

Iowa Emergency Medical Services System Standards

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Introduction

Emergency Medical Services (EMS) Systems

An emergency medical services (EMS) system is a coordinated network of personnel, facilities, and equipment designed to provide timely and effective medical care and transportation to individuals experiencing illness or injury.

EMS clinicians may provide care in and out of hospital settings, managing acute and chronic illnesses and injuries ranging from minor to severe in emergent and non-emergent environments. The diverse training, available resources, and skill set of EMS clinicians make the EMS system a force multiplier in the local medical community.

The mission of the EMS system requires the involvement of not only the EMS clinicians and EMS agencies, but also the local public safety answering point (PSAP) dispatchers, local law enforcement and fire departments who respond to provide initial care and assist the EMS clinicians, local emergency department staff, mental health services and crisis teams, local hospitals and other healthcare facilities that receive and transfer patients, the physicians who develop patient care protocols and provide real-time medical consultation to guide the EMS clinicians, EMS education programs, emergency management staff who direct preparedness initiatives and responses to large-scale incidents, public health agencies who provide education as well as preventative and follow-up care to the community, and local elected officials and civic leaders who ensure the provision of public safety services to constituents.

System Standards Initiative

In 2006, the idea of developing a set of system standards for EMS was discussed by the Bureau of Emergency and Trauma Services, or BETS (now the Bureau of Emergency Medical and Trauma Services, or BEMTS), leading to the formation of a stakeholder group that created the initial Iowa EMS System Standards document. This document defined a set of minimum standards and best practices for EMS systems throughout Iowa. The committee reviewed eight areas of EMS system development:

System Administration	Facilities/Critical Care
Staffing/Training	Data Collection/System Evaluation
Communications	Public Information/Education
Response/Transportation	Disaster Medical Response/Planning

The stakeholder group followed some guiding principles in the development of the document:

- Define basic minimum services and infrastructure that every EMS system should have in place.
- Use clear, concise language that is easily understood by both the EMS/health care community and the public.
- Minimum standards should be measurable.
- Keep in mind the principles of the national and state “EMS Agenda for the Future.”

The QISD subcommittee developed standards for a people-centered EMS system observing the six guiding principles outlined in the *EMS Agenda 2050* published in 2019:

Inherently Safe & Effective	Socially Equitable
Integrated & Seamless	Sustainable & Efficient
Reliable & Prepared	Adaptable & Innovative

Using this guidance, the subcommittee developed a set of standards intended to be recommendations or best practices for building a strong, efficient, and resilient EMS system. These standards surpass the minimum requirements of the Iowa Administrative Code.

Abbreviations

AED ..... Automated External Defibrillator
AI ..... Artificial Intelligence
ALS ..... Advanced Life Support
BEMTS ..... Bureau of Emergency Medical and Trauma Services
BLS ..... Basic Life Support
CAAHEP ..... Commission on Accreditation of Allied Health Education Programs
COAEMSP . Committee on Accreditation of Education Programs for the EMS Profession
CAD ..... Computer-Aided Dispatch
CPR ..... Cardiopulmonary Resuscitation
CQI ..... Continuous Quality Improvement
EMD ..... Emergency Medical Dispatch
EMS ..... Emergency Medical Services
EMSAC ..... Emergency Medical Services Advisory Committee
e-911 ..... Enhanced 911
ePCR ..... Electronic Patient Care Report
HAN ..... Health Alert Network
HHS ..... Iowa Department of Health and Human Services
HIPAA ..... Health Insurance Portability and Accountability Act
IRB ..... Institutional Review Board
MACH ..... Mobile Architecture for Communications Handling
NEMSIS ..... National Emergency Medical Services Information System
NIMS ..... National Incident Management System
PECC ..... Pediatric Emergency Care Coordinator
PSAP ..... Public Safety Answering Point
QA ..... Quality Assurance
QI ..... Quality Improvement
QISD ..... Quality Improvement and System Development
QR ..... Quick Response
TTY ..... Teletypewriter

Iowa EMS System Standards

Integration of Health Services

Modern Emergency Medical Services (EMS) systems integrate into the larger healthcare community by developing mobile integrated healthcare or community paramedicine services to address community members' health issues proactively and by assisting in the development of time-critical condition systems of care to effectively manage emergencies such as acute coronary syndromes, severe trauma, and strokes.

