

EMD Position Paper Resource Document

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BACKGROUND

As a premier body of EMS professionals, The National Association of EMS Physicians (NAEMSP) appoints, through its Standards and Practice (S & P) Committee, interested members who are experts, or want to develop expertise in related aspects of EMS. These members are designated to develop position statements on EMS topics of interest to them and of importance to the field. These draft position statements are then critiqued by the members of the S & P Committee, and alterations made in response to concerns and subsequent recommendations of the Committee members. The chair of the S & P Committee then approves the draft for scrutiny and judgment by the Board of Directors (BOD). The version that is approved by the BOD for publication is the official position statement of the organization, and is its intellectual property.

The members who have developed and amended the NAEMSP position statement that met NAEMSP BOD final approval are invited to author a detailed supporting document that expounds on the position statement. The NAEMSP “Emergency Medical Dispatch” Position Statement was first approved in 1989 and published in *Prehospital Disaster Medicine*; Vol. 4(2): 163-166. It was the first published position statement that was approved by NAEMSP. The second and most recent position statement was approved and published in 2007, under new rules separating the position statement from the companion supporting document.

The following “Resource Document for the EMD Position Paper” both reviews and updates previously presented concepts, as well as introduces new developments in the field of emergency medical dispatch. It has been approved by both the S & P Committee and the BOD of NAEMSP. It also has the endorsement of the International Academy of Emergency Dispatch Board of Trustees. This document provides EMS and EMD rationale that supports the positions and the published literature that, in turn, supports these views. Its organization follows the topical sequence in the most recent position statement.

RESOURCE DOCUMENT FOR THE EMD POSITION PAPER

Introduction

Emergency medical dispatch is, sequentially, the first-activated professional link in the vital chain of survival for cardiac arrest^{1,2}. The appropriateness of training, protocols, policies, quality management, and medical oversight of emergency medical dispatchers (EMDs), reflects the quality of the EMS system, of which dispatch is an integral component. EMDs provide pre-arrival instructions to callers for patient care through scripted protocols. They triage emergency medical calls by level of medical acuity, and they manage their jurisdictions’ EMS response resources efficiently to provide each patient with the most appropriate level of care possible.

With respect to these systems, professional medical service to a patient begins when the telephone is answered in the public safety answering point (PSAP) in response to requests for unscheduled medical assistance. It is at this point, prior to the scene arrival of EMS personnel, that the first opportunity exists to provide medical care. Thus, involvement of a medical director in emergency medical dis-

patch programs is crucial to ensure that the questions asked of callers and the information given to them are both appropriate to the out-of-hospital setting and reflective of the highest standards of medical practice available in each community served by EMS. The following resource document supports the NAEMSP position statement, “Emergency Medical Dispatch.”

Discussion

It was once stated that “EMD is the jewel upon which the watch movement of EMS turns”. EMDs can provide expert evaluation, care, and direction before any responding professionals can physically reach and assess the scene and its patients. They have played a vital role in the ability of the EMS system to respond to perceived medical emergencies since at least 1975³. In the majority of cases, the information obtained by them to accomplish this occurs through telephone communications with a caller who is distressed occasionally, and almost always undirected⁴. EMDs must have skills that allow them to discover, then match the caller’s needs with the appropriate personnel and equipment designated to address the perceived emergency^{5,6}. To accomplish this, they must be able to discern the nature and the urgency of the illness(es) and/or injury(ies) in a manner that allows selection of the most appropriate response configuration and mode^{6,7}.

Furthermore, studies indicate that EMDs play a crucial role in providing emergency care by giving pre-arrival instructions that lead a caller to initiate appropriate first aid treatment and life support for a victim prior to the arrival of any EMS personnel^{8,9}. The capable EMD, thereby, provides “first, first responder” care through the surrogate caller. Use of these pre-arrival instruction skills potentially preserves patients’ lives, prevents further injuries to patient(s), provides direct safety advice to the caller and bystanders, guides the arrival and on-scene behavior of responders that preserves their safety, and even assists in childbirth.

Position Statement 1: Tested knowledge and demonstrated skills in the area of basic telecommunications should be requisite for all emergency telecommunicators. Further training to the level of emergency medical dispatcher should be required for all personnel who receive calls for medical assistance and/or dispatch those resources. Governments should approve statutes or regulations that require EMDs to be certified/licensed in accordance with nationally accepted standards for emergency medical dispatch.

Certain skills should be requisite for all public safety communicators. Basic telecommunication skills include the theory and operation of complex communication equipment, troubleshooting of the same, and basic radio and telephone communication skills. The training and certification of EMDs should be built upon this foundation, which is generic for acceptable performance in the role of medical, fire, law enforcement, air medical, military, or park service dispatcher, or any combination thereof.

