

| Guiding Principles | Core Issues |
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| <p>1. Evidence Based Design Standards. EMS system design should be based on scientific, medical and economic evidence published in peer-reviewed literature as well as evidence provided by the system's continuous quality improvement processes.</p> | <ul style="list-style-type: none"> ● Each EMS system should recognize that evidence-based medicine is the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients. The practice of evidence-based medicine means integrating the best available scientific, medical and operations research, and that the evidence should meet publication standards inherent in peer-reviewed journals. The system should make use of each EMT's clinical expertise, while respecting a patient's autonomy. ● Each EMS system should employ an independent medical authority with the responsibility and accountability to ensure that the medical treatment protocols reflect current evidence-based medicine and incorporate the system's continuous quality improvement (CQI). The medical authority should oversee medical treatment protocols and make appropriate changes to treatment protocols and standards of care. A standard of care change may result in changes to medical treatment protocol(s), system operational procedure(s), or both. ● Each EMS system should employ a continuous quality improvement (CQI) process. The CQI process includes monitoring and improving the clinical and operational performance of the system, and uses statistically valid principles and practices of evidence-based medicine. All organizations in the EMS system that contribute key system components must be appropriately represented in the CQI process. ● Each EMS system should ensure that every community served by the system is respected. EMS system practices must promote effective professional relationships with other components in a community's healthcare, public safety, and governmental systems. ● Each EMS system should ensure that changes to the standard of care can occur within the principles of evidence-based medicine. No EMS system or community is so unique to exclude applicability of the majority of EMS-related peer-reviewed research. Though peer-reviewed research forming the basis of medical treatment or operational decision is conducted outside of any individual system, the EMS standard of care is established by each EMS system alone. ● Each EMS system should ensure that all organizations and individuals participating in the EMS system work together to establish that system's EMS standard of care. This process of broad inclusion, incorporating operational and fiscal impacts, ensures that standard of care changes are clinically, operationally, and fiscally achievable. |

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| <p>2. Integrated Response Structure. EMS system design recognizes the unique aspects and essential contributions of both first response and transport components. Component-distinct medical assessments and treatments are combined to form the essential medical care delivered to a “single patient” in the EMS system. Therefore, a successful EMS system design established around the “single patient” depends upon coordinated and integrated response, coordinated medical treatment protocols, and continuing medical education.</p> | <ul style="list-style-type: none"> ● Optimal major metropolitan EMS system performance depends upon integrated first response and transport components. While each component provides an essential aspect of the “single patient’s” needed care from the EMS system, this care can only be reliably achieved when these valued aspects are combined in efficient, effective manner. The patient should be able to appreciate a coordinated response to their perceived emergent health care need(s) with a seamless transition of care. ● First responders commonly have many additional public safety responsibilities aside from EMS patient care. Integral to the ongoing availability of first response for all of its responsibilities is the ability to transfer continuing patient care and transport responsibility to an additional component in the EMS system. ● Transport professionals in the EMS system have a primary duty to ensure completeness of EMS-appropriate patient care is delivered by the EMS system. Ambulance transport of the patient to an appropriate healthcare venue is typically involved in this component’s primary duty. Attendant to this duty is a longer time commitment to nearly all patients served by the EMS system. ● Sufficient EMS professionals must exist in the system to provide care during times of anticipated peak demands and routine disasters. ● All EMS professionals, first response and transport based, utilize the same medical treatment protocols and administrative standards promulgated by the Medical Control Board. Fully integrating these protocols with shared EMS Medical Direction, compatible medical equipment, combined continuing medical education, and a combined recertification process facilitates optimal EMS system performance and patient outcomes. |
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| <p>3. Team Approach. Collegial working relationships among all personnel in this EMS system promote optimal patient care provided by mutually respected professionals.</p> | <ul style="list-style-type: none"> ● Determine the who the team members are: Each EMS system should identify all the stakeholder organizations involved or having an interest in the system including patient advocates, emergency responders, mutual aid providers, health care service providers, emergency management, relevant health care specialties, health care facilities and others. ● Agree on the rights and responsibilities of team members: Being invited to participate on the team gives participant the right to be engaged in the planning and development of the system and the obligation to provide inputs and assist with accountability. While some organizations have more involvement and more at stake than others the team should strive for cooperation and consensus. ● Coordinated medical oversight: While there are likely to be many organizations playing a role in the emergency care of patients cared for by the EMS system each having their own medical oversight capability, |