Standard	Definition
1.01	Establish a mobile integrated healthcare or community paramedicine program designed to meet the specific needs of the community.
1.02	Participate in the trauma system verification process for hospitals and emergency departments within the geographic coverage area.
1.03	Protocols ensure rapid recognition of time-critical conditions.
1.04	Protocols define criteria for providing advanced notification of time-critical conditions to local hospitals and assess the rates of over- and under-triage.
1.05	Define destination decision protocols for patients with time-critical conditions.
1.06	Regularly review local hospital capabilities to ensure the destination decision protocols are appropriate.
1.07	Integrate telemedicine to facilitate information sharing and consistency in on-scene care and receiving facility response to time-critical conditions.
1.08	Establish processes to assess the rates of over- and under-triage in the use of air medical services.

EMS Research

In recent years, the EMS industry has moved toward evidence-based practice. This is accomplished by collecting data elements from EMS and conducting valid research studies based on this data. EMS systems should ensure that EMS data collection is timely, complete, accurate, and consistent by establishing documentation policies that meet or exceed the National EMS Information System (NEMSIS) standards.

Standard	Definition
2.01	Provide documentation training to clinicians to ensure that complete and accurate incident data are collected and that data comply with NEMSIS standards for use at the local, state, and national levels.
2.02	Human subjects research complies with applicable Health Insurance Portability and Accountability Act (HIPAA) regulations and federal regulations (45 CFR 46) regarding human subjects research, and researchers obtain institutional review board (IRB) approval.
2.03	Data analysis performed by the EMS system follows standard statistical procedures and is used to implement process changes to resolve deficiencies identified in the analysis.

Legislation and Regulation

EMS is licensed and generally regulated at the state level. EMS systems should develop processes to regulate the services within the system by establishing an advisory EMS stakeholder group. The advisory stakeholder group should conduct periodic assessments of EMS system capabilities and effectiveness, set systemwide standards for EMS response, care, and transport, and evaluate the EMS system's funding needs.

Standard	Definition
3.01	Establish an EMS stakeholder group. The group should consist of all individuals and entities involved in the development, funding, oversight, and operation of the EMS system. The stakeholder group should include leaders from all EMS agencies within the system, physician medical directors and/or emergency department physicians, pediatric emergency care coordinators (PECCs), and local and regional healthcare system representatives. The stakeholder group may also include elected leaders representing the population served by the EMS system, communication center representatives, law enforcement, emergency management, fire and rescue service representatives, public health professionals, and mental health professionals.
3.02	Hold public meetings at least quarterly to promote transparency and obtain public input.

3.03	Annually assess the EMS system's capabilities, resources, staffing, and responses to identify challenges and implement quality improvement (QI) processes to address challenges.
3.04	Review EMS funding mechanisms, operational and staffing expenditures, and future capital purchase needs annually.
3.05	Educate the public regarding the local EMS system capabilities and needs.
3.06	Report successes and challenges to the Iowa HHS BEMTS to build a knowledge base to be shared across Iowa.

System Finance

EMS agencies have historically been inadequately funded, as revenue from service billing is typically well below the overall cost of providing the service. Non-transporting EMS agencies are currently unable to bill for the on scene care they provide, EMS budgets often require subsidies from local taxation, municipal and county general funds, public donations, and grants. Given these funding limitations, EMS systems must ensure funds are used as effectively and efficiently as possible.

Standard	Definition
4.01	Provide training in billing and documentation to maximize the revenue to which services are legally entitled.
4.02	Develop policies that guide the use of public funding sources to ensure the most efficient and effective distribution of funds to sustain system operations, and address identified priorities.
4.03	Designate a grant writer to research and apply for funding opportunities.
4.04	Account for depreciation of capital equipment and the subsidization of personnel costs through free or low-cost volunteer labor in fiscal evaluations.
4.05	Integrate a tiered response model and a hub-and-spoke ideology to maximize revenue streams and eliminate unnecessary or excessive expenses and focus on reducing intercounty competition for revenue between the hub and spokes.

Human Resources

The work of EMS systems relies primarily on personnel. EMS leaders are responsible for ensuring personnel are adequately educated, trained, credentialed, and prepared to

perform duties. The nature of EMS work requires that responders be physically and mentally healthy and have access to resources that maintain a high level of health. Leaders must also foster an environment and culture of safety. Quality improvement processes should approach deficiencies with a just culture philosophy.