EMDs need knowledge and skills that are specifically designed to address medical issues in a telecommunications environment¹⁰. Instruction should include specific medical information, expressible in lay terminology, that is sufficient to acquire a medical history appropriate to the dispatch environment¹¹. This training should also impart specific knowledge regarding the particular characteristics of a given emergency medical communication center’s dispatch protocol and program that affects the execution of the most appropriate scene response decisions, advice, treatments, and responses¹¹. Without this special training to transform public safety communication personnel into skilled professional EMDs, there is risk of dispatching inadequate personnel and equipment to major problems while mobilizing unnecessary system resources for minor problems^{2,6,7,10,12,14}. The latter circumstance may result in depriving others in need of such inappropriately committed services, while the former places patients, the general public, and emergency responders at risk.

The ability to interact with anxious, uncooperative, and, at times, distracted callers rests on the ability of dispatchers to anticipate the actions of the undirected caller, assist the caller in regaining self-control, and then converting the caller into a calmer, more effective first responder^{4,15}. Each of these steps is essential to performing prescribed duties and contributes to the substantial responsibilities delegated to EMDs. Detailed, targeted, medical dispatch-specific training is required to develop these unique skills, and no more clarifying example of this concept’s importance exists than that of dispatcher intervention in cardiac arrest¹³. The ultimate goal is to master the skill of applying the correct, compliant, confident use of formal emergency medical dispatch protocols.

EMDs need knowledge and skills that are specifically designed to address medical issues in a telecommunications environment. It follows that a curriculum for their training differs substantially from that used in the training of EMTs or paramedics¹¹. Training as an EMT or paramedic does not adequately prepare a person for the role of an EMDs. Much of the required emergency medical dispatch curriculum cannot be found in standard EMS training curricula. Because the environment, content, and emphasis differs significantly from that used for the training of all other health professionals, and even other public safety dispatchers, instructor requirements should include training and certification as EMDs, subsequent dispatch-related experience, and a minimum of advanced life support (ALS) training and EMS experience in the field, since the emergency medical dispatch instructor is responsible for teaching core course materials, and explaining to students their medical practice basis, of which at least some are dispatch priorities of an expertise-sensitive, ALS-level medical nature¹¹. An instructor requirement of EMS experience in the field at the advanced life support level is thought to be invaluable for the correlation of emergency medical responder safety and critical care rendered in the field to the medical dispatch

knowledge upon which crucial decisions transmitted to responders and instructions to callers are based¹¹. All instructors, after successfully completing a recognized emergency medical dispatch course, should complete an instructor course prior to assuming this teaching role¹¹. They should be expected to be responsible for conducting initial certification training to the level of EMD, continuing dispatch education, and periodic recertifications that should be required of all dispatchers functioning in medical dispatch agencies in order to stay abreast of relevant medical practice developments¹⁶.

Recognition of the important role of EMDs in the delivery of prehospital EMS by responsible governmental agencies, and by the public in general, is important for the public's health and protection^{11,17}. Without such recognition, and its enactment in the form of licensure⁷ or certification, it is unlikely that the crucial training of these professionals will be mandated. An increasing number of states, regions, counties, and municipalities certify, or at least, require both standard training of EMDs and their formal use of structured protocols¹⁸. Minimum standards have been developed and promulgated for the selection, training, certification, and/or licensure of all public safety telecommunicators, and specifically, EMDs^{19,20}.

Position Statement 2: The use of formal, medically approved emergency medical dispatch protocols should be required for the practice of emergency medical dispatching. In all EMS systems, prioritization of calls to be dispatched should be an essential element.

Since emergency medical dispatching responds largely to the emergency needs of particular jurisdictional populations that contain, to variable degrees, a mobile, national, transient subpopulation, the policies, procedures, and protocols utilized by trained EMDs should be structured and standardized, based upon national standards, both in response to a national public's expectations, as well as for the public's optimal safety and health, and the integrity of the system that protects it^{10,16}. While the resources dispatched vary according to the type and level of medical care possible to provide by specific local EMS systems serving unique communities and coverage commitments, the histories of symptoms and signs that EMDs obtain by telephone and the on-line medical care rendered by them can and should conform to national standards for equitable care across the country's communities¹⁰.

