



Role of Emergency Medical Services in Disaster Response: Resource Document for the National Association of EMS Physicians Position Statement

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RESOURCES DOCUMENTS

ROLE OF EMERGENCY MEDICAL SERVICES IN DISASTER RESPONSE: RESOURCE DOCUMENT FOR THE NATIONAL ASSOCIATION OF EMS PHYSICIANS POSITION STATEMENT

Christina L. Catlett, MD, J. Lee Jenkins, MD, MSc, Michael G. Millin, MD, MPH

ABSTRACT

The National Association of EMS Physicians (NAEMSP) advocates for a strong emergency medical services (EMS) role in all phases of disaster management—preparedness, response, and recovery. Emergency medical services administrators and medical directors should play a leadership role in preparedness activities such as training and education, development of performance metrics, establishment of memoranda of understanding (MOUs), and planning for licensure and liability issues. During both the planning and response phases, EMS leadership should advocate for participation in unified command, modified scope of practice appropriate for providers and the event, and expanded roles in community and federal response efforts. To enhance recovery, EMS leadership should strongly advocate for national recognition for EMS efforts and further research into strategies that foster healthy coping techniques and resiliency in the EMS workforce. This resource document will outline the basis for the corresponding NAEMSP position statement on the role of

EMS in disaster management. **Key words:** EMS; disasters; response; preparedness

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INTRODUCTION

Since the development of emergency medical services (EMS) over 30 years ago, EMS professionals have a strong history of leadership in disaster management, including preparedness planning, coordinated communications, triage assessment, patient transport and care, resource management, and hazardous material response.^{1–5} As disaster management in the United States has grown to encompass multiagency response and coordination on the local, state, and federal levels, EMS continues to have an integral role in this process.

The National Association of EMS Physicians (NAEMSP) advocates for a stronger role of EMS in all of the phases of disaster management—preparedness, response, and recovery. Within a given geographic region, the local EMS medical director and administrator are well positioned to strengthen the function of EMS through participation and collaboration in all phases of management with other responding agencies and sectors in a community or region in crisis. This resource document outlines the basis of the corresponding NAEMSP position statement on the role of EMS in disaster management.⁶

EMERGENCY MEDICAL SERVICES ROLE IN DISASTER PREPAREDNESS

Preparedness activities enhance the ability of EMS to deliver care during an event and help mitigate the impact the event will have on a region. Strategies include adoption of an incident command system (ICS),¹ development of well-defined emergency operations plans (EOPs), prepositioned resources, stockpiling of supplies and equipment, and development of

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integrated and interoperable communications systems between EMS and hospitals, fire, law enforcement, public safety, and public health.⁴ Emergency medical services directors and administrators are vital to the entire cycle of preparedness efforts, an iterative process including design and/or enhancement of EOPs, training of providers, coordination of exercises and drills, and evaluation of response so that improvements can be made to existing protocols.⁷

Training and Education

Education and training are critical to preparedness, yet little research has been done to establish objectives and format for mass-casualty education for EMS personnel.⁸ In a 2007 study on disaster training for prehospital providers, 22% of respondents reported that they had had no training in the last year for mass-casualty events (MCEs), including chemical, biological, radiological, and nuclear (CBRN) events. An additional 19% reported only one to five hours of training in the preceding year in MCEs or CBRN.⁹ A study by Reilly et al.¹⁰ also demonstrated a persistent lack of adequate training in disaster and terrorism response for EMS providers. They state that “responder training . . . even at the basic CME [continuing medical education] level, has been shown to improve the EMS workers’ comfort in providing care when responding to disasters.” Comfort levels and skills retention increased with hands-on or simulation exercises.^{10,11}

The lack of standardized training and well-defined core competencies in disaster management makes it difficult to assess preparedness of the EMS community.⁹ Emergency medical services medical directors have been tasked with establishing and enhancing competency-based core curricula in emergency preparedness and response for EMS providers and ensuring that adequate training is implemented.¹²

Development of Performance Metrics

The development of evidence-based performance measures for disaster response is an important strategy that should be accomplished by EMS directors in the preparedness phase.¹³ Traditional EMS performance measures have focused on response times,^{14–18} appropriate patient selection for prehospital rapid-sequence intubation (RSI)¹⁹ and air versus ground transportation,²⁰ and out-of-hospital cardiac arrest survival.^{21,22} Newer efforts are expanding EMS benchmarks for various clinical entities encountered by EMS systems, such as ST-segment elevation myocardial infarction (STEMI),^{23–25} acute stroke,²⁶ pulmonary edema, asthma, and seizures.²⁷

Examples of disaster response-based metrics that are currently being studied include appropriateness of triage level, transportation to a hospital with suitable

treatment capability, and time-dependent mortality of victims.^{28–30} Development of metrics and measurable objectives for disaster response allows EMS leadership to quantify response effectiveness and reproduce best practices.³¹

Establishment of MOUs

Negotiating and establishing advance readiness contracts (e.g., memoranda of understanding [MOUs] or mutual aid agreements) is another important preparedness strategy where EMS directors can provide leadership. For example, the 2001 MOU between NAEMSP, the National Association of State EMS Directors (now the National Association of State EMS Officials [NASEMSO]), and the American Public Health Association (APHA) strengthened the role of EMS during critical events by calling for improved communication between EMS and public health, rapid distribution of “best practices,” cross-training and educational programs, and joint position papers.³² Such MOUs demonstrate the commitment of these organizations to enhancing collaboration and improving community health care during a major public health event.