Standard	Definition
5.01	Ensure that service rosters are kept current in the state EMS registry.
5.02	Adopt a code of ethics, a code of conduct, and vision and mission statements to guide the conduct and operations of EMS agencies and responders.
5.03	Ensure that member agencies have a policy for conducting background checks on staff.
5.04	Allow adequate inactive time for responders to ensure clinician wellness and resiliency. Policies should be developed to limit consecutive working hours, call time, and shifts.

Medical Direction

Physician medical directors should be highly involved in the EMS system. They are responsible for ensuring that patient care protocols meet the current standard of care in EMS. Credentialing, employment, deployment of personnel, evaluation of patient care and EMS staff, and remediation of knowledge and skill deficiencies are ultimately the medical director's responsibility.

Standard	Definition
6.01	Utilize a single medical director or a group of medical directors to develop consistent protocols across the system. The protocols should allow for both BLS and ALS level care, according to the level of the individual services and clinicians. The lead EMS medical director should be an Iowa-licensed physician board-certified in emergency medicine or EMS medicine.
6.02	Adopt a standard continuous quality improvement (CQI) program that specifies which patient care reports to audit, who the CQI designees are, continuing education requirements, and measurable outcomes. The CQI program should also address the process for resolving deficiencies and ensure closed-loop communication and feedback.
6.03	Establish the required credentialing and orientation for new employees within the system, as well as ongoing credentialing, training, and skills verification.

Education Systems

EMS responders should have access to quality initial and continuing education. Education programs should ensure the quality of education through accreditation by a national organization and careful selection and training of instructors.

Standard	Definition
7.01	Partner with Iowa-authorized EMS education programs to ensure access to education through in-person classes, distance learning, or a combination of both.
7.02	EMS education programs providing initial paramedic and advanced EMT programs are accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP). Emergency Medical Responder and Emergency Medical Technician initial education programs should adopt CAAHEP standards to the extent the standards can be applied to those levels of training.
7.03	Iowa-authorized EMS education programs provide active oversight and accountability for initial EMS education classes that are sponsored by the program but provided outside the training program's facilities or taught by personnel who are not employed by the program. Oversight and accountability include regular student surveys and evaluations of the lead instructor of each course delivery.
7.04	At least annually, EMS education programs evaluate the passing rate for the first and third attempts at the national certification exam. The program passing rate should equal or exceed the national passing rates. A training program that does not meet the national passing rate should analyze the performance of the program and develop an action plan for quality improvement.
7.05	EMS education programs, in cooperation with EMS systems, conduct ongoing evaluation of the needs of the communities served and the effectiveness of education programs.

Public Education

Emergency medical services may be poorly understood or misunderstood by the public. The EMS system should facilitate public education to inform the public about local EMS and 911 systems and provide training that enables the public to provide emergency care before emergency responders arrive.

Standard	Definition
8.01	Implement a program to educate the public about EMS, including career versus volunteer EMS, levels of EMS care and services available in the system, and the appropriate use of the 911 system. Education may be provided through media such as public service announcements, newsletters, social media campaigns, and presentations to civic groups.
8.02	Provide publicly available training in bystander emergency care, including CPR, AED use, first aid, and Stop the Bleed.
8.03	Promote EMS as a career through job fairs, job shadowing opportunities, junior academies, open houses, and career camps.
8.04	Provide public education regarding patient and consumer rights, costs of EMS care, and billing practices.

Prevention

Prevention of illness and injury can reduce the costs of providing emergency medical services. The EMS system should continuously promote injury and illness prevention and healthy lifestyle choices for the public.

Standard	Definition
9.01	Partner with community health organizations to develop injury and illness surveillance programs and promote public education of injury and illness prevention.

Public Access

The intersection of emergency medical services and the public relies on communication and notification. 911 systems should use the latest technology to receive emergency notifications from the public via various channels. Communications centers should be trained as emergency medical dispatchers and have the tools necessary to properly assess the urgency of a call and guide bystanders in providing care before EMS arrival. Communications systems should also enable rapid public notification in the event of an emergency and real-time tracking of emergency resources.

Standard	Definition
10.01	Establish representation on county E-911 boards.
10.02	Design dispatch protocols to ensure the most efficient and appropriate delivery of care across geopolitical boundaries.

