As the Oklahoma City Emergency Medical Services Strategic Planning Steering Committee, it is our pleasure to present the attached document, “A Strategic-Based Emergency Medical Services Blueprint for Oklahoma City” for your review.

Each “guiding principle” with supporting core issues and operational plans reflects our unqualified consensus support. Consensus was achieved through our consideration of evidence and operational-based findings and expert advisement utilizing our combined experience of over 243 years in the delivery of emergency medical services. As testament to the highest consideration due every patient we serve, patient beneficence remains the dominate spirit in this document. Further indicative of our system’s solid foundation are our commitments to fiscal responsibility in system enhancements and our due respect shown one another in a consistent and reliably collegial atmosphere throughout the development of this document.

We believe your endorsement of this comprehensive blueprint for further optimization of emergency medical services will greatly benefit the future patients utilizing Oklahoma City’s EMS system. This blueprint also champions appropriate support for the men and women dedicated to providing this vital medical service.

We appreciate your thoughtful review of this document and your subsequent support.

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A STRATEGIC-BASED EMERGENCY MEDICAL SERVICES BLUEPRINT FOR OKLAHOMA CITY
Executive Summary

Oklahoma City’s Emergency Medical Service (EMS) system is rightfully regarded as one of the finest in our nation. Every day, dedicated men and women in the Oklahoma City Fire Department and Emergency Medical Services Authority commit themselves to learn, practice, and provide the necessary medical care for citizens emergently summoning their help. Their ardent efforts and honed skills result in numerous lives saved and sustained despite the rigors and challenges they face in the practice of EMS medicine.

Although today’s patients benefit from outstanding care provided by these medical professionals, Oklahoma City is wise in its support for EMS strategic planning to ensure continued EMS system excellence for years to come.

The comprehensive discussion of the necessary tenets, or “guiding principles,” for high-performance EMS, associated core issues, and the operational steps promoting their successful incorporation specific to Oklahoma City’s EMS system comprises the blueprint. While each guiding principle constitutes an essential accomplishment, it is only the synergy of their combined effects that produce the results necessary to reliably respond and appropriately benefit patients depending upon Oklahoma City’s “911” services in times of real and perceived medical crisis.

Careful adherence to evidence-based directives in EMS system design and medical treatment protocols must be exercised. Oklahoma City is fortunate to have dedicated leaders throughout its EMS system and medical community that support consideration of patient outcomes, appropriate “fit” of treatment to high local standards of care, and the fiscal impact of design and treatment changes prior to effecting change. The EMS strategic planning steering committee fully supports the continuance of these practices throughout numerous operational plans.

Before emergency medical technicians and paramedics arrive to deliver patient care, a complex sequence of events must reliably transpire to achieve that care. The EMS strategic planning steering committee has outlined a plan that fully reviews current dispatch logistics to identify steps (or perhaps more accurately, delete steps) making this process even more efficient.

Today represents a critical time in the service demands upon Oklahoma City’s EMS system. Currently, the system provides a luxury of responding rapidly to all service requests, even those of perceived lower priority need. Factoring the consistent growth in service demands over the last several years, meeting these demands cannot continue for years to come without 1) committing to significant increases in workforce, fixed resources (fire stations), and mobile resources (fire engines and ambulances), all involving considerable costs; and/or 2) employing evidence-based alternative response modalities, proven appropriate to patient needs while simultaneously containing system costs. Many EMS systems around the world have successfully incorporated models of alternative response to promote system efficiency. It is important to monitor Federal and state regulations that address these practices and advocate for changes appropriate for
Oklahoma City’s EMS system. The EMS strategic planning steering committee fully supports careful study and application appropriate to local patient and system needs and demands.

Regardless of exact response configuration utilized in any particular response, the men and women in the Oklahoma City Fire Department and EMSA work side by side so that patients are served appropriately by the collective EMS system. Several guiding principles discuss the importance of further fostering this “team concept” of patient care. Combined training programs delivering common curriculum with multi-agency instructors are essential. The EMS strategic planning steering committee has identified The Oklahoma Institute for Disaster & Emergency Medicine, sponsored by The University of Oklahoma College of Medicine as a statewide resource, as the leading resource to foster this combined training.

Combined training further contributes to a collegial work environment throughout the EMS system. While facing significant challenges throughout the course of their work day, Oklahoma City’s EMS professionals deserve significant support. The EMS strategic planning steering committee has made a number of recommendations building upon today’s workforce camaraderie to strengthen this support.

Integral support for Oklahoma City’s EMS system is provided by the Medical Control Board (MCB). The MCB, currently comprised of eight emergency physicians representing the busiest emergency departments in Oklahoma City and Tulsa and one neurosurgeon, contributes countless volunteer hours to the EMS system. Their oversight of the local practice of EMS medicine is absolutely essential for Oklahoma City’s EMS system to function. These dedicated physicians also advise the system’s EMS Medical Directors in their day-to-day medical oversight when needed. The EMS strategic planning steering committee fully supports the salient roles played by the MCB.

Long-term sustenance of Oklahoma City’s EMS system depends upon fiscal accountability and a commitment to a continuous process of quality improvement. Throughout this blueprint, the EMS strategic planning steering committee has ensured appropriate operational steps addressing both aspects are included. It is important to clarify that Oklahoma City does not place its EMS system and patients at the mercy of a “lowest bidder” philosophy. Rather, patient beneficent decisions are simply made with due considerations for financial impacts and effect on overall system performance. This framework serves in the day-to-day operations as well as in necessary readiness for future disasters, natural and man-made.

Finally, the EMS strategic planning steering committee’s work to date should be viewed as the initial phases of a dynamic process. Just as this document serves today’s EMS system well, it is only through support for a continuous process of EMS strategic planning that future generations of Oklahoma City citizens will continue to receive excellent EMS care.
Guiding Principles

1. EMS system design is based on scientific medical and economic evidence published in peer-reviewed literature as well as determined by the system’s continuous quality improvement.

2. 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, successfully treating this “single patient” depends upon coordinated and integrated response, medical treatment protocols, and continuing medical education.

3. As the “single patient” paradigm predominates throughout the EMS system’s design of response, medical treatment, and continuing medical education, the EMS system’s continuous quality improvement should be coordinated and integrated.

4. 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.

5. EMS communications optimizes the EMS system’s patient care abilities when utilizing integrated EMS resource locater capabilities to identify and dispatch the closest appropriate responder(s).

6. 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.

7. Collegial working relationships among all personnel in this EMS system promote optimal patient care provided by mutually respected professionals.

8. Medical treatment 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. Clinical staffing must afford the safe implementation of these medical treatment protocols.

9. This EMS system recognizes and respects each contracted community’s desire for high quality emergency medical services delivered in 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.
10. Medical care provided by the EMS professionals in this system constitutes a delegated practice of medicine. The Medical Control Board and Office of the Medical Director physicians must be experienced and specialty board certified. These physicians commit to providing objective and independent medical oversight, without regard to self-interests and political pressures.

11. Response time standards factor the patient’s perceived condition. Response time standards are appropriate for both first response and transport agencies. Strict compliance within response time standards is expected.

12. Electronic patient records must be utilized by both first response and transport to allow for integrated and seamless patient care documentation. This system is maximally effective for continuous patient care improvement activities, allowing for 100% critical care event compliance review.

13. Disaster preparedness and response constitute essential roles of this EMS system. Effective preparedness for and response to disaster-related emergency medical needs are 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.