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| | <p>there should be a commitment to coordinate and develop a common set of evidence based guidelines standing orders and protocols as well as common administrative and credentialing procedures.</p> <ul style="list-style-type: none"> ● Coordinated CQI: While each organization involved in providing emergency medical services can and should have its own internal CQI process, there should be a commitment to share data as needed to implement system wide CQI initiatives. ● Joint Operational SOG's: In as much as multiple components of the EMS system have points of intersecting, coordinated and overlapping operation, the players in the system should identify those areas of connectivity and strive to develop common operating guidelines to facilitate seamless transition of information, patient care activities, logistics and operations. ● Joint Operational review of KPI's; The EMS system as a unified operation should have a set of Key Performance Indicators (KPI's) that all the parties agree to in terms of their importance to be measured, monitored and responded to if needed to improve the performance of the system. ● Joint strategic planning: The stakeholders should from time to time develop and revise a strategic plan for the system as a whole taking into account current performance and future system and external trends. Ideally, the primary operational players in the EMS system should coordinate the timing and process for their own internal strategic planning process to correspond to the system wide planning. ● Joint Training and Exercises: The EMS system should identify common training needs of various players in the system and sponsor training activities and exercises that bring together staff from the various entities to train and exercise together. This enables training on common SOG's and other shared learning objectives ● Joint Disaster Planning: The EMS system should plan collaboratively with all the stakeholders in all aspects of disaster management: mitigation, preparedness, response and recovery. Medical surge is very much a team sport and only through cooperative can the sum be greater than the parts. |
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| <p>4. Structured and Integrated Continuous Quality Improvement (CQI). As the “single patient” paradigm predominates throughout the EMS</p> | <p>James Robinson</p> <ul style="list-style-type: none"> ● <i>All care provided in the EMS system is subject to review of both treatment and operational compliance. Reporting of patient contact and care must be performed in a manner enabling efficient CQI.</i> ● <i>Optimizing system performance optimization and improving patient outcomes are dependent upon the system’s ability to conduct integrated CQI activities.</i> |

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| <p>system's design of response, medical treatment, and continuing medical education, the EMS system's continuous quality improvement should be both vertically and horizontally coordinated and integrated.</p> | <ul style="list-style-type: none"> ● <i>Operational and medical treatment data must be collected, analyzed, displayed, and acted upon using statistically valid methods. Data definitions must be clear and adopted by all system components. Qualitative and quantitative data should be displayed on statistical process control charts in ways that ease interpretation for system decision-makers.</i> |
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| <p>5. Medical Dispatch Prioritization. EMS communications optimizes the EMS system's patient care abilities when utilizing evidence-based priority dispatching. Successful priority dispatching initiates patient care and matches necessary resource(s) to the patient, without excessive and inappropriate utilization of first response and transport components.</p> | <p>Richard Serino</p> <ul style="list-style-type: none"> ● <i>EMS dispatch must rapidly and systematically ascertain what perceived emergency medical condition is being reported. The most potentially serious and time-sensitive of these medical conditions merit rapid notification of first response and transport providers. Rapid response to true life-threatening conditions is predicated upon rapid notification. Evidence-based medical interrogation protocols constitute the foundation for rapidly identifying emergent conditions and rapidly dispatching appropriate responders.</i> ● <i>Effective bystander-initiated patient care can be achieved via phone directives. Critical interventions such as cardiopulmonary resuscitation (CPR), choking relief, and hemorrhage control can be instituted prior to EMS arrival. Evidence-based pre-arrival instructions constitute the foundation for rapidly initiating this care.</i> ● <i>Emergency response ("lights and sirens" mode) proves an inherent risk to the public and EMS professionals. While perceived critical medical conditions warrant this risk, many calls for EMS assistance do not. Evidence-based medical interrogations constitute the foundation for differentiating emergency, urgent ("non lights and sirens" mode), and non-emergent responses. First response provides time-sensitive care in higher priority medical conditions. Rapid availability of first response can become compromised when first response resources are dispatched to all requests for EMS service. Evidence-based medical interrogation protocols constitute the foundation for rapidly identifying medical conditions substantially improved by first response care.</i> ● <i>Timely first response care depends equally upon the efficient identification of higher priority medical conditions AND efficient methods of first response notification/dispatch. In some instances, first response self-dispatch based upon direct observation or monitored radio communications proves the quickest means for first response utilization.</i> ● <i>EMS dispatch must be capable of discerning if medical conditions are markedly worsening while EMS professionals are responding to the initial call for help. As conditions warrant, EMS dispatch must be</i> |

