

Ambulance Patient Offload Time (APOT) Standardized Methods for Data Collection and Reporting

Approved by EMS Commission 12-14-16 (Rev 11-21-2016)

Purpose

To provide recommendations/guidelines to Local EMS Agencies (LEMSAs) for implementing standardized methodologies for Ambulance Patient Offload Time (APOT) data collection and reporting to the EMS Authority (EMSA) in accordance with AB 1223 (O'Donnell, 2015. See appendix A for entire text of bill.)

Background

Health and Safety Code 1797.120 now requires EMSA to develop a standard methodology for calculation of, and reporting by, a LEMSA of ambulance patient offload time.

Health and Safety Code 1797.225 establishes that a LEMSA may adopt policies and procedures for calculating and reporting ambulance offload time. Those policies and procedures must be based on the statewide standard methodology developed pursuant to 1797.120. LEMSAs that adopt patient off-loading policies and procedures must also establish criteria for reporting and quality assurance follow-up for a patient off load time that exceeds the standard.

1. Definitions

Ambulance arrival at the Emergency Department (ED) - the time ambulance stops at the location outside the hospital ED where the patient will be unloaded from the ambulance.

Ambulance Patient Offload Time (APOT) - the time interval between the arrival of an ambulance patient at an ED and the time the patient is transferred to the ED gurney, bed, chair or other acceptable location and the emergency department assumes the responsibility for care of the patient.¹

Ambulance Patient Offload Time (APOT) Standard – the time interval standard established by the LEMSA within which an ambulance patient that has arrived in an ED should be transferred to an ED gurney, bed, chair or other acceptable location and the ED assumes the responsibility for care of the patient.

Non-Standard Patient Offload Time – the ambulance patient offload time for a patient exceeds the standard period of time designated by the LEMSA.² (See *Standards* below.)

Ambulance transport – the 911 response emergency ambulance transport of a patient from the prehospital EMS system to an approved EMS receiving hospital.³

APOT 1 - an ambulance patient offload time interval measure. This metric is a continuous variable measured in minutes and seconds then aggregated and reported at the 90th percentile.

APOT 2 - an ambulance patient offload time interval process measure. This metric demonstrates the incidence of ambulance patient offload times expressed as a percentage of total EMS patient transports within a twenty (20) minute target and exceeding that time in reference to 60, 120 and 180 minute time intervals.

¹ Health and Safety Code Division 2.5, Chapter 3, Article 1, Section 1797.120 (b).

² Health and Safety Code Division 2.5, Chapter 4, Article 1, Section 1797.225(c)(1).

³ For the first year of reporting to EMSA, this will be limited to 911 response; however, LEMSAs may choose to also track APOT for all Inter-facility transports, 7-digit response, and other patient transports to the ED.

Ambulance Patient Offload Delay (APOD) - the occurrence of a patient remaining on the ambulance gurney and/or the emergency department has not assumed responsibility for patient care beyond the LEMSA approved APOT standard. (Synonymous with non-standard patient offload time)

AVL/GPS - Automated Vehicle Location/Global Position System

CEMSIS - California Emergency Medical Services Information System

CAD - Computer Aided Dispatch

Clock Start – the timestamp that captures when APOT begins. This is captured in the NEMSIS 3.4 data set as the time the patient/ambulance arrives at destination/receiving hospital at the location outside the hospital ED where the patient will be unloaded from the ambulance (eTimes.11).

Clock Stop – the timestamp that captures when APOT ends. This is captured in the NEMSIS 3.4 data set as destination patient transfer of care date/time (eTimes.12).

ePCR – Electronic Patient Care Report

Emergency Department (ED) Medical Personnel – an ED physician, mid-level practitioner (e.g. Physician Assistant, Nurse Practitioner) or Registered Nurse (RN).

EMS Personnel – Public Safety First Responders, EMTs, AEMTs, EMT-II and/or paramedics responsible for out of hospital patient care and transport consistent with the scope of practice as authorized by their level of credentialing.

NEMSIS – National Emergency Medical Services Information System

MDC – Mobile Data Computer

Timestamp - a continuous variable that captures a date and time on a twenty-four (24) hour clock.

Transfer of Patient Care - the transition of patient care responsibility from EMS personnel to receiving hospital ED medical personnel. (See criteria below in Measurement Methods.)

Verbal Patient Report - The face to face verbal exchange of key patient information between EMS personnel and ED medical personnel provided that is presumed to indicate transfer of patient care.

Written EMS Report - The written report supplied to ED medical personnel that details patient assessment and care that was provided by EMS personnel. Electronic report (ePCR) is now required by Health and Safety Code 1797.227.