14. EMS strategic planning best enables optimal EMS system design and performance when conducted continuously.
GUIDING PRINCIPLES & CORE ISSUES

EMS patient beneficence, specifically addressing and meeting patient care needs within a reasonable EMS scope of practice, must provide the foundation and EMS system architecture, guiding principles, core values, and operational plans. Pointedly, the patient-centered approach is the EMS system’s immunization against political and organizational self-interests. 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.

1. EMS system design is based on scientific medical and economic evidence published in peer-reviewed literature as well as determined by the system’s continuous quality improvement.

The United States spends two and a half times per capita the rate of any other nation on health care. Significant expenditure involves tests, procedures, and medications without peer-reviewed research proven benefit. In reality, patients can incur greater risk without receiving better outcomes when evidence-based medicine and commitment to systematic quality improvement does not constitute the foundations of a medical practice. An EMS system is clearly a practice of medicine, although certainly not one located in the traditional hospital or clinical office-based environments, therefore incurring many significant and unique challenges in meeting its patient’s needs.

Examples of non-evidence based clinical practices in EMS have included MAST pants (increased EMS operational costs, yet decreased patient survival from hemorrhagic shock) and high-dose epinephrine (increased EMS operational costs, increased hospital-based ICU demands and costs, yet no improvement in neurologically-intact patient survival from cardiac arrest). Examples of judiciously adopting standard of care changes in Oklahoma City, utilizing best-available scientific evidence at the time, include CPAP for COPD or CHF-related respiratory distress and the ResQPod for cardiac arrest. The ResQPod is an excellent example of the Oklahoma City EMS system’s medical aggressiveness as the device was adopted early compared with other major metropolitan EMS systems. This early adoption was based upon promising patient outcomes research and the ability to evaluate the impact upon patient outcome locally utilizing the system’s continuous quality improvement.

Evidence-based medicine guides EMS systems in providing quality, cost-efficient care. Best patient outcomes are realized by utilizing appropriately trained EMS professionals, assisted by current treatment protocols, incorporating safe and effective procedures, medications and equipment. Far from “cookbook” medicine, evidence-based medicine requires careful integration of medical research findings, a medical professional’s clinical expertise, and respect for a patient’s autonomy and informed consent.
Core Issues

- 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 and/or medical research meeting the publication standards inherent in peer-reviewed journals and an individual EMT/EMT-Intermediate/EMT-Paramedic’s clinical expertise, while respecting a patient’s autonomy through implied or informed consent.

- This EMS system’s independent Medical Control Board has responsibility and accountability to ensure that the medical treatment protocols reflect current evidence-based medicine, incorporating this system’s continuous quality improvement (CQI). A medical treatment protocol change does not necessarily constitute a standard of care change. A standard of care change ultimately results in change to medical treatment protocol(s), system operational procedure(s), or both.

- The CQI process, monitoring and improving the clinical and operational performance of the system, must use statistically valid principles and practices of evidence-based medicine. All organizations contributing key system components must be appropriately represented in the CQI process.

- Each community served in an EMS system is respected. EMS system practices must promote effective professional relationships with other components in a community’s healthcare, public safety, and governmental systems.

- The Standard of Care Change Process should allow changes in the EMS system 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. While much of the peer-reviewed research forming the basis of medical treatment or operational decision is conducted outside of Oklahoma City, it must be uniformly recognized that the Oklahoma City EMS standard of care is established by this EMS system alone. All organizations and individuals participating in the Oklahoma City EMS system work together to establish the Oklahoma City 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.
Operational Plan

- Establish a formal, regularly scheduled process of EMS-related, evidence-based, peer-reviewed, literature review. Topics for literature review should be based upon the CQI process to assure that changes needed to meet system goals are supported by research outcomes and are made in methods capable of further impact analysis. This program for literature review can be coordinated by Oklahoma Institute for Emergency and Disaster Medicine (OIDEM) faculty.

- Establish a process for weighing conflicting scientific evidence, particularly in areas of scarce research. The process utilized by the American Heart Association for the development of its 2005 Emergency Cardiac Care Guidelines serves as a useful template. Any local process must rigorously evaluate investigational methodologies utilized in research relevant to the EMS system.

- Establish a formal, regularly scheduled process of discussing and distributing relevant EMS-related, evidence-based, peer-reviewed, and published scientific and/or medical research (discovered through the review process described in the preceding operational plan bulleted point) to individuals throughout the EMS system. Office of the Medical Director staff, in conjunction with OIDEM faculty, can serve as discussion moderators of a “journal club.” This educational forum must be open to all individuals pertinent to the EMS system. OMD staff and OIDEM faculty can provide further service by facilitating the writing of research “executive summaries” for dissemination to liaisons in the EMS system’s contributing organizations. Each of these key contacts should ensure further dissemination occurs organization-wide in an expeditious manner. One common format for dissemination and repository could be the OIDEM website. Relevant return commentary should likewise be shared with OMD staff and OIDEM faculty in efforts to ensure all viewpoints are valued and considered in further EMS system changes.

- Report relevant EMS-related, evidence-based, peer-reviewed literature reviewed and correlated with this EMS system’s CQI findings in valued formats at meetings integral to system design and operations (current examples: Medical Control Board, First Responders, EMSA Board of Trustees, System CQI)

- Report changes in the EMS system based on relevant EMS-related, evidence-based, peer-reviewed literature reviewed and correlated with this EMS system’s CQI findings in valued formats in the Office of the Medical Director’s Annual Report to the Mayor and City Council of Oklahoma City. An executive summary for this Annual Report is recommended.

- Endorse and maintain the current Standard of Care Change process, which includes operational and fiscal impacts, ensuring that standard of care changes are clinically desirable, operationally possible, and fiscally achievable throughout all levels of system operations.
• Endorse and maintain the current independence of medical oversight through the Office of the Medical Director and the Medical Control Board.
2. 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, successfully treating this “single patient” depends upon coordinated and integrated response, medical treatment protocols, and continuing medical education.

Virtually all major metropolitan EMS systems utilize distinct first response and transport components in response to 911 calls for medical assistance. Each component represents a specific, essential function in providing optimal EMS patient care.

The first response role is to rapidly reach, assess, and stabilize patients with time-sensitive, serious medical conditions as perceived via emergency medical dispatch query of the 911 caller. Rapid arrival to these patients can only be achieved when first response is provided by an organization that strategically places numerous response apparatus, each being continuously staffed by employing a large workforce trained in EMS care at either basic or advanced life support levels. Integral to the ongoing availability of first response is the ability to transfer continuing patient care and transport responsibility to an additional component in the EMS system. An agency commonly utilized for first response in the United States is the Fire Service.

The transport role is to reach, assess, stabilize, and ensure completeness of indicated EMS care is delivered in a time appropriate manner to all patients contacting the EMS system for medical assistance. Indicated EMS patient care most commonly involves transportation in an ambulance to a hospital-based emergency department for physician-provided care. Optimal EMS patient care can only be achieved when transport is provided by an organization that utilizes ambulances sufficient in design, number, and positioning to meet EMS system demands and staffs these ambulances with a workforce trained in EMS care at either basic or advanced life support levels. Agencies commonly utilized for transport in the United States are the Ambulance Service and the Fire Service.

A sufficient number of the professionals in the EMS system (be they first response or transport affiliated) must be trained and credentialed at the advanced life support level to ensure continuity of competent ALS care availability. A sufficient number of professionals in the EMS system (either basic or advanced life support trained and credentialed) should exist to meet anticipated peak demand and routine disaster needs.
Core Issues

- 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 an 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 recredentialing process facilitates optimal EMS system performance and patient outcomes.
Operational Plan

- Review current EMS system dispatch operations. Develop improved methods to more rapidly identify which 911 calls to the EMS system constitute a significant role for first response to ensure clinically-relevant and timely arrival at the patient’s side. Ensure proper coordination in response patterns with the transport component for these patients with perceived serious, “time-sensitive” illness or injury.

