

## **Category 5**

### **Criterion 5F: Emergency Medical Services (EMS) Program**

The agency operates an EMS program with a designated level of out-of-hospital emergency medical care that protects the community from injury or death. If identified risks are outside the scope of the agency's capabilities, Category 10 performance indicators should address the agency's ability to receive aid from partners in those areas. The agency should conduct a thorough risk assessment as part of activities in Category 2 to determine the need for a specific EMS program and support the overall risk reduction strategy.

NOTE: EMS is a major element of many fire service agencies. Fire service personnel are frequently the first responder to medical emergencies. For that reason, emergency medical response can be organizationally integrated with fire suppression activity. Care should be exercised not to create a priority or resource allocation conflict between the two program activities. Agencies that only provide first responder services must also complete this criterion.

#### **Summary:**

The State of Kansas licenses Lawrence-Douglas County Fire Medical as an Advanced Life Support Service (ALS) or Type I Service. All members of the department are at a minimum certified Emergency Medical Technicians (EMT's), while approximately 76 are Advanced Emergency Medical Technicians (AEMT's) and 58 are state and/or nationally certified paramedics.

EMS includes first response, rescue, treatment, transportation, and reporting for medical emergencies to approximately 9,380 calls per year out of the 14,560 within the City of Lawrence and Douglas County in 2021. Responses to these calls include, but are not limited to, cardiac and respiratory emergencies, difficulty breathing, childbirths, cardiac arrests, strokes, and trauma. Medical supervision is provided on shift by and Operations Chief Officer as well as medical direction provided by the department's medical director.

For the majority of ALS level EMS calls, the basic response is one medic unit staffed with a paramedic and AEMT.

The department has a minimum of seven medic units staffed in the City of Lawrence and Douglas County every day. Additional resources can be available if the volume of calls indicates the need. Five Secondary medic units, one at each station in the City of Lawrence, serve this purpose and as a backup for first out units. Each medic unit is staffed with a minimum of one Paramedic and one EMT or AEMT; of the two members on the medic unit, one is an officer. The Medical Priority Dispatch (EMD) protocols with pre-arrival instructions ensure an adequate number of personnel and units respond to out-of-hospital incidents to provide the best and quickest possible care.

**Performance Indicators:**

**CC 5F.1** Given the agency’s community risk assessment/standards of cover and emergency performance statements, the agency meets its staffing, response time, station(s), apparatus, and equipment deployment objectives for each type and magnitude of emergency medical incident(s).

**Description**

The department meets its staffing, response, and equipment criteria for deployment objectives represented as response performance objectives. The department has identified response performance benchmarks to guide the department towards continuous improvement relative to response quality for all risk categories within the program of emergency medical services. The department documents performance objectives in the standard operating policy (SOP) 103.20 Response Performance and Outcomes. Performance baselines are documented in SOP 103.21 Response Performance and Outcomes Baseline and Performance Benchmarks are documented in 103.22 Response Performance and Outcomes Benchmark.

**Emergency Medical Services Program**

Emergency Medical Services Distribution

For 90 percent of low risk emergency medical incidents, the total response time for the arrival of the first-due unit, with a minimum of 1 Emergency Medical Technician (EMT) or higher level of care provider; (1) total, is: 11 minutes in urban areas, 22 minutes and 22 seconds in rural areas. The first-due unit is capable of establishing command; performing cardiopulmonary resuscitation; and utilizing an automated external defibrillator. These operations are performed utilizing safe operational procedures.

For 90 percent of moderate risk emergency medical incidents, the total response time for the arrival of the first-due unit, with a minimum of 1 EMT or higher level of care provider; (1) total, is: 8 minutes and 50 seconds in urban areas, 20 minutes and 30 seconds in rural areas. The first-due unit is capable of establishing command; performing

cardiopulmonary resuscitation; and utilizing an automated external defibrillator. These operations are performed utilizing safe operational procedures.

For 90 percent of high-risk emergency medical incidents, the total response time for the arrival of the first-due unit, with a minimum of 1 EMT or higher level of care provider; (1) total, is: 7 minutes and 34 seconds in urban areas, 18 minutes and 51 seconds in rural areas. The first-due unit is capable of establishing command; performing cardiopulmonary resuscitation; and utilizing an automated external defibrillator. These operations are performed utilizing safe operational procedures.

For 90 percent of maximum risk emergency medical incidents, the total response time for the arrival of the first-due unit, with a minimum of 1 EMT or higher level of care provider; (1) total, is: 7 minutes and 32 seconds in urban areas, 16 minutes and 23 seconds in rural areas. The first-due unit is capable of establishing command; performing cardiopulmonary resuscitation; and utilizing an automated external defibrillator. These operations are performed utilizing safe operational procedures.

