Criteria	*All events where:* • eResponse.05 Type of Service Requested = 2205001 "911 Response (Scene)" • eVitals.18 Blood Glucose Level < 60 *Count by patients treated rather than by number of responses*
Denominator Exclusion Criteria	None
Numerator Statement (Subpopulation)	Number of patients who received treatment to correct their hypoglycemia originating from a 911 response.
Numerator Inclusion Criteria	*All events where:* • eResponse.05 Type of Service Requested = 2205001 "911 Response (Scene)" *AND* • eVitals.18 Blood Glucose Level < 60 *AND* • **(**eMedications.03 Medication Given = 4832 "Glucagon" 4850 "Glucose" 92972 "Insta-Glucose" 237648 "Dextrose (D10)" 237653 "Glucose 500 MG/ML Injectable Solution" 260258 "Glucose 250 MG/ML Injectable Solution" 309778 "Glucose 500 MG/ML Injectable Solution" 317630 "Glucose 100 MG/ML" 372326 "Glucose Chewable Tablet" 376937 "Glucose Injectable Solution" 377980 "Glucose Oral Gel" 1165819 "Glucose Injectable Product" 1165822 "Glucose Oral Liquid Product" 1165823 "Glucose Oral Product"

	1794567 "Glucose Injection" 1795477 "500 ML glucose 100 MG/ML Injection" 1795480 "250 ML glucose 100 MG/ML Injection" 1795610 "250 ML Glucose 50 MG/ML Injection" "Contains any dextrose" *OR* • eProcedures.03 Procedure = 225285007 "Giving oral fluid" 710925007 "Provision of food" *OR* • eMedications.03 Medication Given = 8801001 "Contraindication Noted" 8801003 "Denied By Order" 8801007 "Medication Allergy" 8801009 "Medication Already Taken" 8801019 "Refused" 8801023 "Unable to Complete" *OR* • eProcedures.03 Procedure = 8801001 "Contraindication Noted" 8801003 "Denied By Order" 8801019 "Refused" 8801023 "Unable to Complete"**)** *Count by patients treated rather than by number of responses.*
Numerator Exclusion Criteria	None
Indicator Formula Numeric Expression	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 = %
Example of Final Reporting Value (Number & Unit)	95%
Measure Value Interpretation	For this measure, a higher value indicates better quality.
Sampling	No
Aggregation	Yes
Blinded	Yes
Data Collection Approach	• Retrospective data sources for required data elements include administrative data and prehospital care records. • Variation may exist in the assignment of coding; therefore, coding practices may require evaluation to ensure consistency.

PREHOSPITAL SCREENING FOR SUSPECTED STROKE PATIENTS

Measure Set	Stroke
Measure ID #	STR-1
Measure Name	Prehospital Screening for Suspected Stroke Patients
Measure Description	Percentage of suspected stroke patients that received a prehospital stroke screening originating from a 911 response.
Type of Measure	Process
Reporting Value & Unit	Percentage (%)
Denominator Statement (Population)	Number of patients who had a primary or secondary impression of stroke originating from a 911 response.
Denominator Inclusion Criteria	*All events where:* • eResponse.05 Type of Service Requested = 2205001 "911 Response (Scene)" *AND* • **(**eSituation.11 Provider's Primary Impression = I63.9 "Stroke/CVA/TIA" *OR* • eSituation.12 Provider's Secondary Impressions = I63.9 "Stroke/CVA/TIA"**)** *Count by patients treated rather than by number of responses.*
Denominator Exclusion Criteria	None
Numerator Statement (Subpopulation)	Number of patients who had a primary or secondary impression of stroke originating from a 911 response and yielded a documented stroke assessment.
Numerator Inclusion Criteria	*All events where:* • eResponse.05 Type of Service Requested = 2205001 "911 Response (Scene)" *AND* • **(**eSituation.11 Provider's Primary Impression = I63.9 "Stroke/CVA/TIA" *OR* • eSituation.12 Provider's Secondary Impressions = I63.9 "Stroke/CVA/TIA"**)** *AND* • **(**eVitals.29 Stroke Scale Score = 3329001 "Negative" 3329003 "Non-Conclusive" 3329005 "Positive" *OR*

	• [eVitals.29 Stroke Scale Score](#) = 8801019 "Refused" 8801023 "Unable to Complete"**)** *Count by patients treated rather than by number of responses.*
Numerator Exclusion Criteria	None
Indicator Formula Numeric Expression	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 = %
Example of Final Reporting Value (Number & Unit)	95%
Sampling	No
Measure Value Interpretation	For this measure, a higher value indicates better quality.
Aggregation	Yes
Blinded	Yes
Data Collection Approach	• Retrospective data sources for required data elements include administrative data and prehospital care records. • Variation may exist in the assignment of coding; therefore, coding practices may require evaluation to ensure consistency.