- Endorse and maintain distinct first response and transport components and their mutual utilization of independent medical oversight. EMS medical oversight is responsible for providing the system a set of integrated medical treatment protocols and administrative standards.

- Develop EMS continuing medical education that promotes equal attendance from first response and transport components. OIDEM faculty, in cooperative agreements with education providers in the current EMS system, can assist in the formation of OIDEM-sponsored EMS education system-wide.

- All endorsements of current system practices and desires for further improvements are held accountable to the primary standard of patient beneficence.
3. As the “single patient” paradigm predominates throughout the EMS system’s design of response, medical treatment, and continuing medical education, the EMS system’s continuous quality improvement should be coordinated and integrated.

Bettering the outcome of the “single patient” is the driver of CQI activity. First response and transport component-specific patient care must be evaluated in their combined delivery. Therefore, first response and transport component data must be compatible to a minimum of enabling coordinated CQI analysis and reporting. CQI reportable criteria must be medical relevant, measurable, and approved by the EMS system’s medical oversight. Data must be supplied in formats enabling easy and meaningful usage by first response and transport components.

Evidence based medicine is based upon rigorous analysis of operational and medical treatment data to provide reliable information to all partners in the EMS system. Data must be entered, collected, analyzed, and acted upon using statistically valid methods.

CQI analysis should be conducted in an open, cooperative, and non-threatening forum. Analysis is more reliable and useful when conjointly discussed amongst medical oversight, first response, and transport component leaders. Proper CQI analysis yields system improvements that are efficient, effective, and fiscally responsible.

Core Issues

- All care provided in the EMS system is subject to treatment and operational compliance review. Reporting of patient contact and care must be performed in a manner enabling efficient CQI.

- System performance optimization and bettering individual patient outcomes are dependent upon the ability to conduct composite CQI analytic activities.

- 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.
Operational Plan

- CQI reporting should be in a combined format utilizing information from both first response and transport components. A design team should be organized with representatives from the Office of the Medical Director, first response and transport agencies, including information technology specialists. This team should refer to the EMS system’s Cardiac Arrest Registry as a model of reporting. It is imperative to identify and obtain measurable data constituting “chains of survival” for expanded clinical interventions. Entities such as respiratory distress (asthma, congestive heart failure), acute coronary syndromes (ST-elevation myocardial infarction), seizures, and major trauma represent significant portions of the patients currently served in this EMS system and desired topics of CQI reports to be developed via this process.

- CQI activities (examples: incident investigations, system performance feedback sessions) should be attended in appropriate times/numbers by OCFD EMS leadership personnel (EMS Coordinator, EMS QA Officers, EMS Education Staff), EMSA leadership personnel (Field Operations Supervisors, Education Staff, QI Staff), and OMD staff to promote consistency of efforts and conclusive incident resolutions. Face-to-face meetings amongst these key stakeholders should be encouraged to further promote effective, trusting, and enjoyable professional relationships. Relevant field personnel should be invited to attend CQI sessions, especially incident investigations, to further their interest and commitment to system-wide CQI.

- Operational and/or educational meetings (examples: OCFD District Chief meetings, EMSA “PULSE” (Performance, Utilization, Late Calls, System Evaluation) meetings, EMSA weekly operations, EMSA monthly operations, EMSA Team Meetings) should be attended in appropriate times/numbers by EMS leadership from both OCFD and EMSA (example: EMSA FOS attending OCFD District Chief meeting). Dual-agency leadership representation promotes sharing of real-time information regarding staffing, apparatus, equipment, or training that may impact short-term system performance. In some instances, these meetings could become completely dual-agency formatted, better addressing system-wide CQI operational-related needs and reducing required meetings for EMS leadership in both OCFD and EMSA.

- Evaluation of EMS-related software should include compatibility determination with the EMS system’s present and anticipated software. Wherever possible, the degree of software compatibility should be a factor in EMS-related software purchasing. Current software changes may prove difficult given expenses in initial software purchasing, hardware configuration, personnel training, and ongoing technology support. When difficulties in software change seem substantial, standardizing data definitions and formatting within current software may provide acceptable solutions to CQI needs.
• Report relevant CQI findings in valued formats at meetings integral to system design and operations (current examples: Medical Control Board, First Responders, EMSA Board of Trustees, System CQI)

• Report relevant CQI findings in valued formats in the Office of the Medical Director’s Annual Report to the Mayor and City Council of Oklahoma City. An executive summary of this Annual Report is recommended.
4. 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.

Comprehensive, evidence-based EMS dispatch is integral to an EMS system’s ability to match its response with the patient’s needs. EMS dispatch must be able to identify the most severe, time-sensitive medical conditions first, thereby initiating appropriate EMS response rapidly. Without a proven system for EMS resource utilization, inappropriate response occurs. Inappropriate EMS response may be reflected in several ways: 1) committing an underutilization of resources for critical patients; 2) committing an overutilization of resources for persons with needs not ideally addressed by higher levels of EMS care, perhaps not ideally addressed by EMS at all; 3) committing resources to respond in “lights and sirens” mode to non-time sensitive acute illness or injury; 4) utilization of response time standards without basis of medical and/or operational needs. Each of these examples results in inappropriate response with detriment to patients, the public, and EMS professionals.

In addition to correct resource identification and utilization for EMS response, comprehensive, evidence-based EMS communications provides pre-arrival instructions (PAI) for bystander patient care, further improving patient healing and survival.

Core Issues

- 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 EMS professionals. Rapid response to these true life-threatening conditions is predicated upon rapid notification. Evidence-based medical interrogation protocols constitute the foundation for rapidly identifying these conditions and rapidly dispatching appropriate responders.

- Effective bystander-initiated patient care can be achieved via phone directives. Critical interventions such as cardiopulmonary resuscitation (CPR), choking relief via the Heimlich maneuver, and hemorrhage control via direct pressure can be instituted prior to EMS professional care. Evidence-based pre-arrival instruction protocols constitute the foundation for rapidly initiating this care.

- 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 interrogation protocols constitute the foundation for differentiating conditions justifying emergency response, urgent response (“non lights and sirens” mode), scheduled response (“transfers”), and alternative response (“non-fire engine or ladder/non-ambulance”).
- First response provides time-sensitive care in designated 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.

- 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.

- 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 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.

- 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.

- Sending a fire engine or ladder and/or ambulance to every EMS request for service constitutes an overutilization 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.
• 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.

Operational Plan

• Re-affirm EMS dispatch must utilize an evidence-based method of medical interrogation, incident prioritization, responder selection and notification, and pre-arrival instruction.

• The Medical Priority Dispatch System (MPDS) in conjunction with the National Academy of Emergency Dispatch (NAED) currently comprises the best evidence-based method of EMS dispatch and is the basis for EMS dispatch in Oklahoma City. MPDS is subject to continuous revision. MPDS revisions may not necessarily complement the desired Oklahoma City EMS standards of care. The Medical Control Board and the EMS Medical Director should carefully review suggested MPDS revisions, either approving or rejecting implementation for this EMS system.

• A taskforce with appropriate organizational and public representation should be formed with objectives to include: 1) describe current EMS dispatch operations from the time of initial 911 or non-emergency call to release of the patient from the EMS system; 2) identify areas of needed improvement in current EMS dispatch operations, with a specific focus on optimizing communication and notification between first response and transport components; 3) suggest the “best case scenario” for EMS dispatch performance and identify solutions to achieve this performance.