#### Emergency Medical Services Concentration / Effective Response Force

For 90 percent of low risk emergency medical incidents, the total response time for the arrival of the effective response force, with a minimum of 1 paramedic and 1 Emergency Medical Technician (EMT); (2) total, is: 11 minutes in urban areas, 22 minutes and 22 seconds in rural areas. The ERF is capable of: establishing command; conducting initial patient assessment; obtaining vitals and patient's medical history; performing cardiopulmonary resuscitation; and utilizing an automatic external defibrillator. These operations are performed utilizing safe operational procedures.

For 90 percent of all moderate risk emergency medical incidents, the total response time for the arrival of the ERF (ALS unit), with a minimum of 1 paramedic and 1 EMT; (2) total, is: 9 minutes and 45 seconds in urban areas, 20 minutes and 34 seconds in rural areas. The ERF is capable of: establishing command; conducting primary and secondary patient assessment; triaging the patient; electrocardiogram interpretation; medication administration; bio-com communications with medical control; application of standing

and physician orders; patient and equipment packaging for transport; and transportation to the hospital. These operations are performed utilizing safe operational procedures.

For 90 percent of all high risk emergency medical incidents, the total response time for the arrival of the ERF (ALS unit), with a minimum of 1 paramedic and 2 EMTs; (3) total, is: 13 minutes and 9 seconds in urban areas, 25 minutes and 24 seconds in rural areas. The ERF is capable of establishing command; communicating with family or other witnesses; scene documentation; conducting primary and secondary patient assessment; triaging the patient; electrocardiogram interpretation; medication administration; bio-com communications with medical control; application of standing and physician orders; patient and equipment packaging for transport; and transportation to the hospital. These operations are performed utilizing safe operational procedures.

For 90 percent of all maximum risk emergency medical incidents, the total response time for the arrival of the ERF (ALS unit), with a minimum of 2 paramedics and 2 EMTs; (4) total, is: 15 minutes and 34 seconds in urban areas, 20 minutes and 58 seconds in rural areas. The ERF shall be capable of: establishing command; communicating with family or other witnesses; scene documentation; conducting primary and secondary patient assessment; triaging the patient; electrocardiogram interpretation; medication administration; bio-com communications with medical control; application of standing and physician orders; patient and equipment packaging for transport; and transportation of multiple patients to the hospital. These operations shall be performed utilizing safe operational procedures.

### **Appraisal**

In the 2020 Station Optimization Analysis and 2022 CRASOC, the department identified performance gaps relative to emergency medical service response. Recommendations for adding resources, such as additional fire and EMS apparatus and staff were made to the AHJ. The department requested expansions within the 2023 budget proposal to address these gaps.

### **Plan**

The department will continue to monitor response performance through its compliance methodology identified in SOP 103.20 Response Performance and Outcomes. Through the budget request process, the department will continue to communicate the need for more resources to enhance reliability and resiliency of emergency resources.

### **References**

SOP 103.20 Response Performance and Outcomes

SOP 103.21 Response Performance and Outcomes Appendix A, Baselines

SOP 103.22 Response Performance and Outcomes Appendix B, Benchmarks

2022 CRASOC (pages 149-153)

2020 Station Optimization Analysis (pages 25-27)

2017-2021 Response Performance Tables

**CC 5F.2      The agency has standing orders/protocols in place to direct EMS response activities to meet the stated level of EMS response including determination criteria for specialty transport and receiving facility destination.**

### **Description**

The department operates under the Kansas Board of Emergency Medical Service (KSBEMS) Statutes and Regulations and the Douglas County Medical Director. The medical director, along with the division chief of EMS, reviews, adjusts and recommends changes of protocols, common practices of pre-hospital care delivery. In addition, the medical director participates in quality assurance and improvement as well as formal and informal educational opportunities with the department membership. In 2023, the county's medical director will be replaced by the current deputy medical director.

The department provides specialty transportation for emergency medical services. Trauma and medical routing is determined by triage categories, patient presentation, and potential life threats. This is guided by Douglas County protocols, General Trauma and General Medical. The local hospital, Lawrence Memorial Health, requests transfers from their facility to both lower and higher levels of cares, in and out of Douglas County.

Since the update of protocols, the addition of a mobile protocol and medication dosing applications, the members have the ability to reference protocols without having to access a cumbersome process via the department intranet. These protocols can also be found on the mobile devices (ToughBooks and iPads) currently used to create patient care reports, located on emergency response vehicles.