10.03	Develop capability of public safety answering points (PSAPs) to receive SMS- and data-based communications from automated crash notification systems. Ensure access to teletypewriter (TTY) systems, language interpretation services, and other communication solutions for diverse and special-needs populations within the system.
10.04	Implement computer-aided dispatching (CAD) systems to enhance decision-making, response, and data collection.
10.05	Implement real-time resource-tracking systems, such as Mobile Architecture for Communications Handling (MACH).
10.06	Implement mobile applications such as PulsePoint to alert CPR-trained individuals to cardiac arrest incidents in the area and to nearby AED locations, enabling rapid recognition and care.
10.07	Ensure system PSAPs have access to public emergency alert systems to send timely communications to affected people throughout the system area.
10.08	Implement CAD-integrated emergency medical dispatch (EMD) systems that use standardized pre-arrival instruction protocols and call prioritization criteria that are accredited, widely accepted, and medically directed.
10.09	Implement a CQI process to evaluate compliance with EMD protocols and provide ongoing education as needed.

Communications Systems

In any emergency response, clear, reliable communications are paramount. EMS systems must ensure that EMS agencies can communicate reliably with one another and with other emergency services, dispatch centers, and hospitals.

Standard	Definition
11.01	Ensure that communications systems are compatible and interoperable across all agencies and can interface with neighboring systems.
11.02	Establish redundant communications systems to ensure stability during system outages. Communications systems should be periodically tested for functionality and user capability.
11.03	Ensure the communications system is scalable and equipped with adequate communications equipment for mass-casualty or large-scale incidents requiring enhanced coordination.

11.04	Implement periodic safety checks by PSAPs for EMS agencies and responders while on scene or transporting patients.
11.05	Include emergency or panic functions and duress capabilities in the portable communications equipment used by clinicians.
11.06	Implement systems to share critical patient information from the field to the receiving facility, provide information to support specialty team responses, and enable real-time telemedicine consultations.
11.07	Develop cybersecurity plans related to communications equipment and protocols. Cybersecurity plans should ensure that transmitted data, including text, graphics, audio, and video, is encrypted.

Clinical Care

The public expects EMS clinicians to provide appropriate care during moments of greatest need. This responsibility requires EMS systems to ensure that the care provided meets recognized standards of emergency medical care and is performed by competent, skilled clinicians. EMS systems must be properly equipped, thoroughly trained, and fully prepared to respond to any situation. This includes managing emergencies across the community's diverse populations such as children, the elderly, individuals with special needs, neurodivergent individuals, families with varied cultural or religious beliefs, and those with special medical needs or receiving end-of-life care.

Standard	Definition
12.01	Establish outcome-focused, evidence-based patient care protocols. The EMS system should develop a process for reviewing and updating protocols.
12.02	Patient care protocols consider the needs of special populations, including but not limited to pediatrics, geriatrics, special needs, neurodivergence, and those with unique societal, cultural, or religious beliefs.
12.03	Patient care protocols address unique treatment situations including hospice patients and treatment-in-place scenarios.
12.04	Protocols should include guidelines for transport destination decisions in time-critical conditions to ensure patients are transported to the most appropriate facility for the patient's condition.
12.05	Identify and develop relationships with specialized care services (air medical, neonatal, pediatric, interfacility transfer, and physician) that can be deployed to supplement the system and develop processes and procedures for requesting specialized services. Requests for specialized

	care services should be reviewed for appropriateness and to continuously improve guidelines.
12.06	Ensure that transportation capabilities are available for all patients, including bariatric needs, and specifically identify pediatric and neonatal transport devices, with routine use and training in the use of specialized equipment.
12.07	Ensure that all agencies have preventive maintenance/biomed policies for medical equipment that comply with the manufacturers' recommendations.
12.08	Designate training officers responsible for coordinating orientation, credentialing, and continuing education for system personnel. The training officers should be certified at or above the level of care provided by the EMS system and should be endorsed by BEMTS as an EMS Instructor.
12.09	Provide or cause to be provided continuing education to clinicians within the system. Service programs within a system or region may collaborate to provide a system- or region-wide continuing education program.

Information Systems

EMS systems can leverage cutting-edge technology to improve care, collect information, and report and analyze data. This use of technology also requires high-level safeguards, as the information often contains patients' private, protected health information.