• In the taskforce assignment and development interim, EMS dispatch CQI should continue to promote effective operations. Multiple measures should continue to be electronically monitored, tracked, and reported in the monthly EMS dispatch CQI report, including: 1) call transfer times (911 call taker to the EMSA dispatcher and EMSA dispatcher to the Fire dispatcher); 2) calls requiring upgrade, explanation for the change, and notification times for the change; 3) identification of cardiac arrest and reasons that cardiac arrest was not identified; 4) compliance with MPDS/NAED standards.
This diagram is the current National Academy of Emergency Medical Dispatch Response Determinants matrix utilized to prioritize emergency call responses, to select first response and/or transport response levels, and to advise response time needs (e.g. “lights and sirens”) for the six prioritization levels ranging from Omega to Echo.

In establishing local routine vs. emergency response assignments to match each MPDS code, consider the following:

1. Will time make a difference in the outcome?
2. How much time-lapse exists for that type of problem?
3. How much time can be saved driving in lights-and-sirens mode?
4. When the patient gets to the hospital, will the time saved be significant compared with the time spent waiting for care such as X-rays, lab tests, etc.?

All actual response assignments and emergency modes are decided by local Medical Control and EMS Administration.

Appropriate representatives from Oklahoma City Fire Department, EMSA, and Office of the Medical Director, supported by information technology specialists and by faculty from the Oklahoma Institute for Disaster and Emergency Medicine should further investigate incorporation of MPDS determined response types and modes for this EMS system. Included in this process will be benchmarking with similar EMS communication systems already utilizing this Response Determinants matrix to formulate a safe, accurate implementation plan. This taskforce will also review relevant clinical literature to ensure that utilizing this Response Determinants matrix in conjunction with the Medical Priority Dispatch System continues to be supported by evidence-based medicine. Among multiple response configurations for consideration are: 1) first responder non-lights & sirens response without transport response, 2) first responder lights & sirens response with transport non-lights & sirens response, and 3) transport non-lights & sirens response without first responder response.
• Appropriate utilization of first responders enables rapid availability of this important care component for patients most likely to benefit from first response. Additionally, appropriate response mode minimizes response risk to both the traveling public and EMS professionals. Response time standards review and advocacy for revised response time standards becomes inherent in supporting response mode changes.

• Appropriate representatives from Oklahoma City Fire Department, EMSA, and Office of the Medical Director, supported by information technology specialists and by faculty from the Oklahoma Institute for Disaster and Emergency Medicine should further investigate incorporation of an MPDS determined program of alternative response (example: EMS professional(s) in car/truck/SUV responding non-lights & sirens to omega level calls; EMS professional(s) in car/truck/SUV responding light & sirens to designated calls).

• The CQI process for any alternative response model(s) implemented will track appropriate benchmarks to ensure safe, consistent implementation of these new response protocols. Specific emphasis will be placed upon impacts related to clinical outcomes, patient satisfaction, operational readiness, personnel safety, and system costs.
5. **EMS communications optimizes the EMS system’s patient care abilities when utilizing integrated EMS resource locator capabilities to identify and dispatch the closest appropriate responder(s).**

EMS dispatch operations should encompass the ability to instantly identify and locate available responder(s). All appropriate first response and transport component apparatus should be included in this positioning identification system. Integrating first response and transport apparatus into a comprehensive apparatus deployment model yields the most accurate system for utilizing the closest appropriate EMS professionals and for positioning response apparatus to meet predictable system needs. Apparatus and personnel may be in fixed locations or in transitional staging points based upon organizational and system requirements.

Traditionally, first response has employed a fixed location model, based upon strategically placed stations, ensuring rapid response times in a defined zone. EMS transport components have utilized models with fixed locations, transitional staging, or a combination of fixed and transitional locations. The Oklahoma City EMS system has historically utilized fixed location first responders (OCFD personnel responding from fire stations) and EMSA ambulances transitionally staged based upon system demand predictors. These transitional staging points or “posts” are located throughout the Regulated Service Area. This ambulance deployment model is commonly referred to as “System Status Management.”

Whether fixed or mobile in deployment, all response capabilities of the EMS system should be considered to be an integral part of the “System Status Management Plan.” Once the EMS dispatcher determines the call priority, he or she must be able to identify the closest, most appropriate EMS first response and transport personnel. This can only be accomplished when apparatus locator software can receive and display the exact location and status of an apparatus as well as the level of care capable of being provided by personnel on that apparatus (EMT-Basic or EMT-Paramedic). These software capabilities result in real time, effective coordination of first responder and transport response.

**Core Issues**

- EMS dispatch best supports patient care when enabled with apparatus locator hardware and software allowing the EMS dispatcher to easily and rapidly commit the closest, most appropriate EMS personnel to the patient.

- From a system planning perspective this technology can help to identify the best location for placement of first response and transport resources in a coordinated deployment model.
• The System Status Management Plan must include the ability to monitor individual apparatus status (example: “out-of-service”) and EMS level of care being provided from that apparatus (example: “paramedic first response”).

Operational Plan

• Appropriate representatives from Oklahoma City Fire Department, EMSA, and Office of the Medical Director, supported by information technology specialists and by faculty from the Oklahoma Institute for Disaster and Emergency Medicine should work to implement a “System Status Management Plan” fully capable of monitoring the status and location of all appropriate first response and transport apparatus as well as determining level of care provided by EMS personnel on each apparatus. Supporting hardware and software should be incorporated into the EMS dispatch operations to ensure patients are consistently assigned the closest, most appropriate EMS first response and/or transport professionals.

• Once the “System Status Management Plan” has integrated first response and transport component monitoring, future postings of EMSA paramedic ambulances should factor the location of OCFD paramedic engine companies. Response time standards review and advocacy for revised EMSA response time standards becomes inherent if supporting significant changes to traditional ambulance postings in this system.
6. **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.

While acknowledging unique characteristics of first response and transport components, this EMS system serves the “single patient.” Continuing education reinforcing the “single patient” paradigm enables this system’s EMS professionals to work effectively and efficiently together in improving patient outcomes. Though first responders, EMT-Basics, EMT-Intermediates, and EMT-Paramedics have distinct scopes of practice, every EMS professional credentialed in this system delivers medical care utilizing a common set of medical treatment protocols. The patient’s treatment is optimized and made “seamless” when CE prepares every EMS professional to function as an integral part of the care team.

Consistency in providing the highest standards of EMS care is dependent upon realistic and engaging continuing education. EMS professionals responding together deserve the benefit of training together. As CQI-derived care initiatives, new patient care capabilities, and new treatment protocols transcend any single agency in this system, educational programs addressing these improvements should likewise transcend agencies. Coordinated EMS training should be afforded to the provisional EMT-Basic, EMT-Intermediate, or EMT-Paramedic at their earliest entry into the system. While the present EMS Orientation Academy often affords joint agency training, all EMS patient care training in this system should afford joint agency involvement at both faculty and student levels.

Joint agency training enables EMS professionals to meet outside of patient care responses and to gain better appreciation of partner agency cultures. Interagency personnel familiarity and cultural respect promote collegial environments and “one team” responses to patients.

**Core Issues**

- Effective CE drives progressive clinical ability and performance.

- 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.

- EMS professionals respond most effectively and efficiently when they train together.
Eligibility for clinical credentialing by the EMS Medical Director is dependent upon the individual attaining and maintaining appropriate certification credentials from the Oklahoma State Department of Health EMS Division. System CE must afford every system-credentialed individual the educational content necessary to fulfill the baseline requirements for Oklahoma recertification credentials at the level of system credentials.