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| | <p><i>capable of assigning higher priorities to these incidents, notifying currently responding EMS professionals of change(s) in patient condition, and activating appropriate additional responders to these patients.</i></p> <ul style="list-style-type: none"> ● <i>Given significant differences in EMS system design and service area, response time standards show surprisingly little variability among United States major metropolitan areas. While these “standards” may seem well supported, most have been derived without significant evidence-based medicine. As better EMS science emerges, response time standards must be periodically re-evaluated. Response time standards for first response and transport components should factor medical benefit, operational safety, and fiscal responsibility concerns.</i> ● <i>Sending a fire engine or ladder and/or ambulance to every EMS request for service constitutes an over-utilization of these resources. Evidence-based programs exist for alternative response (example: EMS professional(s) in car/truck/SUV), alternative disposition (examples: medical advice line, social service referral), and/or alternative destination (examples: walk-in clinics). Evidence indicates a growing service demand in this EMS system. Solely using “traditional” response of fire engine or ladder and/or ambulance to each request for service comprises heavy use of relatively scarce resources, high cost operations, and increasing physical demands upon EMS professionals. A conservative system of response or disposition for clearly “non emergent” needs better supports traditional EMS resource availability for high priority patients, fiscal responsibility, and supports the well being of the EMS workforce. Response time standards review and advocacy for revised response time standards becomes inherent in supporting response type changes.</i> ● <i>EMS dispatch constitutes an important part of the EMS system’s practice of medicine. Appropriate re-evaluations of EMS dispatch should utilize evidence- based medicine. Where gaps in evidence exist, industry “best practices”—medical, operational, and financial—should serve as leading points of discussion among decision-makers. EMS CQI constitutes an integral part of the total EMS system’s CQI.</i> |
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| <p>6. Appropriate Resource allocation. EMS communications optimizes the EMS system’s patient care abilities when utilizing integrated EMS resource capabilities to identify and dispatch the closest</p> | <p>Ken Knipper</p> <ul style="list-style-type: none"> ● <i>An integrated dispatch system will provide clear, consistent, and efficient notification to EMS responders that will eliminate confusion and insure the delivery of quality patient care.</i> ● <i>A consolidated dispatch center will also provide more consistent delivery of information to the EMS provider. It will also allow compatible staff training and cost utilization.</i> ● <i>The use of technology (CADS, GPS, etc) greatly enhances the ability of the dispatch center to send the</i> |

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| appropriate responder(s). | <p><i>appropriately equipped and staffed unit to handle the requirements of the EMS emergency at hand.</i></p> <ul style="list-style-type: none"> ● <i>A dispatch center with the capability of connectivity with medical direction and other responding units (fire, police, rescue, HAZMAT) also enhances the response of other resources that may be needed to mitigate the incident and protect the patient and responders.</i> |
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| <p>7. Coordinated Competency Assurance. Effective, coordinated continuing education (CE) enables advances in excellent patient care. Relevant, engaging CE is based upon EMS CQI findings, patient care capabilities, and treatment protocols.</p> | <p>Joe Wright</p> <ul style="list-style-type: none"> ● <i>Effective continuing education (CE) drives progressive clinical ability and performance.</i> ● <i>CE must effectively teach EMS professionals needed clinical improvements identified by CQI and evidence-based research, often incorporating new medical equipment and/or new medical treatment protocols.</i> ● <i>EMS professionals respond most effectively and efficiently when they train together.</i> ● <i>Eligibility for clinical credentialing by the EMS Medical Director depends upon the individual attaining and maintaining appropriate certification credentials from the state or local credentialing authority. System CE must afford every credentialed individual the educational content necessary to fulfill the baseline requirements for ongoing certification.</i> |
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| <p>8. Integrated Protocols. Medical treatment and other protocols are derived utilizing prevailing EMS standards of care, evidence-based medicine, and system design considerations. Medical treatment protocols are formatted to recognize the essential contributions from communications, first response, and transport personnel and promote seamless care delivery.</p> | <p>Dave Engler</p> <ul style="list-style-type: none"> ● <i>Medical treatment protocols are developed utilizing evidence-based medicine, acceptable EMS standards of care, and CQI outcomes, factoring system-specific characteristics. These protocols are patient-centric, incorporating the essential contributions from communications, first response, and transport personnel in seamless treatment plans.</i> ● <i>Medical treatment protocols highlight critical interventions for time-sensitive conditions and reflect desirable timeliness of care. Contributions from communications, first response, and transport personnel reflect their respective patient contact spans of time.</i> ● <i>Medical treatment protocols are developed focusing upon meeting patient care needs, with complimentary support in continuing education, equipment and medication specification, and professional development.</i> ● <i>Scheduling of EMS personnel must promote continuous patient safety, optimal clinical care, and</i> |