2. LEMSA Standards

In adopting policies and procedures for calculating and reporting APOT, a LEMSA must do the following⁴:

⁴ Health and Safety Code Division 2.5, Chapter 4, Article 1, Section 1797.225(b)(1) and (2).

- a. Use the statewide standard methodology for calculating and reporting APOT developed by the EMSA.
- b. Establish criteria for the reporting of, and quality assurance follow-up for a non-standard patient offload time

Standard Offload Time

For purposes of local policy and quality improvement activities, each LEMSA may determine its own local system standard for comparison against APOT-1 (90th percentile of APOT time intervals). A survey of LEMSAs in 2015 indicated that LEMSAs measuring at that time had standard times that varied from predominantly between fifteen (15) and thirty (30) minutes with a range of ten (10) to forty-five (45) minutes. LEMSAs may develop the standard time using statistical techniques based on current or initial measures and in collaboration with health care partners.

Non-Standard Offload Time

“Non-standard patient offload time” is a time interval that is poorly defined in statute. For the purposes of statute implementation, it will be interpreted to mean any time interval that exceeds the APOT standard established by the LEMSA. Many LEMSAs currently define this as Ambulance Patient Offload Delay (APOD) consistent with the metrics and definitions contained in The Ambulance Patient Offload Toolkit⁵.

Best Practice Example/Recommendation: LEMSAs should adopt the definition of non-standard patient offload time as synonymous with APOD. The associated quality improvement activity required in the statute⁶ may be a graduated response that includes but would not be limited to measurement, monitoring, and a process consistent with the Toolkit. Refer to Section 6 below for recommendation of an APOT that would be considered a threshold event.

3. Measurement Methods

APOT is defined in statute as a time interval, therefore process controls must be established for collecting the beginning and ending timestamps to be utilized for the calculation of the time interval.

Clock Start (eTimes.11, “Patient Arrived at Destination Date/Time”)

The clock start timestamp is straightforward and most commonly defined as the time the ambulance arrives at the ED and stops at the location outside the hospital ED where the patient will be unloaded from the ambulance. LEMSAs currently collect this timestamp in several ways:

- Ambulance provider Computer Aided Dispatch (CAD) systems with two-way radio voice communication or Mobile Digital Communicator (MDC);
- Systems with Automated vehicle location/Global positioning systems (AVL/GPS) capability;

5 Toolkit to Reduce Ambulance Patient Offload Delays in the Emergency Department: Building Strategies for California Hospital and Local Emergency Services Agencies, 2014

<http://www.emsa.ca.gov/Media/Default/PDF/Toolkit-Reduce-Amb-Patient.pdf>

⁶ Health and Safety Code Division 2.5, Chapter 4, Article 1, Section 1797.225(b)(2)

- ePCR or other commercial data collection system (e.g. FirstWatch, ReddiNet, EMSsystems).

It is advantageous to have an ePCR system that is integrated with the provider agency CAD and/or other data collection systems for single point data retrieval.

Clock Stop (eTimes.12. “Destination Patient Transfer of Care Date/Time”)

Capturing a timestamp for clock stop is more complex since the statute establishes two processes as the end point of APOT: *when the patient is transferred to the emergency department gurney, bed, chair or other acceptable location **and** the emergency department has assumed the responsibility for care of the patient.* This means that LEMSAs must establish a process control(s) with an associated data collection tool that can capture the completion of both under a single timestamp (clock stop). This needs to be defined as an event, not a process, for the purpose of collecting an accurate timestamp as to when transfer of care occurred.

Transfer of care criteria should include the following:

- Verbal patient report is given by transporting EMS personnel and acknowledged by ED medical personnel⁷
- The patient is moved off of the EMS gurney
- Clock stop is documented through a timestamp that is captured as eTimes.12 “Destination Patient Transfer of Care Date/Time” in NEMSIS 3.

Completion of the ePCR is not a requirement for Clock Stop.

In accordance with Health and Safety Code 1798.0, this is the responsibility of the local EMS agency Medical Director, because it determines when EMS medical direction terminates and EMS personnel may legally and ethically leave the patient.⁸

To avoid disagreement on time interval validity, it is recommended that LEMSAs, with hospital input, agree on the procedural implementation of these criteria for transfer of patient care that is synonymous with “acceptance of patient care responsibility” by hospital ED medical personnel.

Best Practice Example/Recommendation: Process controls that provide for the alignment of these two events, transfer of care and removal of the patient from the ambulance gurney, allow for the collection of a single timestamp. Optimally, documenting the completion of these two events should be accomplished with the signature of ED medical personnel on the ePCR and a validation or closed call rule within the ePCR program for the associated timestamp.