Operational Plan

- The Office of the Medical Director, in cooperation with EMS faculty of OCFD and EMSA, will ensure CQI-identified needed clinical improvements are addressed through timely, effective CE.

- A common CE curriculum utilizing joint agency instructors training joint agency personnel will be developed by OMD staff in cooperation with leaders and EMS faculty from OCFD and EMSA. Key elements of this curriculum will address new patient care capabilities, medical equipment, and treatment protocols. Educational formats should incorporate ever-increasing technology, particularly those capabilities that make CE engaging and logistically efficient.

Interim activities encouraging greater joint agency training include: 1) sharing EMS training calendars between OCFD and EMSA; 2) encouraging EMS personnel to attend common required training at either OCFD or EMSA locations.

- The CQI process will monitor the effectiveness of essential clinical improvements implemented through CE. A two-step process will be utilized to evaluate improvements. Step one, which examines the behavioral impact, answers the question, “Are EMS personnel implementing the care improvements taught?” Step two, which examines the clinical impact, answers the question, “Are the care improvements truly improving patient care and outcomes as intended?” Unintended consequences of each educational intervention will be measured. Lessons learned will be integrated into both CQI and CE programs.

- OMD staff in cooperation with EMS faculty from OCFD and EMSA will ensure this system’s CME meets or exceeds the recredentialing requirements of the Oklahoma State Department of Health EMS Division for each EMS scope of practice credential (e.g. EMT-Basic) recognized by OMD.

- The Oklahoma Institute for Disaster and Emergency Medicine offers this EMS system the educational resources of the Institute and the University of Oklahoma’s College of Medicine. OIDEM is well suited to provide EMS faculty endorsement, already partnering with many educators in this system. Additionally, current OIDEM training resources include Oklahoma’s most progressive emergency medical simulation center. OMD staff in cooperation with leaders and EMS faculty from OCFD, EMSA, and OIDEM will develop feasibility plans for OIDEM to become this system’s CE sponsoring organization.
7. Collegial working relationships among all personnel in this EMS system promote optimal patient care provided by mutually respected professionals.

EMS constitutes a challenging practice of medicine, even in routine operations. Seriously ill or traumatized patients who rapidly change in medical condition, stressed families, physically dangerous situations, and ever-present potentials for multiple casualty incidents create additional stressors upon even the most experienced EMS professional. Progressive EMS systems simultaneously promulgate advancing standards of care and realize that these standards must allow for legitimate differences of opinion about patient care. Given these dynamic situations, differences in opinion in patient assessment interpretations and medical treatment plans may result in conflict between team members. Additionally, if a lack of understanding of the different roles of first response and transport exists, this may also result in conflicts between team members. A respectful and professional conflict management plan focused upon the patient’s best interests is essential in addressing these differences. Further, EMS system leadership must reliably model this respectful and professional tone in all discussions, particularly those involving significant disagreements.

Core Issues
- Creating collegial working relationships requires that individual members in this EMS system treat one another with mutual respect, recognizing that diversity of knowledge, skills, perspectives, missions, roles, and responsibilities creates a synergy in meeting patient needs and establishing a fulfilling work environment.

- Optimal synergy requires freely sharing information and ideas including shared CQI processes, shared medical treatment protocols, shared continuing education, and solid conflict management practices.

Operational Plan
- The current conflict management plan for first response and transport personnel is to be reviewed with possible revision by a workgroup representing OCFD, EMSA, and the Office of the Medical Director. The plan must ensure practices that allow conflicts to be addressed quickly and effectively, preferably at frontline personnel levels, with continuous commitment to meeting the patient’s needs.

- The “team concept” of patient care response must be emphasized in orientation, continuing education, operational deliberation, and ongoing strategic planning. Widespread recognition and respect for the important roles of first response and transport allows all EMS professionals to understand how individual decisions on behalf of the patient impact each component of the EMS system.
• Transfer of patient care responsibility from OCFD personnel to EMSA personnel shall be in a consistent, organized manner. If responding personnel are not already acquainted with one another, introduction by name and EMS certification is indicated. Patients and responding personnel alike should be able to identify recognition and appreciation amongst responding personnel throughout the care being provided by the EMS “team”.

• As OCFD and EMSA work toward common objectives, personnel should gain greater awareness and respect for each organization’s culture and values. A synergism develops, creating a common culture and shared values. To further encourage synergism in this EMS system, EMSA personnel will be temporarily assigned medical care duty alongside OCFD personnel in stations, responding with the crew on engines. Likewise, OCFD personnel will be temporarily assigned medical care duty alongside EMSA personnel, responding with the crew on ambulances. System leadership will promote high value on this program throughout respective organizations and monitor feedback from involved personnel to further improve the program’s impact.

• EMS professionals should be easily recognizable by their organizational and scope of practice credentials. A common scope of practice identification device should be explored for implementation by OCFD and EMSA leaders (example: color-coded picture identification).

• Appropriate representatives from Oklahoma City Fire Department, EMSA, and Office of the Medical Director will develop a collegiality-focused evaluation tool for implementation to both recognize successful on-scene practices (e.g. transfer of patient care responsibility from OCFD personnel to EMSA personnel) and remediate undesirable patient care management conflicts.

• Significant patient care successes should be celebrated with recognition for all involved EMS personnel from OCFD and EMSA in regularly scheduled ceremonies and/or communications (example: annual awards banquet, joint newsletters).
8. Medical treatment 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. Clinical staffing must afford the safe implementation of these medical treatment protocols.

The unique and essential contributions to patient care supplied by communications, first response, and transport personnel must be integrated into clearly defined medical treatment protocols. These protocols must additionally indicate the critical interventions required to stabilize and improve time-sensitive patient illness or injury. EMS component and provider scopes of practice must be defined and continuously updated based on Continuous Quality Improvement process outcomes, evidence-based medical practices, accepted EMS standards of care, and operational utilization review to ensure proper clinical acumen and delivery. Clear medical treatment protocols, effective education, experiential-considered clinical staffing, and ongoing clinical knowledge and skills examinations form the foundation necessary to meet patient care demands while preventing worrisome degradation in provider critical thinking and psychomotor skills.

Mental and physical fatigue among EMS professionals commonly occurs without careful system staffing design. Patients and these professionals alike deserve care delivery with clarity of thought and mechanisms to avoid physical injury. There are distinct provider fatigue tendencies between first response and transport. First response by system definition is limited in patient contact time to promote reliable availability within short response zones. Transport by system design involves prolonged patient contact throughout delivery to appropriate healthcare venues and subsequent oral and written reports of care delivered by the EMS system. Additionally, ambulances have higher unit hour utilizations, thereby conferring faster fatigue onset. While first response duties will most likely continue to be provided by 24-hour shift personnel, transport duties are safely provided when shifts are limited to a maximum of 12 hours, preferably less.

Core Issues

- 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.

- 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.
• Medical treatment protocols are developed focusing upon meeting patient care needs, with complimentary support in continuing education, equipment and medication specification, and professional development.

• EMS personnel shift scheduling must promote continuous patient safety, optimal clinical care, and appreciable workforce beneficence. Shift lengths must closely correlate with clinical duty expectations and system demands to minimize provider fatigue.

Operational Plan

• Medical treatment protocols will be continuously reviewed for appropriate revision based upon ongoing release of evidence-based medical literature and CQI findings as well as changes in prevailing EMS standards of care. The Medical Control Board encourages the Office of the Medical Director staff to involve stakeholders from OCFD and EMSA in the protocol research and development process to ensure that patients receive the appropriate care at the appropriate time by the appropriate EMS professional, using the appropriate medical equipment and medications.