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| Clinical staffing must afford the safe implementation of these protocols. | <i>appreciable workforce beneficence. Shift lengths must closely correlate with clinical duty expectations and system demands to minimize provider fatigue.</i> |
| <p>9. Cost Effectiveness. This EMS system recognizes and respects each community's desire for high-quality emergency medical services delivered through an affordable, cost effective design. Communications, first response, and transport components/resources are integrally linked and depend upon the effectiveness and efficiency of each other. Additional system resources are added only when they support the desired high quality of EMS in our communities and do so with reasonable costs evaluated through system-wide impact analysis.</p> | <p>Drexdal Pratt</p> <ul style="list-style-type: none"> ● <i>An EMS system has a moral and ethical responsibility to ensure that all citizens in its service area have access to high quality EMS medical care at a reasonable cost.</i> ● <i>Operational fiscal accountability is important within the system, particularly when impacting multiple agencies.</i> ● <i>EMS system design, clinical care, and operational decisions should be driven by patient need and evidence-based medicine and operations. This system's leaders are responsible for making decisions in these regards that are ethically defensible, scientifically sound, clinically appropriate, and fiscally responsible.</i> ● <i>Incorporating the "one team" philosophy not only leads to better patient care and a more enjoyable work environment, it also fosters economies of scale. As first response and transport components identify common initial orientation, continuing education, CQI programs, and equipment inventory/maintenance operations, opportunities exist to make these programs more cost effective by reducing duplication of service and/or expanding service without attendant cost.</i> ● <i>EMS readiness costs must be appreciated, supported, and funded by the entire beneficiary population. This is an era of ever-present complex terrorism threats, as well as accidental and natural disaster preparation. Meeting high public expectations in times of both unpredictable and preplanned disasters involves considerable staffing, training, and equipment costs.</i> |
| <p>10. Medical Oversight. Medical care provided by the EMS professionals in this system constitutes a delegated practice of medicine. The medical overseers and other physicians must be experienced and specialty</p> | <p>Paul Sirbaugh</p> <ul style="list-style-type: none"> ● <i>EMS medical care delivered by EMTs and paramedics constitutes a delegated practice of medicine in the out-of-hospital arena.</i> ● <i>System EMTs and paramedics function as extenders under the EMS Medical Director(s) license(s).</i> ● <i>Medical oversight physicians provide counsel, advice, and direction through approval of medical administrative and treatment protocols as well as through evaluation of patient care CQI reports. These functions are vital to each patient receiving care in accordance with prevailing professional standards.</i> |

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| <p>board certified as appropriate. These physicians commit to providing objective and independent medical oversight, without regard to self-interests and political pressures.</p> | <ul style="list-style-type: none"> ● <i>The Medical Director provides medical administration or provides skilled personnel with clinical experience and expertise to medically administrate the system on a daily basis under the auspices of the medical authority.</i> |
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| <p>11. Measuring and Reporting on Key Performance Indicators. Key performance indicators (KPIs) such as response time standards factor the patient’s perceived condition. Performance indicators in EMS systems are appropriate for first response, transport, and dispatch agencies. Strict compliance within standards is expected.</p> | <ul style="list-style-type: none"> ● The provision of patient-centered care in critical clinical conditions requires a rapid response from both first response and transport personnel. ● Accountability for response time performance must exist in both first response and transport components of this EMS system. ● Though a number of response time measurement models exist, the patient-centric view is valued above others in this EMS system. This means that the system’s true response time starts at the “911” call and ends at patient contact. First response and transport organizations must agree on response data definitions to ensure accurate measurement of system response times. ● Response times should be reported in fractiles rather than averages to represent the truest picture of the system’s response time performance. Additionally, response times for specified area(s) in the Regulated Service Area should be reported to ensure appropriate response time performance throughout the Regulated Service Area. |
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| <p>12. Electronic Data Capture. Electronic patient records must be utilized by both first response and transport to allow for integrated and seamless patient care documentation. Urban and rural systems can be most effective when conducting continuous patient care</p> | <p>James Robinson</p> <ul style="list-style-type: none"> ● <i>Electronic patient records enables 100 percent case review allowing rapid and comprehensive evaluation of clinical patterns. This capability improves medical treatment protocol compliance and design.</i> ● <i>Electronic patient records allow the EMS system to compile a patient care database for needed clinical research.</i> ● <i>The seamless integration of dispatch, first response, and transport data on each patient into a shared computer platform ensures that the care provided throughout system response to each patient conforms to system requirements, thereby provided at the highest level.</i> |