4. Data Collection and Documentation Options

An electronic patient care report (ePCR) or reporting system is a critical element of APOT data collection and required for an EMS provider to report data to the LEMSA. It is presumed that a LEMSA will adopt policies and procedures for the collection and reporting

⁷ Verbal report must include a structured and complete report with the following information: Chief complaint; initial vital signs; pertinent history and exam findings; laboratory tests (e.g., glucose) and copy of ECG; interventions and treatment provided in the field; current vital signs and status.

⁸ HSC 1798.0 (Medical Director Responsibilities)

(a) The medical direction and management of an emergency medical services system shall be under the medical control of the medical director of the local EMS agency. This medical control shall be maintained in accordance with standards for medical control established by the authority.

of APOT data collected from EMS providers that are using an ePCR in compliance with State law⁹. Data elements defined in APOT-1 and APOT-2 are consistent with NEMSIS version 3 and CEMSIS (California Data Dictionary).

The CAD systems are utilized to record two-way radio communications or information transmitted via MDC between the field and dispatch centers. CAD is utilized by most EMS providers to capture dispatch data and provide, critical information related to EMS operations. CAD data has historically provided much of the information needed to determine APOT. Accurate capture of data for statewide APOT reporting requires standardized CAD, data elements and definitions compliant with the NEMSIS 3.4 data standards. Newer systems combined with the updated NEMSIS data set for CAD provide integration with ePCR systems utilizing data elements defined in NEMSIS 3.4 and CEMSIS.

Examples of data collection and documentation tools currently in use include:

- A wide variety of CAD platforms
- ePCR without CAD integration
- ePCR with CAD integration
- First Watch – Transfer of Care (TOC) Module
- ReddiNet
- EMSsystems

Best Practice Example/Recommendation: LEMSA's encourage/require all EMS providers to implement digital CAD data migration into ePCR platforms during transition to NEMSIS 3.4. This will provide for data analysis from a single source.

5. Data Validation, Local EMS System Reporting, and Data Analysis

Data collection systems, processes, analysis, reporting should be developed as a collaborative effort between the LEMSA, EMS provider(s) and hospitals. Local EMS systems that have identified negative system impacts due to APOD should utilize common language and metrics established by this document to define and measure APOT in the development of action plans to decrease or eliminate APOD. During discussions with the statewide ambulance patient offload coalition in 2012 and in subsequent surveys, some agencies did not recognize that they had a problem or realize the extent of the problem until they initiated measurement.

Measurement and data analysis should be followed by action planning, if indicated. Systems that demonstrate improvement in ambulance patient offload delay (APOD) have consistently had high degree of collaboration between hospital and local EMS providers, and successful implementation of process improvement activities.

Examples currently utilized by LEMSAs include:

- Formation of ad-hoc or standing committees and workgroups
- Standardized definitions and nomenclature for APOT
- Collaborative development and review of performance reports by hospital and system

⁹ Health and Safety Code Division 2.5, Chapter 4, Article 1, Section 1797.227

- Collaborative analytical and process control methodology (e.g. Six Sigma)
- Inclusion of APOT indicators in the LEMSA EMS Quality Improvement Plan

There is no requirement for a LEMSA to collect and report APOT. A LEMSA that “*adopts policies and procedures for calculating and reporting ambulance patient offload time shall*”:

- Use the standard methodology,
- Establish criteria for providers to report the data,
- Utilize the data by establishing criteria for quality assurance follow-up for their local definition of a nonstandard patient offload time, and
- Report the data to EMSA.

Since EMS providers are obligated by a different statute to report patient data in electronic format to the LEMSA, local reporting is not an issue. The LEMSA may choose to display the data in a format of their choice.

Best Practice Example/Recommendation: LEMSAs should generate standardized monthly APOT reports utilizing the APOT-1 and APOT-2 methodology. Although initial state reporting requirements will be limited to emergency ambulance transports resulting from 911 response, LEMSAs may choose to include all ambulance transports, including 7-digit and interfacility transfers. Monthly or quarterly reports should be sent to EMS system stakeholders followed by periodic working meetings utilizing contemporary statistical process control analytics (e.g., Six Sigma) for data validation, CQI drill-down and action planning.

6. Criteria for Quality Assurance Follow-up

LEMSAs that adopt policies and procedures related to APOT must also establish criteria for the reporting and quality assurance follow-up for non-standard patient offload time.¹⁰ It is recommended that the LEMSA adopt definitions for events with triggers linked to the LEMSA EMS Quality Improvement Program (EQIP).

