

SPECIAL CONTRIBUTION

THE CORE CONTENT OF EMERGENCY MEDICAL SERVICES MEDICINE

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ABSTRACT

On September 23, 2010, the American Board of Medical Specialties (ABMS) approved emergency medical services (EMS) as a subspecialty of emergency medicine. As a result, the American Board of Emergency Medicine (ABEM) is planning to award the first certificates in EMS medicine in the fall of 2013. The purpose of subspecialty certification in EMS, as defined by ABEM, is to standardize physician training and qualifications for EMS practice, to improve patient safety and enhance the quality of emergency medical care provided to patients in the prehospital environment, and to facilitate integration of prehospital patient treatment into the continuum of patient care. In February 2011, ABEM established the EMS Examination Task Force to develop the Core Content of EMS Medicine (Core Content) that would be used to define the subspecialty and from which questions would be written for the examinations, to develop a blueprint for the examinations, and to develop a bank of test questions for use on the examinations. The Core Content defines the training

parameters, resources, and knowledge of the treatment of prehospital patients necessary to practice EMS medicine. Additionally, it is intended to inform fellowship directors and candidates for certification of the full range of content that might appear on the examinations. This article describes the development of the Core Content and presents the Core Content in its entirety. **Key words:** EMS; EMS core content; EMS certification

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PREAMBLE

On September 23, 2010, the American Board of Medical Specialties (ABMS) approved emergency medical services (EMS) as a subspecialty of emergency medicine. As a result, the American Board of Emergency Medicine (ABEM) is planning to award the first certificates in EMS medicine in the fall of 2013. The purpose of subspecialty certification in EMS, as defined by ABEM, is to standardize physician training and qualifications for EMS practice, to improve patient safety and enhance the quality of emergency medical care provided to patients in the prehospital environment, and to facilitate integration of prehospital patient treatment into the continuum of patient care.

In February 2011, ABEM established the EMS Examination Task Force to develop the Core Content of EMS Medicine (Core Content) that would be used to define the subspecialty and from which questions would be written for the examinations, to develop a blueprint

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for the examinations* and to develop a bank of test questions for use on the examinations. The Core Content defines the training parameters, resources, and knowledge of the treatment of prehospital patients necessary to practice EMS medicine. Additionally, it is intended to inform fellowship directors and candidates for certification of the full range of content that might appear on the examinations.

DEVELOPMENT OF THE CORE CONTENT

To develop the Core Content, the Task Force began with previous versions of content outlines developed by the National Association of EMS Physicians (NAEMSP) and ABEM as part of the application to the ABMS for a subspecialty in EMS medicine. The Task Force began the process of development by generating an inclusive list of potential content and coming to consensus on both the list and its organization. The outline was then crossed with the Accreditation Council for Graduate Medical Education (ACGME) and ABMS six core competencies of medicine[†] to ensure that all of the competencies were addressed.

The rationale for the organization was to cover the full breadth of EMS medicine with as little overlap in content categories as possible. Nonetheless, the Task Force found that many aspects of the daily practice of EMS medicine could easily fall into more than one cat-

egory. As a result of the discussion, the Core Content is divided into four broad categories: 1.0 Clinical Aspects of EMS Medicine, 2.0 Medical Oversight of EMS, 3.0 Quality Management and Research, and 4.0 Special Operations. Each of these categories is further divided into broad topics, with examples and subtopics listed below each of the topics.

To validate the work of the Task Force, and to further refine the list of content, the Task Force conducted a survey of clinically active EMS physicians to determine the frequency and importance of each of the content listings (manuscript in preparation). The Task Force retained sections that are not a large part of every EMS medical system, such as wilderness medicine, as it was felt that they constitute an important aspect of EMS medicine that all candidates for certification should know.

FUTURE DEVELOPMENT OF THE CORE CONTENT

The Core Content is intended to be a living document, in keeping with the ever-evolving practice of EMS medicine. ABEM anticipates regular updates to the Core Content, with publication every two to five years. Suggested changes to the Core Content can be addressed to examcontent@abem.org.