### **Appraisal**

The department has operated efficiently under the KSBEMS Statutes and Regulations. The relationship between the department and the medical director has been strong and communication has been effective through ongoing command-level conversations and quarterly medical director led training with department crews.

The medical director has not previously been required to have designated office hours to include time spent with emergency medical service providers. The lack of in-person attendance has created a loss of opportunity for relationship building and collaborative efforts.

The mobile protocol application has received a positive response in regard to the ability to quickly access medical protocols.

### **Plan**

The department plans to continue abiding by the KSBEMS Statutes and Regulations while providing emergency medical services.

The department's medical director position will be vacated by the current medical director by January 1<sup>st</sup>, 2023 and the current deputy medical director will fill the vacancy. The department will require the medical director to have office hours, located at the department's administrative building, for at least 4 hours a month.

The mobile protocol and medication dosing applications will continue to be used by emergency medical service providers. The division chief of EMS and medical director will work collaboratively to review application effectiveness and potential opportunities.

### **References**

KSBEMS Statutes and Regulations

- [Statutes: Kansas Board of Emergency Medical Services \(ksbems.org\)](http://ksbems.org)

Douglas County General Trauma Protocol

Douglas County General Medical Protocol

Douglas County Protocol Application (available on-site)

Hand-Tevy Application (available on-site)



5F.3 The agency annually reviews and updates, as needed, orders/protocols and engages external stakeholders in the process.

**Description**

Standing orders and protocols are reviewed and updated annually, if needed. This is led by the division chief of EMS and the medical director. External stakeholders, such as the other first responding agencies who deliver emergency medical service in Douglas County and the Johnson County emergency medical director program are a part of the updating / review process.

In efforts to improve the county’s EMS system by way of protocols, equipment, supplies, and overall future vision, a group of responders (county-wide) is established and meets quarterly. This group is the EMS Committee. This team reviews and updates standing orders and protocols. The team also reviews the procurement process of medical supplies.

**Appraisal**

Administrative and training-related participation from Douglas County first responders has been minimal. This has created additional work for the department’s staff. In 2021, the department conducted a thorough review and overhaul of the emergency medical protocols. The EMS Committee was established to decrease workload on the department division chief of EMS and increase the value of EMS in Douglas County through partnership with first responders through designated work sessions.

**Plan**

The emergency medical protocol audit will take place within the first quarter of every year and will be led by the division chief of EMS, the medical director, and the department EMS Committee.

**References**

Douglas County Emergency Medical Protocols (available on-site)  
Protocol Overhaul Meeting Calendar Invite

**CC 5F.4      The agency has online and offline medical control.**

**Description**

The department has the ability to contact Medical Control via the Emergency Department Physicians at Lawrence Memorial Health (LMH) by way of mobile phones or the BioCom channel through the 800MHz radio mounted in medic units. The Emergency Department (ED) serves as on-line Medical Control.

Due to LMH being limited on some capabilities regarding trauma, bariatric, stroke and occasionally ST-Elevation Myocardial Infarction (STEMI) services, crews often consider alternate destinations. Per protocol these patients with certain criteria should be considered for preferential routing to a verified (state or national criteria) appropriate specialty center.

Each medic unit is equipped with an 800MHz radio and a mobile device. In the instance that communication cannot be made by radio the crew member will call the hospital via mobile phone to deliver the patient information and request any orders.

**Appraisal**

There are numerous locations throughout the county where mobile and communication services have “dead zones” due to a signal failure or antenna issue. Mobile devices are limited to the carrier that the city has an agreement with. The issues with communication are often limited and usually rectified by moving locations from the originating point of contact. Contacting Medical Control has been a successful program in order to obtain medical direction when needed.

**Plan**

The department, in collaboration with the city, will research different mobile broadband carriers to enhance service coverage throughout Douglas County. The department will be looking to find a solution that provides consistent reliability related to connectivity throughout the county.

**References**

Douglas County General Trauma Protocol

## SOP 205.10 Communications

**CC 5F.5**      **The agency creates and maintains a patient care record, hard copy or electronic, for each patient encountered. This report records a provider impression, patient history, data regarding treatment rendered, and the patient disposition. The agency must make reasonable efforts to protect reports from public access and maintain them as per local, state/provincial, and federal records retention requirements.**

**Description**

The department employs the use of ESO record management software as the Electronic Patient Care record vendor for all emergency medical incidents, regardless of transport decision. The patient care record contains all demographic information, treatment, skills performed, primary impression, treatments and transport status.

The department also completes a National Fire Incident Report System (NFIRS) report utilizing the ESO Fire Incidents module in which crews give an abbreviated version of the incident to meet basic incident reporting requirements for NFIRS.