RESPIRATORY ASSESSMENT FOR PEDIATRIC PATIENTS

Measure Set	Pediatric
Measure ID #	PED-3
Measure Name	Respiratory Assessment for Pediatric Patients
Measure Description	Percentage of pediatric patients that had a primary or secondary impression of respiratory distress and received a documented respiratory assessment originating from a 911 response.
Type of Measure	Process
Reporting Value & Unit	Percentage (%)
Denominator Statement (Population)	Number of pediatric patients who had a primary or secondary impression of respiratory distress originating from a 911 response.
Denominator Inclusion Criteria	*All events where:* • eResponse.05 Type of Service Requested = 2205001 "911 Response (Scene)" *AND* • **((**ePatient.15 Age < 15 *AND* • ePatient.16 Age Units = 2516009 "Years"**)** *OR* • **(**ePatient.15 Age = Not Null *AND* • ePatient.16 Age Units = 2516001 "Days" 2516003 "Hours" 2516005 "Minutes" 2516007 "Months"**))** *AND* • **(**eSituation.11 Provider's Primary Impression = J80 "Respiratory Distress/Other" J98.01 "Respiratory Distress/Bronchospasm" *OR* • eSituation.12 Provider's Secondary Impressions = J80 "Respiratory Distress/Other" J98.01 "Respiratory Distress/Bronchospasm"**)** *Count by patients treated rather than by number of responses.*
Denominator Exclusion Criteria	None
Numerator Statement (Subpopulation)	Number of pediatric patients who had a primary or secondary impression of respiratory distress originating from a 911 response and yielded a documented respiratory assessment.

Numerator Inclusion Criteria	*All events where:* • [eResponse.05 Type of Service Requested](#) = 2205001 "911 Response (Scene)" *AND* • **((**[ePatient.15 Age](#) < 15 *AND* • [ePatient.16 Age Units](#) = 2516009 "Years"**)** *OR* • **(**[ePatient.15 Age](#) = Not Null *AND* • [ePatient.16 Age Units](#) = 2516001 "Days" 2516003 "Hours" 2516005 "Minutes" 2516007 "Months"**))** *AND* • **(**[eSituation.11 Provider's Primary Impression](#) = J80 "Respiratory Distress/Other" J98.01 "Respiratory Distress/Bronchospasm" *OR* • [eSituation.12 Provider's Secondary Impressions](#) = J80 "Respiratory Distress/Other" J98.01 "Respiratory Distress/Bronchospasm"**)** *AND* • **(**[eVitals.14 Respiratory Rate](#) = Logical and Present [min 0 - max 300] *OR* • [eVitals.14 Respiratory Rate](#) = 8801019 "Refused" 8801023 "Unable to Complete"**)** *AND* • **(**[eVitals.12 Pulse Oximetry](#) = Logical and Present [min 0 - max 100] *OR* • [eVitals.12 Pulse Oximetry](#) = 8801005 "Exam Finding Not Present" 8801019 "Refused" 8801023 "Unable to Complete" *OR* • [eVitals.16 End Tidal Carbon Dioxide (ETCO2)](#) = Logical and Present [min 0 - max 200] *OR* • [eVitals.16 End Tidal Carbon Dioxide (ETCO2)](#) = 8801005 "Exam Finding Not Present" 8801019 "Refused" 8801023 "Unable to Complete"**)**

	Count by patients treated rather than by number of responses.
Numerator Exclusion Criteria	None
Indicator Formula Numeric Expression	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 = %
Example of Final Reporting Value (Number & Unit)	95%
Measure Value Interpretation	For this measure, a higher value indicates better quality.
Sampling	No
Aggregation	Yes
Blinded	Yes
Data Collection Approach	• Retrospective data sources for required data elements include administrative data and prehospital care records. • Variation may exist in the assignment of coding; therefore, coding practices may require evaluation to ensure consistency.