*The examination blueprint defines the percentage of questions in each content category. The examination blueprint for the EMS subspecialty can be found at www.abem.org.

[†]Found at http://www.acgme.org/acWebsite/dutyHours/dh_dutyhoursCommonPR07012007.pdf and http://www.abms.org/Maintenance_of_Certification/MOC_competencies.aspx.

THE CORE CONTENT OF EMS MEDICINE[‡]

	ACGME and ABMS Core Competencies					
	Patient Care	Medical Knowledge	Practice-based Learning	Professionalism	Interpersonal Skills	System-based Practice
1.0 CLINICAL ASPECTS OF EMS MEDICINE						
1.1 TIME/LIFE-CRITICAL CONDITIONS	X	X	X			X
1.1.1 Cardiac Arrest	X	X			X	
1.1.1.1 General management	X	X			X	
1.1.1.2 Resuscitate in the field vs. transport	X	X	X			X
1.1.1.3 Post-resuscitation care	X	X	X			X
1.1.2 Airway Compromise/Respiratory Failure	X	X				
1.1.2.1 Devices for securing airway	X	X				
1.1.2.2 Portable ventilator management	X	X				
1.1.2.3 Pros and cons of drug-assisted intubation	X	X				
1.1.2.4 Tracheotomy complications	X	X	X			
1.1.3 Hypotension and Shock	X	X				
1.1.3.1 Diagnosis with limited ancillary testing	X	X				
1.1.4 Altered Mental Status	X	X				
1.2 INJURY	X	X				
1.2.1 Trauma	X	X				X
1.2.1.1 Care of the trapped patient	X	X				
1.2.1.2 Protocols delineating shortened scene time	X	X				X
1.2.1.3 Resuscitation in the field vs. rapid transport to trauma center	X	X				X
1.2.1.4 Field trauma triage	X	X				X
1.2.1.5 Management of spine trauma (application of spinal immobilization, selective immobilization)	X	X				
1.2.1.6 Management of burns	X	X				
1.2.1.7 Management of crush injuries	X	X		X	X	
1.2.2 Orthopedics	X	X				
1.2.2.1 Fractures and dislocations	X	X				
1.2.2.1.1 Splinting using non-traditional materials	X	X				
1.2.2.1.2 Reductions without anesthetics	X	X			X	
1.2.3 Traumatic Brain Injuries	X	X				
1.2.3.1 Management of severe head injuries	X	X	X			X
1.2.3.2 Management of concussions	X	X				
1.2.3.3 Sideline management for team medics/physicians	X	X			X	X
1.2.4 Assault – Domestic/Sexual/Elder Abuse/Child Abuse	X	X		X	X	X
1.2.4.1 Safety					X	X
1.2.4.2 Evidence preservation and reporting		X				X