**Appraisal**

The ESO software has complied with state regulations, privacy laws and regulations. The program is a secure program limited to the department staff, and the LMH nursing staff who oversee the Health Data Exchange (HDE).

**Plan**

The department intends to continue to employ ESO as the PCR vendor which meets the National Emergency Medical Services Information System (NEMESIS) gold-level compliance guidelines. Ongoing upgrades are managed by department information technology program incentive members.

**References**

SOP 107.10 HIPAA Privacy Policy

SOP 107.16 Patient Reports, Billing and Patient Instruction Sheet Completion, HIPAA  
Covered Record Set  
SOP 107.18 Electronic Patient Care Reporting

**CC 5F.6**      **The agency has a program to maintain compliance with privacy laws such as the Health Insurance Portability and Accountability Act (HIPAA) or equivalent (e.g., Canada’s Freedom of Information and Protection of Privacy) that meets federal and state/provincial guidelines. All personnel are trained in HIPAA/FOIP regulations and procedures.**

**Description**

The department follows the required HIPAA regulations. The department complies with privacy policies associated with all patients that are contacted or recorded in the PCR and/or patient interactions. Regulations can be found in SOP 107.10 HIPAA Privacy Policy and SOP 107.12 Policy on Confidentiality and Dissemination of Patient Information and Staff Verification.

**Appraisal**

The current HIPAA compliance program in place is adequate to meet the challenges of patient confidentiality. Agency personnel receive adequate training that is within the scope of the appropriate regulations.

**Plan**

The department will continue to designate the division chief of EMS as the HIPAA compliance officer. HIPAA training will continue to be assigned through Vector Solutions to all department employees on an annual schedule.

**References**

SOP 107.10 HIPAA Privacy Policy

SOP 107.12 Policy on Confidentiality and dissemination of Patient Information and Staff Verification

Completed HIPPA Training Records

5F.7 The agency has a quality improvement/quality assurance (QI/QA) program in place to improve system performance and patient outcomes including provisions for the exchange of patient outcome data between the agency and receiving facilities.

### **Description**

The department has a base QI/QA program that is comprised primarily of the department's billing team, the medical director, and the division chief of EMS. The program manager, the division chief of EMS, reviews most of the cardiac arrest and other critical calls as notified by the operation chief officers.

The department utilizes the HDE through ESO, the departments' record management system for the exchange of patient outcome data between the department and receiving medical facilities.

### **Appraisal**

A QI/QA program has not been fully implemented because of the lack of resource availability. The department has identified this as a critical gap.

Communication between the Operations Division and the EMS Division on critical calls is insufficient for prompt review. The timeliness of communication has played a large role in the lack of effectiveness in incident review.

### **Plan**

With the expansion of an EMS Logistics position, the EMS Division should have more time to focus on enhancing the QI/QA program. Along with the expansion position, the department will continue to evaluate opportunities for improvement specifically with the QI/QA program. The department plans to evaluate outsourcing options for emergency medical service billing. If the department moves to outsourcing this task, the department's current billing staff should have the ability to focus on managing and enhancing the department's QI/QA program. The QA/QI Team will be formed from administrative staff as well as operations members. This team will consist of twelve to fifteen members, four

from each shift (X, Y and Z), division chief of EMS, and billing team members. This team will focus on acute incidents, such as cardiac arrest, STEMI, cardiovascular accidents, trauma, obstetric emergencies and a still to be decided number of “general population” incidents, most likely 10% of the remaining calls outside the determined acute calls mentioned.

### **References**

ESO HDE (available on-site)

2023 Program Improvement Request Form LDCFM Support Services (pages 2, 7-8)



5F.8 The agency has implemented or developed a plan a cardiopulmonary resuscitation (CPR) and public access defibrillation program for the community.

**Description**

The department has continued to achieve statistically high survivability rates using a new approach to cardiopulmonary resuscitation (CPR) since early 2018 and has found great success in increasing cardiac arrest patient survivability. The method, Advanced Cardiac Resuscitation (ACR) has exponentially moved the department into one of the industry leaders in survivability in the world. The Advanced Cardiac Resuscitation (ACR) approach used across the nation saw minor adjustments regarding, EtCO<sub>2</sub> collection, strategic shock management, and strategic medication delivery which will result in enhancing patient survivability for Out-of-Hospital Sudden Cardiac Arrest (OH-SCA). Unfortunately, both the return of spontaneous circulation as well as patient survivability declined in 2021. Through the second consecutive year of the COVID-19 pandemic, EMS as a whole saw an increase of untreated medical ailments that prevented patients from seeking early medical care either from their physicians or EMS.