911 REQUESTS FOR SERVICES THAT INCLUDED A LIGHTS AND/OR SIRENS

Measure Set	Response and Transport
Measure ID #	RST-4
Measure Name	911 Requests for Services That Included a Lights and/or Sirens Response
Measure Description	Percentage of EMS responses originating from a 911 request that included the use of lights and/or sirens during a response.
Type of Measure	Process
Reporting Value & Unit	Percentage (%)
Denominator Statement (Population)	Number of EMS responses originating from a 911 request.
Denominator Inclusion Criteria	*All events where:* • eResponse.05 Type of Service Requested = 2205001 "911 Response (Scene)"
Denominator Exclusion Criteria	None
Numerator Statement (Subpopulation)	Number of EMS responses originating from a 911 request that included a lights and/or sirens response.
Numerator Inclusion Criteria	*All events where:* • eResponse.05 Type of Service Requested = 2205001 "911 Response (Scene)" *AND* • eResponse.24 Additional Response Mode Descriptors = 2224015 "Lights and Sirens" 2224017 "Lights and No Sirens" 2224021 "Initial No Lights or Sirens, Upgraded to Lights and Sirens" 2224023 "Initial Lights and Sirens, Downgraded to No Lights or Sirens"
Numerator Exclusion Criteria	None
Indicator Formula Numeric Expression	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 = %
Example of Final Reporting Value (Number & Unit)	15%
Measure Value Interpretation	For this measure, a lower value generally indicates better quality.
Sampling	No

Aggregation	Yes
Blinded	Yes
Data Collection Approach	• Retrospective data sources for required data elements include administrative data and prehospital care records. • Variation may exist in the assignment of coding; therefore, coding practices may require evaluation to ensure consistency.

911 REQUESTS FOR SERVICES THAT INCLUDED A LIGHTS AND/OR SIRENS TRANSPORT

Measure Set	Response and Transport
Measure ID #	RST-5
Measure Name	911 Requests for Services That Included a Lights and/or Sirens Transport
Measure Description	Percentage of EMS transports originating from a 911 request that included the use of lights and/or sirens during patient transport.
Type of Measure	Process
Reporting Value & Unit	Percentage (%)
Denominator Statement (Population)	Number of EMS transports originating from a 911 request.
Denominator Inclusion Criteria	*All events where:* • eResponse.05 Type of Service Requested = 2205001 "911 Response (Scene)" *AND* • eResponse.07 Primary Role of the Unit = 2207003 "Ground Transport" *AND* • eDisposition.12 Incident/Patient Disposition = 4212033 "Patient Treated, Transported by this EMS Unit" *Count by patients treated rather than by number of responses.*
Denominator Exclusion Criteria	None
Numerator Statement (Subpopulation)	Number of EMS transports originating from a 911 request that included a lights and/or sirens patient transport.
Numerator Inclusion Criteria	*All events where:* • eResponse.05 Type of Service Requested = 2205001 "911 Response (Scene)" *AND* • eResponse.07 Primary Role of the Unit = 2207003 "Ground Transport" *AND* • eDisposition.12 Incident/Patient Disposition = 4212033 "Patient Treated, Transported by this EMS Unit" *AND* • eDisposition.18 Additional Transport Mode Descriptors = 4218011 "Lights and Sirens" 4218013 "Lights and No Sirens" 4218017 "Initial No Lights or Sirens, Upgraded to Lights and Sirens"

	4218019 "Initial Lights and Sirens, Downgraded to No Lights or Sirens" *Count by patients treated rather than by number of responses.*
Numerator Exclusion Criteria	None
Indicator Formula Numeric Expression	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 = %
Example of Final Reporting Value (Number & Unit)	15%
Measure Value Interpretation	For this measure, a lower value generally indicates better quality.
Sampling	No
Aggregation	Yes
Blinded	Yes
Data Collection Approach	- Retrospective data sources for required data elements include administrative data and prehospital care records. - Variation may exist in the assignment of coding; therefore, coding practices may require evaluation to ensure consistency.