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	ACGME and ABMS Core Competencies					
	Patient Care	Medical Knowledge	Practice-based Learning	Professionalism	Interpersonal Skills	System-based Practice
1.2.5 Environmental	X	X				
1.2.5.1 Cold-related illnesses	X	X				
1.2.5.1.1 Hypothermia	X	X				
1.2.5.1.1.1 Clinical diagnosis without the use of a thermometer	X	X				
1.2.5.1.2 Frostbite	X	X				
1.2.5.1.2.1 Protection of injury vs. re-warming	X	X				
1.2.5.2 Heat-related illnesses	X	X				
1.2.5.2.1 Methods to cool a patient in the field	X	X				X
1.2.5.3 High altitude injury (e.g., high altitude pulmonary edema, high altitude cerebral edema)	X	X				
1.2.5.3.1 Protection of the rescuer from high altitude injury	X	X				
1.2.5.3.2 Portable hyperbaric chamber	X	X				
1.2.5.3.3 Field prophylaxis and treatment	X	X				
1.2.5.4 Near-drowning, submersion, and diving injuries	X	X	X			
1.2.5.4.1 Initial management in water	X	X				X
1.2.5.5 Lightning and electrical injuries	X	X				X
1.2.5.5.1 Reverse triage	X	X				
1.3 MEDICAL EMERGENCIES	X	X				
1.3.1 Respiratory	X	X				
1.3.1.1 Shortness of breath	X	X				
1.3.1.1.1 Use of portable non-invasive ventilation devices	X	X				
1.3.1.1.2 Field identification of chronic obstructive pulmonary disease (COPD)	X	X				
1.3.1.1.3 Assisted ventilation	X	X				
1.3.1.1.4 Use of capnometry and capnometry waveforms in diagnosis	X	X				
1.3.1.2 Pneumothorax	X	X				
1.3.1.2.1 Identifying without ancillary testing	X	X				
1.3.1.2.2 Management with occlusive dressings and alternative drain devices	X	X				
1.3.2 Cardiovascular	X	X				
1.3.2.1 ST elevation myocardial infarction (STEMI)	X	X				
1.3.2.1.1 Utilization of electrocardiogram (ECG) in the field	X	X				X
1.3.2.1.2 Use of oxygen (e.g., how much to use; demand vs. supply)	X	X				X
1.3.2.1.3 Methods of revascularization in the field	X	X				
1.3.2.2 Acute exacerbation of congestive heart failure (CHF)	X	X				
1.3.2.2.1 Use of portable non-invasive ventilation devices	X	X				
1.3.2.2.2 Field identification of CHF	X	X				
1.3.2.2.3 Field use of vasopressors and inotropes without confirmed diagnosis	X	X				
1.3.2.2.4 Assisted ventilation	X	X				

	ACGME and ABMS Core Competencies					
	Patient Care	Medical Knowledge	Practice-based Learning	Professionalism	Interpersonal Skills	System-based Practice
1.3.2.3 Implantable cardiac devices	X	X				
1.3.2.3.1 Use of magnets for management of devices	X	X				
1.3.3 Neurological	X	X				
1.3.3.1 Stroke	X	X				
1.3.3.1.1 Prehospital stroke scales	X	X				
1.3.3.2 Management of seizures	X	X				
1.3.4 Diabetic Emergencies	X	X				
1.3.4.1 Glucagon, oral/intravenous glucose	X	X				
1.3.4.2 Protocols for treat & release	X	X				X
1.3.5 Renal	X	X				
1.3.5.1 Hemodialysis	X	X				
1.3.5.1.1 Use of dialysis access for resuscitation	X	X				
1.3.5.1.2 Uncontrolled hemorrhage from shunt site	X	X				
1.3.5.1.3 Special considerations for hyperkalemia	X	X				
1.3.6 Obstetric and Gynecologic Emergencies	X	X				
1.3.6.1 Perinatal issues	X	X				
1.3.6.1.1 Control of seizures in eclampsia	X	X				
1.3.6.1.2 Placental abruption	X	X				
1.3.6.1.3 Placenta previa	X	X				
1.3.6.2 Childbirth	X	X				
1.3.6.2.1 High risk vs. normal delivery	X	X				
1.3.6.2.2 Managing home birth catastrophes	X	X				
1.3.6.2.3 Post-partum hemorrhage	X	X				
1.3.6.2.4 Breech/shoulder dystocia in the field	X	X				
1.3.6.2.5 Umbilical cord prolapse	X	X				
1.3.6.3 Vaginal hemorrhage	X	X				
1.3.6.3.1 Packing in the field	X	X				
1.3.6.4 Ectopic pregnancy	X	X				
1.3.6.4.1 Effect of clinical diagnosis on transport decisions	X	X				X
1.3.7 Poisoning/Toxicologic Emergencies	X	X				
1.3.7.1 Clinical management of toxins	X	X				
1.3.7.1.1 Carbon monoxide	X	X				
1.3.7.1.2 Cyanide	X	X				
1.3.7.1.3 Chlorine	X	X				
1.3.7.1.4 Hydrofluoric Acid	X	X				