Planning for Licensure and Liability Issues

During a disaster, EMS providers may find themselves responding outside their usual jurisdictional area through prearranged mutual aid agreements or through ad hoc requests for assistance from other local or state agencies. Emergency medical services administrators should be proactive in constructing agreements in the planning phase that address licensure and medical malpractice issues when EMS providers cross jurisdictional lines. One such agreement was authored by the Department of State Health Services (DSHS) in Texas in response to Hurricane Dean. It allowed EMS personnel from other states to provide nonambulance support services during the response, such as emergency medical care on evacuation buses for those with special needs, provision of field supervision of deployed EMS ambulances, and provision of regional EMS coordination.³³

Other worker protection and liability issues need to be addressed in the planning phase. The issue of workers’ compensation and occupational health coverage, especially when working out of state, needs to be clarified in the planning phase. Emergency medical services providers are on the front lines of response in a disaster and are at high risk for exposure and occupational injury^{34–36}; therefore, EMS leadership should advocate for the safety and protection of their personnel as first responders during a disaster. For example, EMS providers report a desire to learn methods to improve sleep during disasters with the goal to improve safety

and work conditions.³⁷ Other important safety measures include adequate and appropriate administrative procedures, personal protective equipment (PPE), and timely administration of immuno- or chemoprophylaxis, if needed.^{38,39}

EMERGENCY MEDICAL SERVICES ROLE IN DISASTER RESPONSE

Response activities generally fall into five categories: recognition of an event, notification, mobilization, response, and demobilization. Emergency medical services are vital during all phases of disaster response, with key roles including mass-casualty triage, on-scene treatment, communication, evacuation, coordination of patient transport, and patient tracking. In some jurisdictions, EMS personnel may also take leadership roles during disaster response and be a part of command staff or be an integral part of regional or national assets.

Participating in Unified Command Leadership

In its technical report on the 2007 I-35W bridge collapse in Minneapolis, the U.S. Fire Administration states, "an EMS official should have been part of the Emergency Operations Center (EOC)."⁴⁰ This report supports the concept that any incident that has the potential to require medical services for the care of injured or sick patients should involve EMS within the command structure for managing the incident. For example, during the San Diego firestorm later that same year, American Medical Response (the county's designated disaster ambulance coordinator) operated from the county's EOC communications center with a liaison in the medical operations center, coordinating up to 19 different agencies. This close collaboration with the San Diego Fire-Rescue Department and other responders led to what most consider a successful response and evacuation of more than 500,000 people.⁴¹

In the resource document for the NASEMSO position statement on the role of state medical direction in the comprehensive EMS system, the authors state that "interjurisdictional coordination of medical services can be most effectively achieved through the establishment of proper medical authority at the state level."¹² To maximize the effectiveness and efficiency of EMS response during a mass-casualty event, the local EMS authority should participate in the unified command (UC) and play a leadership role in developing and implementing response objectives and strategies for medical care of victims. Emergency medical services medical directors have the authority to make critical decisions regarding prehospital care and have extensive knowledge of the local or regional health

care system and available patient care resources; therefore, they are in an excellent position for this role.

Triage

Since EMS providers are typically involved with the immediate period following the onset of a large-scale incident, EMS is well positioned to perform initial and ongoing triage of patients who will need acute medical care. While there are many forms and uses for medical triage, the purpose of disaster triage is to identify those patients who are most likely to benefit from acute medical care.^{42,43} There are many types of triage schemes, each with nuances and benefits. Perhaps the two most commonly known techniques are START (simple triage and rapid treatment)⁴⁴ and SALT (sort-assess-lifesaving interventions-treatment/transport).^{45,46} Some authors have proposed triage methodologies to be utilized in CBRN events.⁴⁷ Regardless of the technique that is used for triage, EMS providers are often called upon to make the determination of patients who should have priority and where in the health care system these patients should be transferred to for definitive care.⁴⁸ As the EMS system is increasingly called upon to perform triage in large-scale events, EMS administrators and medical directors should focus efforts on training and evaluating triage skills and techniques.