Triggers for specific quality assurance or quality improvement actions could include but are not be limited to:¹¹

- Occurrence of extended APOD, for example, more than one hour (APOT-2)
- Occurrence of APOD with the patient decompensating or worsening in condition
- Occurrence of APOD with an associated patient complain
- Occurrence of APOD with associated delayed ambulance response(s) to other calls in the community
- Facility or system performance below established fractile (e.g. 90%) for compliance to the LEMSA’s APOT standard

Best Practice Example/Recommendation: LEMSAs may establish an APOT that exceeds sixty (60) minutes as a threshold event that would trigger a response that may include engaging an EMS supervisor and hospital executive, the immediate transfer care and

¹⁰ Health and Safety Code Division 2.5, Chapter 4, Article 1, Section 1797.225(b)(2)

¹¹ Toolkit to Reduce Ambulance Patient Offload Delays in the Emergency Department: Building Strategies for California Hospital and Local Emergency Services Agencies, 2014
<http://www.emsa.ca.gov/Media/Default/PDF/Toolkit-Reduce-Amb-Patient.pdf>

removal of the patient from the ambulance gurney, reporting to the effected entities, and quality assurance follow-up by the ambulance provider agency, the hospital and the LEMSA. As with the definition of Standard time, each LEMSA may determine its own threshold triggers.

7. Reporting to EMSA

EMSA has developed two (2) Indicator Specification Sheets (ISS) similar to the Core Measures specifications to provide guidance to LEMSAs on how to voluntarily submit the APOT data with the Core Measures. LEMSAs collecting ambulance patient offload times shall use the standard methodology when collecting the appropriate data to measures APOT. The two new ISS forms are included with this guidance and serve as the statewide standard methodology to extract and report APOT data and the reporting format.

In summary, these are:

- Aggregate data, but include the denominator (number of runs) for each data value
 - Total by LEMSA for the reporting period
 - Stratify by hospital--denominators are needed to provide context for hospital results.
 - Report quarterly on specified dates
- a. APOT-1: The number reported is the APOT in minutes for transfer of care of 90% of ambulance patients and the number of ambulance runs included in the report.
 - b. APOT-2: The number reported is the percentage of ambulance patients transported by EMS personnel with an offload time within twenty (20) minutes and those transports with an ambulance patient offload delay beyond 20 minutes. APOD is further stratified by sixty (60) minute intervals up to one hundred eighty (180) minutes then any APOT exceeding one hundred eighty (180) minutes. Twenty minutes has been selected as the target standard for statewide reporting consistency based on precedence from other systems outside of California, as well as experience of some of the California LEMSAs. Nothing in this measure limits the LEMSA from selecting their preferred standard and non-standard time for local discussion and performance improvement processes.

Appendix A: Language of AB 1223 (O'Donnell, 2015)

SECTION 1. Section 1797.120 is added to the *Health and Safety Code*, to read:

1797.120.

- (a) The authority shall develop, using input from stakeholders, including, but not limited to, hospitals, local EMS agencies, and public and private EMS providers, and, after approval by the commission pursuant to Section 1799.50, adopt a statewide standard methodology for the calculation and reporting by a local EMS agency of ambulance patient offload time.
- (b) For the purposes of this section, “ambulance patient offload time” is defined as the interval between the arrival of an ambulance patient at an emergency department and the time that the patient is transferred to an emergency department gurney, bed, chair, or other acceptable location and the emergency department assumes responsibility for care of the patient.

SEC 2. Section 1797.225 is added to the *Health and Safety Code*, to read:

1797.225.

- (a) A local EMS agency may adopt policies and procedures for calculating and reporting ambulance patient offload time, as defined in subdivision (b) of Section 1797.120.
- (b) A local EMS agency that adopts policies and procedures for calculating and reporting ambulance patient offload time pursuant to subdivision (a) shall do all of the following:
 - (1) Use the statewide standard methodology for calculating and reporting ambulance patient offload time developed by the authority pursuant to Section 1797.120.
 - (2) Establish criteria for the reporting of, and quality assurance followup for, a nonstandard patient offload time, as defined in subdivision (c).
- (c) (1) For the purposes of this section, a “nonstandard patient offload time” means that the ambulance patient offload time for a patient exceeds a period of time designated in the criteria established by the local EMS agency pursuant to paragraph (2) of subdivision (b).
- (2) “Nonstandard patient offload time” does not include instances in which the ambulance patient offload time exceeds the period set by the local EMS agency due to acts of God, natural disasters, or manmade disasters.