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	Patient Care	Medical Knowledge	Practice-based Learning	Professionalism	Interpersonal Skills	System-based Practice
1.3.7.1.5 Organophosphates	X	X				
1.3.7.1.6 Mustards and other blister agents	X	X				
1.3.7.1.7 Phosgene	X	X				
1.3.7.1.8 Hydrocarbons	X	X				
1.3.7.2 Knowledge of poisons, antidotes, chemical properties of hazardous materials, effects of radiation exposure, and approach to initial decontamination	X	X				
1.3.7.3 Caustic substance ingestion	X	X				
1.3.7.3.1 Prehospital airway management options	X	X				
1.3.7.4 Decontamination	X	X				
1.3.8 Dermatology	X	X				
1.3.8.1 Use of burn dressings for desquamating disease	X	X				
1.3.9 Communicable Diseases	X	X				
1.3.9.1 General	X	X				
1.3.9.1.1 Knowledge of prehospital personal protective equipment (PPE)	X	X				
1.3.9.1.2 Isolation of persons with suspected infectious agents (e.g., severe acute respiratory syndrome [SARS])	X	X				X
1.3.9.1.3 Use of prehospital providers for mass vaccination programs	X	X				X
1.3.9.2 Multi-drug resistant organisms (MDROs)	X	X				
1.3.9.2.1 Protection in the field (e.g., PPE, decontamination of ambulances)	X	X				
1.3.9.3 Category A bioterrorism agents	X	X				
1.3.9.3.1 Hemorrhagic fevers	X	X				
1.3.9.3.2 Smallpox	X	X				
1.3.9.3.3 Plague	X	X				
1.3.9.3.4 Ricin	X	X				
1.3.9.4 Emerging infections	X	X				
1.3.9.4.1 Pandemic viral illnesses	X	X				
1.3.9.4.2 SARS	X	X				
1.3.9.5 Quarantine	X	X				
1.3.10 Behavioral Emergencies	X	X				
1.3.10.1 Managing combative patients	X	X				
1.3.10.1.1 Use of restraints (chemical vs. mechanical)	X	X				
1.4 SPECIAL CLINICAL CONSIDERATIONS	X	X	X			X
1.4.1 Airway Management in Adverse Conditions	X	X	X			X
1.4.1.1 Low light	X	X	X			X
1.4.1.2 Atypical patient position	X	X	X			X
1.4.1.3 Minimal backup	X	X	X			X
1.4.1.4 Sub-optimal suction in the absence of standard equipment	X	X	X			X

	ACGME and ABMS Core Competencies					
	Patient Care	Medical Knowledge	Practice-based Learning	Professionalism	Interpersonal Skills	System-based Practice
1.4.2 Procedures	X	X				
1.4.2.1 Airway	X	X				
1.4.2.1.1 Opening airway with head-tilt/chin-lift method	X	X				
1.4.2.1.2 Opening airway with jaw thrust method	X	X				
1.4.2.1.3 Insertion of oropharyngeal & nasopharyngeal airways	X	X				
1.4.2.1.4 Bag-valve-mask	X	X				
1.4.2.1.5 Glottic airways	X	X				
1.4.2.1.6 Supraglottic airways	X	X				
1.4.2.1.7 Continuous positive airway pressure (CPAP)	X	X				
1.4.2.1.7.1 Use of prehospital CPAP devices	X	X				
1.4.2.1.8 Airway intubation adjuncts	X	X				
1.4.2.1.9 Direct laryngoscopy with endotracheal intubation	X	X				
1.4.2.1.10 Nasal intubation	X	X				
1.4.2.1.11 Facilitated intubation without paralytics	X	X				
1.4.2.1.12 Rapid sequence intubation (RSI) and use of paralytics	X	X				
1.4.2.1.13 Cricothyroidotomy	X	X				
1.4.2.1.14 Control of post-tonsillectomy hemorrhage	X	X				
1.4.2.2 Cardiovascular	X	X				
1.4.2.2.1 Placement of peripheral intravenous lines	X	X				
1.4.2.2.2 Access or placement of central venous lines in the field	X	X				
1.4.2.2.3 Placement of intraosseous lines	X	X				
1.4.2.2.3.1 Adult	X	X				
1.4.2.2.3.2 Pediatric	X	X				
1.4.2.2.4 Prehospital administration of thrombolytics for STEMI	X	X				
1.4.2.2.5 Transport directly to percutaneous coronary intervention (PCI)-capable hospital	X	X				
1.4.2.2.5.1 Helicopter EMS (HEMS) activation	X	X				
1.4.2.2.6 Pericardiocentesis without ultrasound guidance or other guidance device	X	X				
1.4.2.2.7 Balloon pump management	X	X				
1.4.2.3 Trauma	X	X				