EMDs' use of standardized, structured protocols is as crucial as for any medical practitioners who are required to operate at maximal efficiency in a time-restricted environment²¹. Similar to a pilot's use of a pre-flight checklist, use of standardized, structured protocols are meant to assure the attainment of all clinical, operational, and safety objectives on-scene that are required in an unregulated, time-sensitive environment characterized by enormous case variation. Protocols reduce practice variations that can be introduced otherwise by individual dispatchers, work shifts, and 9-1-1

centers^{1,22}. By the unique nature of the 9-1-1 environment, omissions and errors born of arbitrary decisions made on dispatch prioritization may have dire consequences^{23,24,25}. Haphazard dispatch decisions by dispatchers have been shown to place victims of serious illness or injury at unnecessary risk and have resulted in significant liability to systems lacking the protocols, procedures, and policies essential to prioritizing calls^{22,24,25,26,27}. With the use of unified, standard protocols, dispatchers' conduct will be less vulnerable to charges of careless or reckless judgment^{23,24,25,27,28}.

The content of these protocols must be reviewed by expertly staffed standards groups that contain public safety and health experts and physicians with medical dispatch expertise. Local and untested modification of protocols should be discouraged, as the complexity of such protocols is often significantly underestimated²⁹. Compliance to these protocols should be enforced according to emergency medical dispatch operations and quality assurance policies²⁹.

The appropriate prioritization of the type, number, and manner of response resources is essential in all EMS systems to reduce the number of responding vehicles traveling lights-and-siren, and therefore, the attendant risk of unnecessary emergency vehicle and "wake effect" crashes³⁰. Prioritization is meant to assure that emergency crews will not be committed inappropriately to emergency cases that are non-life-, brain-, heart-, or limb threatening, and that the right care will be sent in the right way, to the right patient, and at the right time. In order to prioritize calls properly, EMDs should be well versed in the dispatch-specific understanding of medical conditions and incident types facing them routinely. For it to function appropriately, the levels of call-prioritization must correspond to well-defined parameters of appropriate response, including the expertise level of personnel (ALS vs. BLS vs. first responder), response configuration (numbers and types of vehicles responding), and time sensitivity of the patient medical condition, which translates into mode of response (light-and-siren vs. routine)²⁷. The development of standardized responses based on these dispatch parameters for an agency or locality should be carefully thought out by dispatchers, their managers, supervisors, and medical director, and then ultimately, approved by the medical director^{10,31}. Mounting data regarding the issues of both time-to-dispatch and response times continue to suggest that "doing it right" is more important than "doing it fast," time-life critical emergencies excepted^{32,33,34}. Appropriate dispatch prioritization supports risk management and reduces legal liability in an arena in which human error and its dire consequences are clearly foreseeable^{22,24}.

Position Statement 3: The provision of pre-arrival instructions should be a mandatory function of every EMD in a center that interrogates callers and prioritizes medical calls. Pre-arrival instructions should take into account the dispatch-specific (i.e., non-pretrained caller, non-visual environment) circumstances of providing standard basic

life support and/or advanced life support procedures and care to callers, known as dispatch life support.

Since EMDs first demonstrated successful provision of pre-arrival instructions to callers attending victims of drowning and cardiopulmonary arrest in 1974, pre-arrival instructions studies have supported their value as a mandatory function of the EMD^{8, 9, 35}. Provision of such instructions is considered safe, and, it is an ethical imperative, where applicable. Telephone instructions are given to the caller, empowering him/her to treat the patient, protect both the patient(s) and the caller from further harm or injury, and to initiate life-impacting treatments by transforming undirected, helpless callers into calmer on-scene “rescuers”^{4, 11, 15}. While a second-party caller has the right to decline instructions on his or her own, the dispatcher’s role should always be to proactively offer pre-arrival instructions whenever possible and appropriate to the case. Attempting to obtain the caller’s permission to help is not necessary, may plant doubt in the caller, and wastes vital time³⁶. The lay public today has very high expectations of receiving pre-arrival instructions^{37, 38}. In essence, pre-arrival instructions remotely transform EMDs into the “first” first-responders who, through immediate action, can effectively eliminate the often-deadly time gaps that occur between receipt of a call for a life-threatening condition and the beginning of on-scene treatment by responding EMS personnel.

Dispatch life support (DLS) refers to the overall body and science of pre-arrival telephone instructions provided by trained EMDs functioning from standard, scripted, medically approved protocols^{1, 16, 39}. Training, including certification, and recertification processes, should include those portions of ALS and BLS appropriate to application by medical dispatchers. This maintains and continually upgrades these unique, and, at times, life-saving, non-visual skills^{10, 11}. To strengthen these skills, it is important for EMDs to understand the underlying philosophy of medical interrogation and the psychology associated with the provision of pre-arrival instructions^{11, 15, 27}. This knowledge and its associated skills result from appropriate teaching and training, direction, and management of EMDs^{16, 17}.