**Cardiac Arrests:** The department saw a 4% decrease from 125 OH-SCA to 111 OH-SCA. The data is still being evaluated and with the department’s partner LMH has not yet completed their Cardiac Arrest Registry for Enhances Survivability registry (CARES) data, therefore a survivability to discharge cannot yet be calculated. The department continues to collaborate with LMH and other transport destinations to provide data to the CARES which provides standard outcome measures for OH-SCA locally, allowing for quality improvement efforts and benchmarking capabilities to improve care and increase survival. In 2021, the Return of Spontaneous Circulation (ROSC) for Douglas County was approximately **36.7%** (National Average for CARES Registry 7.1% in 2020) and the percentage for patients returning home calculation is still pending but estimated at 15%, which is three and a half times higher than the National average (4%).

The deployment of the mobile app PulsePoint will give access to emergency incidents within the city to department members. The application also provides a refined list of department incidents to local community members limited to cardiac arrest notifications in

public locations and motor vehicle accidents. This application also provides AED locations throughout the community, to be utilized during an out-of-hospital cardiac arrest. When CPR-trained individuals receive an alert from PulsePoint Respond app, it tells them where a cardiac arrest event is happening in a public area and where they can find the nearest AED. Data on AED locations can often be missing, inaccurate, or simply not detailed enough to make the devices easy to find in an emergency. That's where the PulsePoint AED app and AED Registry can make a big difference. PulsePoint Verified Responder is an access granted app for verified Douglas County First Responders that aids in early notification of emergency calls. This program is affiliated with the agency Public Safety Answering Point (PSAP).

### **Appraisal**

During the COVID-19 pandemic, the department continued to train as strategically as possible while keeping distance and limiting resources while under CDC direction and guidance. This training modification created difficulties in staying as effective and successful as in years past. The department continued to train a minimum of four times a year on the Cardiac Arrest Protocol for Excellence (CAPE). Limited training resources, shift time, and other daily responsibilities will always be a barrier to training on the most lethal of medical emergencies, cardiac arrest. Limited and aging training manikins have proven difficult to use as effective simulation scenario patients.

The PulsePoint Mobile application was implemented in 2021, the addition of the application has shown to be positive by department employees, county first responders and those in the community. The algorithm in which PulsePoint operates creates an early notification for on duty LDCFM crews, creating faster turn out times and earlier notification. In addition to the PulsePoint application, the University of Kansas is collaborating with the department to provide an updated data set that includes all AED locations on campus.

In the second quarter of 2022 the department upgraded the department cardiac monitors which will allow for several enhanced assessments for patients. Specifically, the ability to monitor tidal volume (TV) for patients that are being assisted with ventilation.

## **Plan**

The department should continue to plan for, train for and expect sudden cardiac arrest in the city of Lawrence and Douglas County. The EMS and Training Divisions will continue to add quality training products and simulators to our training equipment and supplies in efforts to create a solid simulation platform. The ACR program will continue to evolve with information gained from belonging to the ACR Consortium.

The upgrade of cardiac monitors will bring exciting new data to procedures that have not been studied in the pre-hospital setting. The department will enter a Canadian study in 2023 to enhance the consortium of researchers and providers dedicated to qualifying the data related to this advancement in the pre-hospital setting. The study will be comprised of two Canadian provinces and six United States fire-based EMS agencies.

The department will continue to build on the relationship already established with the University of Kansas in regard to AED placement and the PulsePoint app. The department will also collaborate with the University to establish opportunities to teach “Hands-Only CPR” in mass gathering such as football or basketball games on campus.

## **References**

Lawrence-Douglas County Fire and Medical 2021 CARES Summary Report

PulsePoint Infographic

Social Media infographics / posters - “got cpr?”

LDCFM City Commission Annual Presentation 2022 (last slide)

**CC 5F.9**      **The agency conducts a formal and documented program appraisal, at least annually, to determine the impact, outcomes and effectiveness of the program and to measure its performance toward meeting the agency’s goals and objectives.**

**Description**

The department conducts a formal and documented program appraisal annually that summarizes the program’s impacts, outcomes, and effectiveness in the prior year. New goals are outlined in the upcoming year within this document.

**Appraisal**

The department’s assigned program manager and supportive staff have been able to complete an annual program appraisal. These appraisals are provided to the AHJ for review, as well as posted on the department’s external /internal website for employee review as part of the Annual Compliance Report.

**Plan**

The department will continue to utilize these annual appraisals to improve performance within the program as well as develop more efficient operational procedures based on the prior year’s performance.

**References**

- 2021 Emergency Medical Services Program Appraisal
- 2022 CFAI Annual Compliance Report (pages 17-22, 74-79)