

Prehospital Emergency Medical Services

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Components of the Emergency Medical Services System

The delivery of effective, organized, prehospital emergency medical services (EMS) is a development that dates to the 1960s in the United States. Although there were ambulance providers and even some local systems, there was no national approach to prehospital care until publication of the 1966 White Paper entitled "Accidental Death and Disability—The Neglected Disease of Modern Society" (National Academy of Sciences, National Research Council).

When medical emergencies are reported, trained medical personnel arrive on the scene to provide emergency care within 6–10 minutes. The skills of these personnel range from basic first aid techniques and cardiopulmonary resuscitation (CPR) to advanced life support (ALS) techniques, including defibrillation, endotracheal intubation, and the use of emergency medications. Radio communications permit ongoing discussion of patient status and treatment between emergency medical personnel at the scene and the supervising physician or helicopter staffed with medically trained flight crews) can rapidly evacuate and transport patients from a remote emergency scene to a regional medical center.

COMPONENTS OF THE EMERGENCY MEDICAL SERVICES SYSTEM

Modern EMS systems consist of several major components: (1) professional field personnel trained to provide specific levels or types of care, (2) a comprehensive emergency communications network, (3) hospital emergency department physicians and nurses who su-

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pervise the treatment provided by EMS field personnel, (4) hospitals categorized according to their relationship with EMS field personnel and according to the level of care they can provide, and (5) EMS administrative officials who manage and coordinate the elements of the system.

Professional EMS Field Personnel

The health professionals and first responders who provide prehospital care are trained to carry out specific levels of care, ranging from basic first aid and CPR provided by first responders, through basic life support (BLS) given by emergency medical technicians (EMTs), to the ALS provided by advanced EMTs (paramedics). These personnel provide care only as extensions or agents of physicians and are not independently licensed to provide medical care. The care they deliver is authorized by standing orders (written authorization to administer certain treatments without prior attempt at base contact by radio) or protocols from physician directors or by orders transmitted by radio from supervisory physicians at the base hospital to EMS personnel at the scene. A critical element in the development of EMS since 1970 has been the recognition that personnel without prior medical training can be prepared through relatively short courses to provide effective prehospital care. The designations, levels of training, and skills of EMS personnel are now largely standardized according to United States Department of Transportation (DOT) curriculum and formal categories established in 1983 by the National Registry of Emergency Medical Technicians. The curriculum is regularly reviewed and updated to reflect changes in medicine and in the prehospital environment. The latest iteration released by the DOT was in 1998, with some modifications in 2000. Types of EMS field per-

Table 2-1. Training and procedures for emergency medical personnel.

Emergency Personnel Type	Hours of Training	Curriculum ¹	Skills and Procedures
First Responder	~40	Patient assessment Basic life support Cardiopulmonary resuscitation Bleeding and shock Wounds and fractures Medical emergencies Poisoning, drug and alcohol emergencies, heart attack, stroke, epilepsy, asthma, emergency childbirth Environmental emergencies Burns Psychiatric emergencies Stabilization and transfer	Patient assessment Cardiopulmonary resuscitation Control of bleeding Bandaging and limited splinting Limited extrication
EMT-A (Basic)	81–140	Orientation and legal responsibilities Patient assessment Cardiopulmonary resuscitation Bleeding and shock Injuries Medical emergencies Heart disease, stroke, substance abuse, pediatric emergencies Childbirth Environmental emergencies Burns, hazardous materials, water hazards Psychologic aspects of emergency care Patient handling and extrication Ambulance operations and vehicle maintenance Emergency driving, communications, report writing Optional skills Intravenous therapy, advanced airway management, defibrillation by EMTs	Patient assessment Airway management and oxygen therapy Control of bleeding Management of shock (including Military Anti-Shock Trousers [MAST]) Dressing and bandaging wounds Splinting (including traction splints) Spinal immobilization Extrication and triage
EMT-I (Intermediate)	110–1000	All EMT-A skills plus various advanced life support skills	All EMT-A skills plus specialized training in one or more life support skills, usually including: Manual or automatic defibrillation Intravenous therapy Selected emergency medications Advanced airway management

(continued)

sonnel and their training are described below and summarized in Table 2-1.

A. FIRST RESPONDERS

First responders may include law enforcement officers, rescue squad members, firefighters, or volunteer EMS personnel. First-responder courses usually consist of about 40 hours of classroom instruction and clinical

training in basic first aid and CPR. First responders are equipped with basic emergency care equipment (eg, bandages, dressings, tape, blanket and pillow, upper and lower extremity splint sets). Oxygen equipment and a self-refilling bag-valve-mask combination (eg, Ambu bag) are optional. First responders also carry basic tools to help them reach and extricate trapped individuals. Increasingly, first responders are being trained

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