Position Statement 4: The “medical service” in EMS begins when a public call is received at a public safety answering point or other agency that provides prehospital emergency care in response to requests for unscheduled medical assistance. All centers servicing requests for medical assistance should have medical oversight by a physician medical director, with knowledge at least to the level of a certified EMD, who is responsible for all medical aspects of the EMD program by which these calls are processed.

The quality of all the medical care delivered by any EMS system is the ultimate responsibility of the medical director(s) of that system^{1, 10, 16, 17}. Therefore, all of the policies and procedures regarding medical care rendered from the emergency medical dispatch center are the responsi-

bility of the EMS medical director and hence, must be approved by the medical director of the system and/or the designated dispatch center medical director. Key to the medical director’s role in the management of medical dispatch function is his or her understanding of the concepts of emergency medical dispatch and its physical operation, accountability for the protocols, policies, and procedures relevant to emergency medical dispatch activities, and the quality management process that monitors and improves them^{7, 10, 16}. In terms of the practice of these responsibilities, as the newly board-certified specialty of EMS and its component emergency medical dispatch medical direction matures, a commensurate maturing level of accountability will be expected of the medical director by other EMS professionals as well as those patients cared for through emergency medical dispatch. This credibility can be achieved by acquiring knowledge and skills, at least to the level of certified EMD, for all physicians providing medical oversight. One pathway through which to accomplish this is for physicians responsible for medical dispatch oversight to take a complete, recognized EMD certification course. In summary, the medical aspects of emergency medical dispatching and communications are an integral part of the responsibilities of the medical director of each EMS system and/or medical dispatch program medical director. Recent developments resulting from new challenges that are described in the following position statement sections (see Position Statements 6 and 7) have expanded these responsibilities.

Position Statement 5: Quality improvement and risk management activities should include oversight of calltaker compliance with protocols, including levels of protocol use reliability and consistency. These are essential for effective, safe, and risk-averse medical dispatch operations.

Quality assurance, risk management, and their medical oversight are essential elements for the acceptable performance of all medical dispatch centers and EMS systems^{6, 16, 34, 40}. Routine, data-based medical reviews of the performance of individual EMDs, as well as medical dispatch center shifts, and centers as a whole, coupled with performance feedback, produces constant improvement in protocol compliance^{41, 42}. Dispatch review committees constitute one method of providing quality assurance for emergency medical dispatch activities and the medical aspects of dispatch center operations. Such committees should be composed of prehospital EMS physicians, the physician responsible for the provision of dispatch medical oversight and quality improvement, dispatch supervisors, management personnel, field EMTs and/or paramedics, dispatchers, as well as other associated 9-1-1 and public safety personnel¹⁶. Every member should be familiar with all relevant aspects of EMS communications, most specifically, the medical dispatch process, and should be involved continuously with its function relative to medical care developments, 9-1-1 operations, and patient care²⁰.

Position Statement 6: EMD medical directors should participate in the design, operation, and data analysis of medical dispatch, data-based programs for community injury and disease surveillance, wherever these programs are possible to implement.

Emerging, naturally occurring, infectious diseases (i.e., SARS, West Nile fever, avian and swine flu) and those associated with biological terrorism (i.e., anthrax, smallpox, etc.) threaten EMS providers, as well as the general public, with the possibility that the former may unwittingly become vectors of these diseases, further endangering the latter. One of the earliest points, in both time and space, to detect such outbreaks occurs when victims call 9-1-1 for emergency medical care. While not possessing the clinical specificity of emergency department-based surveillance programs, dispatch protocol-based, interrogation-generated, medical data offer valuable and broad population coverage (“footprint”) geographically, through geographic information system (GIS) mapping, and temporally, through electronic syndromic incidence plotting⁴³. This advantage enhances the possibility of detecting symptom-delayed and population-defused events (both characteristics of bioterrorism) earlier than through traditional epidemiological investigation methods. This possibility has led to development of automated emergency medical dispatch protocol/computer aided dispatch (CAD)-based surveillance programs in coordination with jurisdictional public health departments^{44, 45, 46}.

Similarly, geographic distribution patterns of injury mechanisms, severity, and their frequencies have been mapped based on medical dispatch-generated CAD data⁴⁷. Discovery of high-frequency injury environments can lead to alteration in law enforcement and EMS geographic deployment as well as investigation of the risk factors involved, prompting injury prevention initiatives^{48, 49}. As a public health responsibility, medical dispatch program medical directors should participate in the design and implementation of emergency medical dispatch-based disease and injury surveillance programs, and are primarily responsible for the analysis of the resultant data. As an occupational health responsibility to EMS care providers, dispatch program medical directors should participate in the evolution of standards and implementation of protocols consisting of questions to callers that are targeted to discovering on-scene risks prior to providers’ arrival. The standards for such protocols should be maintained by national emergency medical dispatch standard-setting organizations with contributions and evaluations by medical dispatch industry experts and public health officials.