• Medical treatment protocols and related continuing education will promote seamless patient care provided by “one team” responding to the patient’s call for medical help. Each EMS professional will be encouraged to focus upon the critical interventions he or she is tasked with providing while recognizing how his or her interventions contribute toward the patient’s overall care supplied by this EMS system. CQI programs will include evaluating communications, first response, and transport personnel protocol compliance.

• Medical treatment protocols will prioritize critical interventions for time-sensitive conditions identified in evidence-based medical literature. Current protocol revisions are focused upon formatting protocols utilizing the Office of the Medical Director’s “Expanded Chains of Survival” document, initially developed in early 2007, and the U.S. Major Metropolitan EMS Medical Directors (The “Eagles”) document regarding EMS clinical benchmarks, published in the April-June 2008 issue of Prehospital Emergency Care.

• Maintain present shift scheduling in the interim. OIDEM faculty will prepare a report on provider experience and provider fatigue impacts upon critical thinking and skills performance in patient care as well as provider well-being and safety utilizing evidence-based medicine and consensus reports from critical function organizations. In applying these findings to shift length specifications for this system, the distinctive missions of first response and transport components must be factored. Differentials in shift lengths may occur based upon patient volumes, durations of patient care, provider experiences, and provider roles/expectations.
9. This EMS system recognizes and respects each contracted community’s desire for high quality emergency medical services delivered in 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.

EMS system performance outcomes demonstrate the importance of utilizing an evidence-based medicine approach and analyzing clinical and operational data to foster high quality, cost-effective patient care. While the ultimate goal of our EMS system is to provide clinically effective care, this goal can only be realized long term in a financially sustainable infrastructure.

To be clear, leaders in this EMS system do not place clinical care subservient to a “lowest bid” mentality. Rather, knowing the value contracted communities place upon quality EMS care and recognizing today’s economic realities, leaders in this EMS system promote cost-efficiency by orienting EMS personnel to value present resources, using these resources carefully and efficiently. In sum, this EMS system’s leadership values fiduciary responsibility just as they value excellent patient care, effective operations, and personnel beneficence.

In 2005, the Medical Control Board requested a pilot program to use EMT-Intermediates for Advanced Life Support First Response in selected communities of the EMSA Regulated Service Area. The impetus behind this program is an ongoing evidence-based analysis of cost effective, medically appropriate EMS care. The Sands Springs Fire Department is successfully integrating an expanded scope of practice for EMT-Intermediate first responders, evidenced by accurate patient assessments and successful psychomotor skills performance. This model may serve other communities well in an era of declining health care reimbursement.

Core Issues

- 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.

- Operational fiscal accountability is important within the system, particularly when impacting multiple agencies.

- 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.
• 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.

• EMS readiness costs must be appreciated, supported, and funded by the entire beneficiary population. This is an era of ever-present complex terrorism threats. Unfortunately, Oklahoma City has already been the site of terrorism casualties in the tragic bombing of the Alfred P. Murrah Federal Building that occurred on April 19, 1995. Accidental and natural disaster preparation is equally important, particularly in Oklahoma City’s severe weather-prone location. Meeting high public expectations in times of both unpredictable and preplanned disasters involves considerable staffing, training, and equipment costs.

**Operational Plans**

• Office of the Medical Director staff, in cooperation with OCFD and EMSA EMS educational staff and OIDEM faculty, will continually evaluate the medical treatment protocols for evidence-based critical patient interventions with a focus upon designating the appropriate scope of practice (example: EMT-Basic) for each of these interventions. System staffing must enable appropriate, timely delivery of these critical interventions.

• Evaluate expanded EMT-Intermediate first response scope of practice for further implementation in Oklahoma City metropolitan first response agencies. Successful practices in progress in Sand Springs should serve as a model implementation guide.

• Establish a taskforce composed of leaders from Oklahoma City Government, OCFD, EMSA, and OMD to identify feasible mechanisms for funding readiness costs. Attention should be placed upon cost sharing amongst the entire beneficiary population.

• Study present EMS system duplication of services, identifying either cost elimination methods or expanded service abilities without attendant increase in cost. Identify reasonable EMS system service area expansions that may prove service, cost, and revenue attractive for all involved communities.

• Paramedic staffing in OCFD and EMSA and its impact upon this EMS system’s clinical performance, CQI outcomes, educational needs, and operational costs will be analyzed and reported at least annually to the EMSA Board of Trustees, OCFD Fire Chief, the Medical Control Board, and Oklahoma City’s City Council.
A cost analysis taskforce will be formed with appropriate representation from EMSA, OCFD, OMD, and the City of Oklahoma City to establish a format for cost impact accounting, particularly for those operations impacting multiple agencies.
10. Medical care provided by the EMS professionals in this system constitutes a delegated practice of medicine. The Medical Control Board and Office of the Medical Director physicians must be experienced and specialty board certified. These physicians commit to providing objective and independent medical oversight, without regard to self-interests and political pressures.

The Medical Control Board (MCB) provides invaluable insight, counsel, and direction in establishing this EMS system’s Standards of Care. The Standards of Care are utilized by first response and transport personnel, as well as the Office of the Medical Director staff, and ensured through educational, operational, and evaluative responsibilities of the OMD.

The MCB’s active participation in the EMS system enables the emergency physicians providing care at the Regulated Service Area’s busiest emergency departments to be appropriately represented in determining the EMS care received by patients destined for these emergency departments.

The MCB physicians contribute hundreds of volunteer hours to this EMS system. The MCB as a body is given its responsibility and authority through Trust Indentures and Interlocal Agreements by the beneficiary cities it serves and the Oklahoma State Department of Health Rules and Regulations.

The June 2006 Institute of Medicine’s “EMS at the Crossroads” report clearly identifies how EMS systems benefit from qualified physician oversight. Active, committed medical oversight physicians directly ensure quality care and patient safety. The IOM report specifically empowered EMS medical oversight physicians by the following:

“Medical directors should have authority over all clinical and patient care aspects of the EMS system or service, with the specific job description dictated by local needs. EMS leaders and policy makers should use evidence-based decision-making based on a strong scientific methodology.”

The MCB physicians believe this EMS system must build on the success of the current system configuration of uniquely identifiable first response and transport components. OCFD and EMSA personnel have compiled nationwide enviable success. Continued commitment, supported by the MCB physicians, will be essential in meeting Oklahoma City’s future EMS needs.
Core Issues

- EMS medical care delivered by EMTs and paramedics constitutes a delegated practice of medicine in the out-of-hospital arena.

- System EMTs and paramedics function as extenders under the EMS Medical Director(s) license(s).

- MCB physicians provide counsel, advice, and direction to the EMS Medical Director(s) 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.

- The Office of the Medical Director provides skilled personnel with clinical experience and expertise to medically administrate the system on a daily basis under the auspices of the MCB.

Operational Plan

- Maintain independent and objective medical oversight utilizing the MCB.

- Create formal relationships enabling the Oklahoma Institute for Disaster and Emergency Medicine to employ the system EMS Medical Director(s) approved by the Medical Control Board.

- The MCB and Office of the Medical Director will continue to oversee analysis of clinical data from the electronic patient record for purposes of continuous care improvement, research, and publication.

- Proposed clinical changes affecting patient care and outcomes and/or system design will be reviewed and receive input from the MCB. MCB recommendations will be made to the EMSA Board of Trustees, the City Manager of Oklahoma City, and the City Council of Oklahoma City for their consideration.
11. Response time standards factor the patient’s perceived condition. Response time standards are appropriate for both first response and transport agencies. Strict compliance within response time standards is expected.