TABLE 2: TRAUMA CENTER LIST

LEMSA	County	Destination/ Transferred To Code	Hospital Name
Alameda EMS	Alameda	20005	Highland Alameda County Medical Center
Alameda EMS	Alameda	20112	Sutter Health Eden Medical Center
Alameda EMS	Alameda	20059	UCSF Benioff Children's Hospital Oakland
Central California EMS	Fresno	20085	Community Regional Medical Center
Central California EMS	Tulare	20219	Kaweah Delta Medical Center
Central California EMS	Madera	20061	Valley Children's Hospital
Coastal Valley EMS	Mendocino	20506	Ukiah Valley Medical Center
Coastal Valley EMS	Mendocino	20132	Frank Howard Memorial Hospital
Coastal Valley EMS	Sonoma	20402	Santa Rosa Memorial Hospital
Contra Costa EMS	Contra Costa	20180	John Muir Medical Center, Walnut Creek
El Dorado EMS	El Dorado	20033	Barton Healthcare System
El Dorado EMS	El Dorado	20272	Marshall Medical Center
Imperial County EMS	Imperial	20117	El Centro Regional Medical Center
Imperial County EMS	Imperial	20344	Pioneers Memorial Healthcare District
Inland Counties EMS	San Bernardino	20019	Arrowhead Regional Medical Center
Inland Counties EMS	San Bernardino	20252	Loma Linda University Medical Center
Kern EMS	Kern	20224	Kern Medical Center
Kern EMS	Kern	20372	Ridgecrest Regional Hospital
Los Angeles EMS	Los Angeles	20018	Antelope Valley Hospital
Los Angeles EMS	Los Angeles	20054	Cedars-Sinai Medical Center
Los Angeles EMS	Los Angeles	20062	Children's Hospital Los Angeles
Los Angeles EMS	Los Angeles	20045	Dignity Health California Hospital Medical Center
Los Angeles EMS	Los Angeles	20315	Dignity Health Northridge Hospital Medical Center
Los Angeles EMS	Los Angeles	20460	Dignity Health St. Mary Medical Center
Los Angeles EMS	Los Angeles	20240	Harbor-UCLA Medical Center
Los Angeles EMS	Los Angeles	20163	Henry Mayo Newhall Memorial Hospital
Los Angeles EMS	Los Angeles	20173	Huntington Memorial Hospital
Los Angeles EMS	Los Angeles	20242	LAC + USC Medical Center

Los Angeles EMS	Los Angeles	20255	Long Beach Memorial Medical Center
Los Angeles EMS	Los Angeles	20348	Pomona Valley Hospital Medical Center
Los Angeles EMS	Los Angeles	20354	Providence Holy Cross Medical Center
Los Angeles EMS	Los Angeles	20377	Ronald Reagan UCLA Medical Center
Los Angeles EMS	Los Angeles	20446	St. Francis Medical Center
Marin EMS	Marin	20269	Marin General Hospital
Monterey EMS	Monterey	20306	Natividad Medical Center
Mountain Valley EMS	Stanislaus	20101	Doctors Medical Center Modesto
Mountain Valley EMS	Stanislaus	20275	Memorial Medical Center Modesto
Napa EMS	Napa	20362	Queen of the Valley Medical Center
North Coast EMS	Humboldt	20264	Mad River Community Hospital
North Coast EMS	Humboldt	20454	St. Joseph Medical Center
North Coast EMS	Del Norte	20472	Sutter Coast Hospital
North Coast EMS	Lake	20476	Sutter Lakeside Hospital
Orange EMS	Orange	20063	Children's Hospital Orange County
Orange EMS	Orange	20296	Mission Hospital Regional Medical Center
Orange EMS	Orange	20529	Orange County Global Medical Center
Orange EMS	Orange	20509	UC Irvine Health
Riverside EMS	Riverside	20177	John F. Kennedy Memorial Hospital
Riverside EMS	Riverside	20097	Desert Regional Medical Center
Riverside EMS	Riverside	20442	Inland Valley Medical Center
Riverside EMS	Riverside	20374	Riverside Community Hospital
Riverside EMS	Riverside	20375	Riverside University Health System
Sacramento EMS	Sacramento	20286	Dignity Health Mercy San Juan Medical Center
Sacramento EMS	Sacramento	20205	Kaiser Permanente South Sacramento
Sacramento EMS	Sacramento	20508	University of California, Davis Medical Center
San Benito	San Benito	20156	Hazel Hawkins Memorial Hospital
San Diego EMS	San Diego	20561	Palomar Medical Center
San Diego EMS	San Diego	20364	Rady Children's Hospital-San Diego
San Diego EMS	San Diego	20406	Scripps Memorial Hospital
San Diego EMS	San Diego	20408	Scripps Mercy Hospital
San Diego EMS	San Diego	20419	Sharp Memorial Hospital
San Diego EMS	San Diego	20510	UC San Diego Medical Center