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| <p>improvement activities by allowing for 100 percent quality review. In addition, regional and state regulators can use information from multiple systems to analyze and compare medical care across regions.</p> | |
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| <p>13. Disaster Preparedness and Surge Response. Disaster preparedness and surge response constitute essential roles of an EMS system. Effective preparedness for disaster-related emergency medical needs is dependent upon concise, task-oriented multiple casualty response procedures, routinely-scheduled realistic multiple casualty training, funding necessary protective and medical equipment, and achieving region-wide governmental operational support. Surge response, similarly, is the system's plan and ability to manage varying levels demand surge in the system.</p> | <p>Paul Sirbaugh</p> <ul style="list-style-type: none"> ● <i>Multiple casualty incidents (MCI) often require EMS professionals to operate differently than day-to-day responses to medical illness and/or injury. Simple, clear MCI response plans help the EMS professional to efficiently and effectively contribute to the EMS system's response to unpredictable disaster events.</i> ● <i>EMS professionals can best respond to any given disaster when specifically trained in that type of disaster. Realistic drills and focused didactic sessions delivered on a routine basis best prepare an EMS professional to care for disaster victims while ensuring personal safety.</i> ● <i>The well being of EMS professionals responding to disasters, both man-made and intentional, is dependent upon ready access to and proper utilization of personal protective equipment. Given the possibilities of intentional chemical, biological, radiological, nuclear, and explosive events, this EMS system must protectively train, outfit, and equip its most valuable assets – its EMS professionals.</i> ● <i>This EMS system's Standards of Care may change when facing extreme environmental conditions, excessive numbers of casualties in relation to available resources, or medical dangers posed to patients or providers. The EMS Medical Director(s) must work closely with other system leaders in these instances to clearly define acceptable interim Standards of Care, enabling the greatest possible good to be safely delivered to as many casualties as possible.</i> ● <i>No single EMS system can adequately respond alone to all disasters. Regional planning and operational support is the minimum level of response essential to effective disaster readiness. Clearly, state and federal planning and operational support is also appropriate in many circumstances. An integral part of disaster pre-planning is attaining regional government political, financial, and operational support. The MMRS is one example of an effective multiple agency/multiple government disaster readiness initiative.</i> |

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| | <ul style="list-style-type: none"> ● <i>Effective EMS response to disaster is dependent upon effective hospital response to disaster. This EMS system's leaders and its disaster preparedness experts must coordinate efforts with appropriate hospital-based personnel to promote an effective emergency medical response to disaster, specifically including efficient EMS- emergency department transitions of patient care.</i> |
| <p>14. On-going EMS System Planning. EMS strategic planning best enables optimal EMS system design and performance when conducted continuously.</p> | <ul style="list-style-type: none"> ● EMS is a practice of medicine and therefore subject to ever-changing standards of medical care. The impact of necessary medical care changes upon this EMS system is part of a larger process of planning for system design and function. While medical care specifications are the purview of the EMS Medical Director and other medical overseers as appropriate, the operational delivery of this medical care depends upon appropriate system design and productive professional relationships, both of which are fostered through continuous strategic planning. ● The complex roles tasked to this EMS system and how it interfaces with the healthcare system at large continues to multiply. Effectively meeting these needs, especially given an ever growing aging population with greater emergency medical needs, requires multi-agency participation, creative solutions, and increased efficiencies to operate with fiscal restraint. Continuous strategic planning identifies areas of common objectives and the methods to best address them utilizing the talents from EMTs, first response and transport agencies, administrative personnel, supported by institutions such as local EMS regulatory agencies and local hospitals, to achieve best outcomes at reasonable expense. ● Current system design and future recommendations should anticipate served community EMS needs, factoring present and needed resources, ultimately fulfilling the commitment to provide optimal EMS care. |
| <p>15. Safety of Responders and Patients. A system-wide focus on safety should be woven in to the system design to ensure that the primary safety interests of patients, citizens, and responders are protected.</p> | <ul style="list-style-type: none"> ● EMS providers are often placed in a position that could imperil the safety of their patient, others, and themselves. Therefore the provider must understand the importance of maintaining a safe attitude and environment. ● The provider must provide a safe and complete assessment of the scene and the patient. Being aware of the environment is paramount to completing a proper assessment and treatment of the patient with consideration for themselves and others at the scene. ● Safety must begin at the outset of the response and continue throughout the incident. This would include every stage of the response, treatment, and transport. |

| <p>16. Community Engagement. The necessary engagement with the community requires that the EMS system is designed appropriately to meet the community's needs, while at the same time ensuring that the community has an adequate voice in EMS system strategy.</p> | <p>Drexdal Pratt</p> |
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