Standard	Definition
13.01	Ensure that all EMS incident data is accurately and completely entered in a NEMSIS-compliant ePCR system.
13.02	Develop capabilities and technology solutions to collect incident data in real-time during emergency responses.
13.03	Develop policies and procedures for the utilization of artificial intelligence (AI) in the delivery of care and documentation of incidents.
13.04	Develop cybersecurity training, policies, and safeguards to ensure data security and maintain privacy.

Evaluation

Improving EMS systems requires periodic evaluation and review of service operations and patient care. EMS systems should develop continuous quality improvement

programs that identify knowledge or skill deficiencies and establish effective processes for remediation and staff development. The EMS system should have a process for evaluating systemwide effectiveness and for collecting feedback from patients, the public, and the healthcare community.

Standard	Definition
14.01	Define quality assurance and quality improvement (QA/QI) metrics to be monitored across the system. The metrics should be periodically reported to responders and stakeholders within the system.
14.02	Establish a process for reporting staff injuries and near misses.
14.03	Facilitate post-incident critiques involving physicians, hospital staff, and EMS clinicians to review high-acuity incidents.
14.04	Patient care audits, injury and near-miss incident reporting, and high-acuity incident reviews are conducted from an objective, constructive, solution-focused perspective to determine and resolve the root cause.
14.05	Inventory all available resources including personnel to identify resource gaps and system needs.
14.06	System resource inventories are periodically updated to ensure accuracy in the event of a large-scale emergency.
14.07	Evaluate responses to ensure appropriate BLS and ALS staffing and maximize clinicians' ability to function at the top of practice, utilizing BLS personnel for BLS incidents and ALS personnel for ALS incidents.
14.08	Define system-appropriate response times for initial responders, BLS and ALS services, and transport-capable ambulance services. Response times should be evaluated against the defined standard.
14.09	Define system-appropriate response reliability standards and evaluate response times to identify agencies or areas where response reliability falls below the local standard.
14.10	Evaluate dispatch times to ensure no significant delays occur between receiving 911 calls and dispatching of appropriate resources and monitor the accuracy of dispatch information.
14.11	Evaluate the total cost of providing emergency medical services, including readiness and response costs.
14.12	In cooperation with area hospitals, develop a process to share patient outcome data with EMS agencies with the goal of quality improvement.

14.13	Use the evaluation process to continuously improve orientation, credentialing, and continuing education.
14.14	Develop corrective action and remediation plans and ensure that EMS agencies have developed objective, incremental disciplinary action plans.
14.15	Conduct a comprehensive annual assessment to ensure it meets public needs and provide an annual report to key stakeholders.
14.16	Develop a process to collect feedback from patients, healthcare partners, and the public. Leverage technology such as the use of QR codes to collect feedback through easily accessible online surveys.
14.17	Receiving facilities within the system have a designated EMS liaison to bridge communication gaps. Receiving facility providers should be involved in the CQI review process for high-acuity incidents.
14.18	Evaluate the system's ability to respond to medical needs arising from disasters.
14.19	Collaborate with partners to use federal emPOWER data, community health needs assessments, and other available data sources to identify at-risk populations and develop strategies to ensure needs are included in response plans.
14.20	Periodically (monthly or quarterly) verify that Health Alert Network (HAN) contact information is up to date and HAN alerts are being received.
14.21	Develop business interruption, or continuity-of-operations plans to ensure EMS services remain uninterrupted in the event of a disaster.
14.22	Develop recovery and demobilization plans to return services to standard operations as soon as possible following a large-scale incident.
14.23	Be actively involved in disaster exercise planning.
14.24	Integrate EMS into the incident command system and emergency operations center plans and adhere to National Incident Management System (NIMS) standards.
14.25	Through a quality improvement process and consultation with the medical director, conduct an assessment at least annually to determine clinicians' continuing education needs.

Summary

Strengthening Iowa's local emergency medical services systems offers tremendous opportunity for growth and innovation. With dedicated leadership, strong partnerships, and thoughtful integration across the broader healthcare landscape, EMS agencies can continue building on a foundation of excellence. These standards reflect best practices proven successful both across Iowa and nationwide, guiding high performing EMS systems that deliver safe, effective, and dependable care for every community. By embracing these practices, Iowa's EMS systems can become even more adaptable, innovative, and sustainable, ensuring seamless, efficient care and a brighter, more resilient future for emergency medical response across the state.