Establishing Authority to Deviate from Standard Protocols

In its 2007 National EMS Scope of Practice Model, the National Highway Traffic Safety Administration (NHTSA) acknowledges that it cannot account for every situation and assumes that the scope of practice for EMS providers may need to be modified during critical events.⁴⁹ Emergency medical services providers may need to have greater flexibility to utilize medications or procedures that may be beyond their typical protocols. During acute disasters, patients may require interventions that are not immediately available because of difficulties with transport and accessing appropriate health care facilities; furthermore, communication for medical direction during an event can at times be a challenge due to infrastructure damage or overwhelmed systems. Even during slowly evolving public health emergencies (e.g., pandemic influenza), EMS providers may need expanded scope of practice to include administration of vaccines, antivirals, and new medications, and declaration of death.⁵⁰

During disasters, EMS medical directors should have the flexibility to empower EMS providers to function with extended scope of practice and without the need for direct medical control. However, this should still be done with proper preevent education and training, explicit guidelines, medical oversight, and quality assurance.

Expanding Community Response Roles for Emergency Medical Services Providers

Within the context of the National Response Framework (NRF), EMS is an essential participant in disaster preparedness and response in a community.⁵¹ While an EMS provider's mission of providing jurisdictional emergency medical care during an acute event is paramount, it should not preclude them from participating in other local disaster support assets such as Community Emergency Response Teams (CERTs)⁵² and the Medical Reserve Corps (MRC).⁵³ The CERT concept was developed in 1985 to address the need to train private citizens to provide immediate assistance to disaster victims in their area, organize spontaneous volunteers who have not had official training, and collect disaster intelligence that will assist professional responders with prioritization and allocation of resources following a disaster. The MRC is a community-based group of local medical and health workers who can deliver necessary public health services during a crisis, assist emergency response teams with patients, and provide care directly to those with less serious injuries and other health-related issues.

Given their history of leadership in disaster management and tradition of community education in programs such as first aid, cardiopulmonary resuscitation (CPR), and automated external defibrillation (AEDs), EMS professionals are well suited for integral leadership and training roles within CERTs and the MRC. Involvement in these important community assets also allows EMS to effectively integrate the efforts of CERTs and the MRC with those of first responders during an acute event.

Expanding National Response Roles for Emergency Medical Services Providers

As a vital member of the public safety community, EMS providers should have the opportunity not only to respond to disasters in their locality, but also to be utilized as valuable assets on federal response teams. The NRF⁵¹ utilizes the National Disaster Medical System (NDMS) to augment the nation's medical response capability. Emergency medical services providers play a vital role in each NDMS Disaster Medical Assistance Team (DMAT) deployment, including medical response to a disaster area and assisting in the resource management of supplies and equipment. Other roles may include patient movement from a disaster site to unaffected areas of the nation, definitive medical care at participating hospitals in unaffected areas,⁵⁴ and augmentation of critical care units for surge capacity during a disaster.⁵⁵

EMERGENCY MEDICAL SERVICES ROLE IN DISASTER RECOVERY

Recovery is a key phase during which responders and the EMS system return to full operational status. It is important for EMS leaders to focus on local and jurisdictional recovery activities such as replacement of patient care supplies and equipment, facility or transportation vehicle rehabilitation, and financial accounting to allow for appropriate reimbursement. Other recovery efforts may include assisting hospitals in getting back to full operational levels and ensuring that communication systems are fully operational.

It is extremely important that EMS medical directors and administrators ensure that local EMS providers are ready to go back to work following a disaster. This may mean that there are adequate staffing levels to meet normal operational needs, or that there is adequate mental health support for EMS providers if requested as they recover from the psychological stress of dealing with the recent critical event. Given the significant controversy surrounding the effectiveness (and potentially harmful effects) of stress debriefing and critical incident stress management (CISM),^{56,57,58,59} leaders in EMS should strongly advocate for further research into strategies that will foster resiliency, healthy coping, and ultimately recovery in the EMS workforce following traumatic events.

In addition to the above recovery activities, it may also be beneficial for EMS leaders to advocate for local and national recognition of efforts put forth, as well as losses incurred, by EMS providers.⁶⁰ Formal recognition may have a positive impact on ensuring that the EMS workforce is ready to respond to the next critical event.

CONCLUSION

Experiences from recent major catastrophes have demonstrated that the greatest successes in disaster management and response are achieved through a coordinated effort of multiple types of agencies, including law enforcement, the military, search and rescue, fire, EMS, hospitals, public health, and public utilities.^{40,61} The role of the EMS system and its providers in every phase of emergency management has grown from the traditional role and skill set of emergency patient care providers to specialized and highly trained positions in leadership, education, and response. Emergency medical services providers and medical directors should be recognized as integral to disaster preparedness and response and should seek and be afforded opportunities to contribute in all phases of disaster management.

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