Evidence-based medicine has identified a number of time-sensitive patient conditions dependent upon timely EMS system response and care. Examples of such life-threatening conditions include cardiopulmonary arrest (sudden death), acute myocardial infarction (heart attack), acute cerebrovascular accident (stroke), and multi-systems trauma. This EMS system has long-established response time standards applicable to the transport component. Recognizing the importance of first response component care, response time standards should be promulgated and measured in these organizations as well.

Core Issues

- 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.
Operational Plan

- A response time data and standards workgroup, representing EMSA, OCFD, and OMD, will establish shared response data definitions and work to measure the response interval from “911” call to patient contact. Response time standards will be reviewed, utilizing evidence-based medicine and operations.

- This workgroup will also review current EMSA response time performance and accountability standards, with a goal of applying a similar model for OCFD. Response time performance for all organizations will be reported in monthly CQI reports using an agreed standardized fractile format.

- This workgroup will additionally study impacts (clinical, operational, and financial) of increasing response times allowable for perceived lesser acuity patients.
Electronic patient records must be utilized by both first response and transport to allow for integrated and seamless patient care documentation. This system is maximally effective for continuous patient care improvement activities, allowing for 100% critical care event compliance review.

An electronic patient record allows for a legible medical record which can be rapidly downloaded upon arrival for contemporaneous use with emergency department care of the patient. Additionally, the record currently utilized by EMSA encourages complete documentation as the software is formatted with this system’s medical treatment protocols.

The Institute for Healthcare Improvement has identified one-time data entry to a shared electronic patient record as one of the keys to improving patient safety in the health care system. It is essential that first response and transport components in this EMS system contribute to a common electronic patient record to minimize discrepancies, allow for 100% case review for protocol compliance, allow for procedural success rate analysis, and allow for clinical research.

Minimizing discrepancies in the patient care record is a proven risk management practice. Accurate documentation of EMT and paramedic patient assessment, patient care, and the patient’s response to this care is a powerful defense basis to frivolous claims of mistreatment. More importantly, however, is the key role this accurate documentation plays in the patient’s emergency department care. Unconscious patients obviously cannot convey details of their care prior to hospital arrival. Likewise, many patients with acute illness or injury and many of those with extensive chronic medical illness are unable to fully inform the emergency department care team of all the important details in their EMS care. If the emergency nurses and physicians fail to recognize the important details in their patient’s EMS care, omissions in needed further care may result.

100% case review for protocol compliance is crucial for early identification and intervention of knowledge deficit(s). 100% case review for procedural success/failure rates is essential for early identification and intervention of skill degradation. The Office of the Medical Director has already developed focused, relevant questions for each chief complaint. These questions stimulate EMTs and paramedics to gather and record this important information, allowing tracking of protocol and procedure compliance on systemic and individual levels.

Clinical research findings are common stimuli for enhancements in patient care capabilities. All patient care data captured by the electronic records system is available in a database for clinical research. The collaboration of this EMS system with the Oklahoma Institute for Disaster and Emergency Medicine enriches the spectrum of conceivable EMS-based clinical research in the coming years.
Core Issues

- Electronic patient records enables 100% case review allowing rapid and comprehensive evaluation of clinical patterns. This capability improves medical treatment protocol compliance and design.

- Electronic patient records allow the EMS system to compile a patient care database for needed clinical research.

- 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.

Operational Plan

- A workgroup with representatives from EMSA, OCFD, and information technology from both organizations will work to establish an effective interface so that OCFD’s electronic patient record and EMSA’s electronic patient record can transmit information to create a single “EMS system patient record”. Any interface must allow for 100% case review and enable a database conducive to clinical research and compliant with appropriate regulatory oversight.
13. Disaster preparedness and response constitute essential roles of this EMS system. Effective preparedness for and response to disaster-related emergency medical needs are dependent upon concise, task-oriented multiple casualty response procedures, routinely scheduled realistic multiple casualty training, funding appropriate protective and medical equipment, and achieving region-wide governmental operational support.

Worldwide, a major disaster occurs almost daily. Metropolitan Oklahoma City has unfortunately been the site for a number of these disasters, both intentional and natural. From the 1995 Alfred P. Murrah Federal Building bombing, claiming 168 lives and injuring over 800 persons, to the 1999 Moore area tornado, redefining the Fujita scale and becoming the world’s deadliest F5 tornado since 1971, Oklahoma City is a frequent reference in the study of medical needs arising from disaster. Fortunately, it has also shown the world how a progressive EMS system can help to minimize medical devastation from these destructive forces.

This present-day EMS system’s ability to maintain and advance its multiple casualty response capabilities is directly dependent upon several achievements: 1) refining and promoting medical response plans addressing the evolving challenges presented by natural disasters, both near (e.g. tornadoes) and far (e.g. regional response to hurricanes), as well as increasing threats of terrorism, both explosive and via weapons of mass destruction; 2) conducting realistic training exercises to prepare individual EMS professionals for mass casualty care as well as to assess EMS system readiness; 3) funding personal protective equipment to ensure the safety of EMS professionals responding to and resolving disaster-initiated casualties; 4) funding medical equipment needs specific to efficiently treating mass numbers of injury and/or illness; and 5) forming regional response plans fully supported by all participating governmental entities; 6) utilizing the resources of instrumental supporting organizations such as the Metropolitan Medical Response System (MMRS), Medical Emergency Response Center (MERC), Oklahoma Medical Reserve Corps (MRC), local and/or state health departments; and 7) integrating EMS response to disaster with hospital-based disaster preparedness and response.

Core Issues

- 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.

- 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.
• 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.

• 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.

• 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.

• Effective EMS response to disaster is dependent upon effective hospital response to disaster. This EMS system’s leaders and its disaster preparedness experts will work with appropriate hospital-based personnel to promote an effective emergency medical response to disaster, specifically including efficient EMS-emergency department transitions of patient care.

Operational Plan

• Appropriate representatives from EMSA, MERC, MMRS, Region 8 Regional Medical Response System (RMRS), OCFD, Oklahoma Emergency Management Agency (OEM), OIDEM, and OMD will review current multiple casualty incident and other disaster-related standard operating guidelines/protocols with the following goals: 1) assuring National Incident Management System (NIMS) and National Response Framework (NRF) compliance; 2) assuring compatible, and preferably common, operational plans and objectives; 3) assisting front-line personnel to carry out key operations through easy to utilize tools (e.g. personal protective indexes, task cards, patient tracking methods); 4) ability to incorporate supporting organizations into this system’s response plans (e.g. Oklahoma MRC volunteers); and 5) assuring compatibility and integration with county, state, and federal multiple casualty/disaster response plans.
• Educational professionals from EMSA, MERC, MMRS, Region 8 RMRS, OCFD, OEM, OIDEM, and OMD will review current multiple casualty incident and other disaster-related training curricula with a goal for developing multi-agency MCI/disaster drills and supportive classroom training (e.g. National Disaster Life Support courses). The combined curriculum should afford any EMS professional in the system routine opportunities to train using MCI/disaster-specific operations.

• This EMS system’s disaster and safety experts will work together in acquiring necessary personal protective equipment for all at-risk system EMS professionals.

• Appropriate representatives from EMSA, MERC, MMRS, Region 8 RMRS, OCFD, OEM, OIDEM, and OMD will work together to identify appropriate home/self care planning, alternative transport destination options, and other massive casualty (e.g. pandemic) pre-planning needs able to be utilized in times of disaster operations.