Position Statement 7: Investigation of the need for, and the safety and potential effectiveness of expanded service options as an alternative to dispatching resources to the scene in response to emergency medical calls, should be a medical director responsibility.

Increasing demands on limited EMS resources have stimulated the search for non-EMS, “on-line” referral services to better address the emergency medical caller’s specific healthcare needs, while achieving efficiencies for EMS by conserving ambulance expertise and resources for those callers whose EMD assessments show will most benefit from them^{49, 50, 51}. Examples of these professional services include medical examiner resources to respond to expected and obvious deaths, emergency mental health services to handle psychiatric/behavioral/suicide calls, rape crisis centers to address non-physically injured sexual abuse calls, poison control (toxicology) centers to address overdose/poisoning calls, and dispatch center-directed telephone advice nurse programs to address stable patients in need of primary care resources outside the EMS system^{50, 51}. In regard to such liaison programs, the dispatch program medical director must investigate their potential patient value and safety (protection features), develop the policies by which the liaison and interface to these programs will function, implement protocols, then monitor dispatcher compliance with them, and the quality of resultant service and outcomes⁵⁰.

Position Statement 8: Research designed to improve emergency medical dispatch should focus on the specific components of the process (e.g., interrogation questions, dispatch prioritization descriptors, post-dispatch instructions, pre-arrival instructions, and safety element advisories) and/or their relationships.

Research targeted on components of the emergency medical dispatch process will strengthen the overall emergency medical dispatch programs’ validity, and is expected to lead to improved patient outcomes⁵². Such research evaluations can then be correlated with patient outcomes and scene conditions, where possible, to safely and credibly improve system response⁵³. The predominance of emergency medical dispatch research has focused on the effectiveness of pre-arrival instructions in resuscitating cardiac arrest victims, although other research has focused specifically on identification of cardiac arrest by EMDs^{54, 55}. It has demonstrated that dispatch-assisted CPR instructions significantly increase bystander CPR rates⁵⁶. A majority of this research has been designed to measure the effectiveness of the traditional verbal-only instruction dimension, with plans to measure its effect on survival to hospital discharge⁵⁷. However, with the rapid development of telecommunications modalities into the video realm, one study has delineated the current deficiencies in audio-only dispatcher-assisted, non-scripted CPR instructions with plans for video integration and the possible need for subsequent enhancements to dispatcher training and protocols⁵⁸.

Research aimed at system efficiencies and service response effectiveness has been addressed. A 2005-2006 study based on London Ambulance Service data (1,137,873 calls over one year) concluded that response resource choices were both more accurate and consistent when based on protocol rather than on subjective experience-based determinations⁵⁹.

Research aimed at very specific aspects of dispatcher interrogation has resulted in significant improvements in protocol design⁵³. Another study based on London Ambulance Service data showed a significant improvement in the identification of cardiac arrests within the patient group of seizure calls that otherwise receive lower acuity codes⁶⁰.

On the other end of the patient acuity spectrum, another robust body of research has focused on dispatcher accuracy in identifying patient low acuity^{61, 62, 63}. Several critical issues challenging EMS have brought this subpopulation into research focus. From a population perspective, the low acuity patients present EMS with most of its demand for service. This presents a public health challenge of how to most safely and efficiently meet their needs, while preserving the EMS system resources, expertise, and timely responsiveness for patients at the high acuity end of the spectrum. Their need for access to primary care settings has already come into political focus nationally, and this focus will likely grow. Key to resolving this debate within EMS operations will be the accuracy in defining this population telephonically. The responsibility for that lays clearly within emergency medical dispatch. Defining this subpopulation accurately also affects the need for lights-and-siren responses and the risks therein³¹. The issue also brings into focus the response expertise issue (ALS vs. BLS), with its attendant economic implications for any given EMS service⁶⁷.

Research based on specific predictability aspects of dispatch clinical findings based on compliant protocol use⁶⁴ has the ability to confirm or modify individual aspects of dispatch protocol design^{65, 66, 67, 68}.

CONCLUSION

EMDs provide the important, first professional link in the overall EMS chain of care. In order to assure high quality professional performance in this key aspect of prehospital emergency medical care, the EMS medical director must provide commensurate high quality medical oversight for EMDs. This should be mandatory for the development of their training, the quality management of their performance, and the communication center's safe, effective patient care.

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