San Francisco EMS	San Francisco	20386	Zuckerberg San Francisco General Hospital and Trauma Center
San Joaquin EMS	San Joaquin	20391	San Joaquin General Hospital
San Luis Obispo EMS	San Luis Obispo	20431	Sierra Vista Regional Medical Center
Santa Barbara EMS	Santa Barbara	20267	Dignity Health Marian Regional Medical Center
Santa Barbara EMS	Santa Barbara	20369	Santa Barbara Cottage Hospital
Santa Clara EMS	Santa Clara	20368	Regional Medical Center of San Jose
Santa Clara EMS	Santa Clara	20400	Santa Clara Valley Medical Center
Santa Clara EMS	Santa Clara	20465	Stanford Health Care/Lucile Packard Children's Hospital
Sierra-Sacramento EMS	Siskiyou	20285	Dignity Health Mercy Medical Center Mt. Shasta
Sierra-Sacramento EMS	Shasta	20284	Dignity Health Mercy Medical Center Redding
Sierra-Sacramento EMS	Tehama	20445	Dignity Health St. Elizabeth Community Hospital
Sierra-Sacramento EMS	Butte	20122	Enloe Medical Center
Sierra-Sacramento EMS	Siskiyou	20124	Fairchild Medical Center
Sierra-Sacramento EMS	Yuba	20371	Rideout Regional Medical Center
Sierra-Sacramento EMS	Placer	20486	Tahoe Forest Hospital
Sierra-Sacramento EMS	Placer	20481	Sutter Roseville Medical Center
Solano EMS	Solano	20193	Kaiser Foundation Hospital - Vacaville
Solano EMS	Solano	20309	NorthBay Medical Center
Ventura EMS	Ventura	20261	Los Robles Hospital & Medical Center
Ventura EMS	Ventura	20516	Ventura County Medical Center

STATUTORY AUTHORITY

The California Emergency Medical Services Authority (EMSA) is responsible for creating a "statewide system for emergency medical services" and for the "coordination and integration of all state activities concerning emergency medical services" (Health and Safety Code [HSC] 1797.1). Moreover, EMSA is required to "assess each EMS area or the system's service area for the purpose of determining the need for additional emergency medical services, coordination of emergency medical services, and the effectiveness of emergency medical services" (HSC 1797.102). Local EMS agencies are required to "plan, implement, and evaluate an EMS system" (HSC 1797.204).

Pursuant to HSC 1797.103, EMSA shall "develop planning and implementation guidelines for emergency medical services systems" which address several components, including data collection and evaluation. Additionally, the statute requires EMSA to develop statewide guidelines for "quality improvement systems which monitor and promote improvement in the quality of care provided by EMT-Ps throughout the state" (HSC 1797.174). As a result of the statutory mandates, EMSA has established regulations requiring system data collection and evaluation of prehospital care reports (California Code of Regulations [CCR], Title 22, Division 9, Chapter 4, Sections 100148, 100169, and 100170). EMS system quality improvement regulations (CCR, Title 22, Division 9, Chapter 12) define the requirements for LEMSAs, 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 EMS Quality Improvement Program and the use of defined indicators to assess the LEMSA system, as demonstrated by the California EMS System Core Quality Measures Project defined in this manual (# SYS 100-10). The Core Quality Measures Project establishes appropriate indicators to reflect ongoing quality improvement efforts by the LEMSAs aimed at clinical and transport activities and reflective of quality improvement activities at the local level.

To evaluate system impact on patients, the continuum of care from dispatch to prehospital to hospital disposition must be connected. In addition, there must be reporting on performance measures, such as those included in the Core Quality Measures Project. Using the data derived from this project, we can better understand how the care provided by EMS personnel translates to improved patient outcomes and system effectiveness.

REFERENCE INFORMATION

The Core Quality Measures Instruction Manual contains references and coding from the documents listed below. All data elements and values referenced in the manual are coded using NEMSIS. Please refer to the following documents regarding the codes found in each measure:

National Emergency Medical Services Information System (NEMSIS)
NEMSIS v 3.4.0 Data Dictionary – Updated 7/13/2016
(http://nemsis.org/media/nemsis_v3/release-3.4.0/datadictionary/PDFHTML/DEMEMS/index.html)

California Emergency Medical Services Information System (CEMSIS)
https://emsa.ca.gov/cemsis/

National EMS Quality Alliance (NEMSQA)
National EMS Quality Measure Set – Updated 12/2021
(https://www.nemsqa.org/measures)

National Association of State EMS Officials
EMS Compass Project
(https://nasemso.org/projects/ems-compass/)

National Highway Traffic Safety Administration (NHTSA)
NHTSA: Emergency Medical Services Performance Measures – Updated 12/2009
(https://www.ems.gov/pdf/research/Studies-and-Reports/EMS_Performance_Measures_2009.pdf)

California EMS System Core Quality Measures

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