• Appropriate system leaders from EMSA, OCFD, and the City of Oklahoma City will review current mutual aid agreements with a goal to promote appropriate assistance from EMS and other public safety related agencies outside the Regulated Service Area in times of disaster medical needs. In reciprocal agreements, EMSA, OCFD, and City of Oklahoma City must ensure its primary capabilities remain dedicated to the Regulated Service Area in times of regional disaster medical needs.
14. **EMS strategic planning best enables optimal EMS system design and performance when conducted continuously.**

The dynamic nature of the EMS practice of medicine and in fulfilling its myriad roles in promoting a community’s standard of health translates to the need for continuous patient outcome-oriented strategic planning. Static advancements in patient beneficence may quickly fade if this EMS system’s leaders do not continue their cooperative planning. This Strategic Based EMS Blueprint for OKC has already proven the success potential realized with dedicated efforts from key leaders from the City of Oklahoma City, EMSA, OCFD, OIDEM, and OMD.

**Core Issues**

- 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 system design and function. While medical care specifications are the purview of the EMS Medical Director(s) and the Medical Control Board, 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 EMSA, OCFD, and OMD personnel, supported by institutions such as OIDEM 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.

**Operational Plan**

- Current OKC EMS Strategic Planning Steering Committee members (or their designees), representing EMSA, OCFD, OMD, OIDEM, and City of Oklahoma City will continue to meet routinely to maintain effective continuous strategic planning for this EMS system as well as oversee and approve taskforce assignments and recommendations stemming from this version of the “Strategic-Based Emergency Medical Services Blueprint for Oklahoma City.” These strategic planning meetings will occur at least quarterly.
Appendix A

Standard of Care Change Process

Step 1. Submit a “Standard of Care Suggestion.” A “Standard of Care Suggestion” shall first be submitted to the Medical Director. The form employed for this purpose shall include, at a minimum, the following information:

a) name(s) and position(s) of person(s) initiating the suggestion;
b) a description of the current standard or practice, and the change being suggested;
c) potential advantages of the change;
d) type of change (e.g., change to “input standards,” “performance standards,” or both);
e) origin of suggestion (e.g., recently published research, personal experience, local medical audit, experience of other system, etc.);
f) listing of other EMS systems currently using the suggested standard (with contact names, if available);
g) objections likely to be raised in regard to this suggestion.

Step 2. Medical Director’s Preliminary Review. Once a suggestion has been received by the Medical Director, and expanded or clarified by its originator if requested, the Medical Director shall decide whether the concept has sufficient merit to warrant further consideration. If further consideration is justified, in the sole opinion of the Medical Director, the process shall continue to Step 3. Otherwise, the suggestion and the reason for its rejection shall be documented and filed for reference, and copies sent to the person(s) initiating the suggestion and to all members of the Medical Control Board.

Step 3. Comments Obtained. Unless this process is terminated by the Medical Director pursuant to Step 2, above, preliminary comments and suggestions regarding the suggestion shall then be solicited in writing by the Medical Director as follows: Copies of the “Standard of Care Suggestion” form, along with the preliminary comments of the Medical Director shall be sent for posting to all first responder agencies, ambulance service providers, emergency communications centers, on-line medical control physicians working within the EMS System, and to the individual members of each Chapter of the EPF. Thirty days shall be allowed for submission of written comments by interested persons.

Step 4. Review and Comment by the Standards Committee. After the comments obtained during Step 3 of the process have been received and compiled, the matter shall be presented to the “Standards Committee”, for review and comment. The “Standards Committee” shall consist of persons particularly interested in clinical issues, appointed by and serving at the pleasure of the Medical Director--e.g., paramedics, managers, persons involved in the quality control and in-service training programs, physicians and nurses. All related
documentation shall be provided to Standards Committee members at least 30 days in advance of its scheduled review meeting, and the originator(s) of the suggestion shall be invited to present the suggestion to the Standards Committee in person. Before rendering a recommendation, the Standards Committee may determine that additional information is needed before a recommendation can be responsibly made. If the Medical Director agrees, additional information shall be obtained, such as: a more extensive review of the literature; inquiries regarding the use of the proposed standard in other EMS systems (by telephone, in writing, or by site-visit observation); demonstration by a product manufacturer; or direct examination of a purchased sample product. Taking into consideration the Standards Committee’s findings, the Medical Director shall then decide whether the process shall be terminated or continued to Step 5, below.

**Step 5. Financial Impact Statement.** If the Medical Director finds that the suggestion merits further consideration, the suggestion shall be submitted to the Executive Director of EMSA, who shall compile a “Financial Impact Statement” estimating the marginal costs (both initial and on-going) of implementing the proposed policy change. Every provider organization whose financial obligations would be affected by the proposed policy change shall be contacted by EMSA and asked to supply a financial impact estimate (with supporting documentation and rationale). In addition to cost estimates, the “Financial Impact Statement” shall also include a summary of the short-term and long-term impact of the proposed policy change upon ambulance rates and/or subsidy requirements, and the Executive Director’s official comments regarding economic aspects of the proposed change.

**Step 6. Presentation to the Medical Control Board.** When the previous five steps have been completed, and the exact language of the proposed amendment to the System Standard of Care has been developed, the suggestion shall be presented to the Medical Control Board. Following the Medical Director’s presentation of the suggested changes, EMSA’s Executive Director shall present the Financial Impact Statement”, and all related documentation, to all provider organizations described above in Step 5, and to the Medical Control Board members at least 30 days in advance of the scheduled meeting at which any decision may be made. Unless additional information is required by the Medical Control Board before voting on the matter, the Medical Control Board shall then vote to determine whether the proposed policy change shall be adopted or rejected. The policy change may be adopted for general implementation (i.e., systemwide), or on a pilot-project basis (i.e, a short-term test limited to selected personnel). If the policy change is adopted on a pilot-project basis, upon completion of the pilot project, the results shall be reviewed by the Standards Committee and by the Medical Control Board prior to deciding upon general implementation.
Step 7. **Joint Approval by Medical Control Board and EMSA.** In cases where implementation of such a change would, in the opinion of EMSA’s Executive Director, necessitate substantial unplanned expenditures by ambulance service providers, or an increase in local tax subsidies to first responder agencies, such change shall be subject to joint approval by the Medical Control Board and the EMSA Board of Trustees prior to implementation.

Step 8. **Amendment.** The amendment to the System Standard of Care shall be submitted for final determination to the governing bodies of EMSA’s Beneficiary Jurisdictions (i.e., Tulsa and Oklahoma City), and the proposed amendment shall be rejected unless approved by resolution of both such governing bodies.

Step 9. **Filing with Non-Beneficiary Member Jurisdictions.** Approved changes to the System Standard of Care shall be submitted for receipt and filing with the clerk of each Non-Beneficiary Member Jurisdiction of this Agreement.

D. **Waiver of System Standard of Care Change Process Due to an Emergency.**

1. “Emergency” as used in this section shall be limited to conditions resulting from a sudden unexpected happening or unforeseen occurrence or condition and situation wherein the public health, safety, or welfare is endangered.

2. The provisions of this section with reference to changes in the System Standard of Care (C, above) shall not apply whenever the Medical Director recommends to the EMSA Board of Trustees and the EMSA Board of Trustees declares by a two-thirds (2/3) vote of all of its members that an emergency exists. The Medical Director shall then proceed to investigate and prepare a recommendation for the EMSA Board of Trustees to supplement and amend the changes in the System Standard of Care due to the emergency.

3. This emergency amendment to the System Standard of Care shall be subject to ratification by the governing bodies of the Beneficiary Member Jurisdictions and shall be filed as provided in Step 9.