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1.4.2.3.1	Needle thoracostomy	X	X				
1.4.2.3.2	Tube thoracostomy	X	X				
1.4.2.3.3	Pericardiocentesis without ultrasound guidance or other guidance device	X	X				
1.4.2.3.4	Control of life threatening hemorrhage	X	X				
1.4.2.3.5	Application of traction devices	X	X				
1.4.2.3.6	Wound care management	X	X				
1.4.2.3.7	Field trauma triage	X	X				
1.4.2.3.8	Application of cervical collar and backboard	X	X				
1.4.2.3.9	Selective spine immobilization	X	X				
1.4.2.3.10	Controlled hyperventilation for management of impending brain herniation in head trauma	X	X				
1.4.2.4	Obstetrics	X	X				
1.4.2.4.1	Normal delivery of a fetus	X	X				
1.4.2.4.1.1	Challenges of prehospital deliveries	X	X				
1.4.2.4.1.2	Resource allocation with increasing number of multiple births	X	X				X
1.4.2.4.2	Management of abnormal presentations of fetus	X	X				
1.4.2.4.3	Management of post-partum hemorrhage	X	X				
1.4.2.4.4	Peri/post-mortem cesarean-section	X	X				
1.4.2.5	Point of care testing	X					
1.4.2.6	Ultrasound use in EMS	X	X				
1.4.2.6.1	Focused assessment with sonography for trauma (FAST) examination	X	X				
1.4.2.6.2	Line placement	X	X				
1.4.2.6.3	Cardiac activity for field termination of resuscitation	X	X				
1.4.3	Pain Assessment and Management in the Field	X	X				
1.4.4	Flight Physiology	X	X				
1.4.4.1	Effect of altitude on patient management	X	X	X			X
1.4.4.2	Effect of altitude on the healthcare provider		X	X			X
1.4.5	Pediatrics	X	X				
1.4.5.1	Controversies over airway management	X	X				
1.4.5.2	Pediatric trauma	X	X				X
1.4.5.3	Specialized equipment	X	X				

		ACGME and ABMS Core Competencies					
		Patient Care	Medical Knowledge	Practice-based Learning	Professionalism	Interpersonal Skills	System-based Practice
1.4.5.4	Unique issues related to consent	X	X		X	X	X
1.4.5.5	Maltreatment	X	X		X	X	
1.4.5.6	Apparent life-threatening event (ALTE)	X	X				
1.4.5.7	Seizure mimics	X	X				
1.4.5.8	Special needs children	X	X				
1.4.5.8.1	Technology dependent	X	X				
1.4.6 Geriatrics		X	X				
1.4.6.1	Geriatric trauma	X	X				
1.4.6.2	Polypharmacy	X	X	X			X
1.4.6.3	Maltreatment	X				X	X
1.4.7 Bariatric Issues		X	X			X	
1.4.7.1	Equipment					X	X
1.4.7.2	Procedure challenges	X	X				
1.4.8 End-of-Life Issues		X	X		X	X	X
1.4.8.1	Hospice	X			X	X	X
1.4.8.2	DNR/DNI/advanced directives/physician orders for life sustaining treatment (POLST)	X			X	X	X
1.4.9 Social Issues					X	X	X
1.4.9.1	Isolation syndrome				X	X	X
1.4.9.2	Family centered care				X	X	X
1.4.9.3	Management of bystanders while caring for patient				X	X	X
1.4.10 Termination of Resuscitation		X	X		X	X	X
1.5 SPECIAL CONSIDERATIONS FOR EVALUATION, TREATMENT, TRANSPORT, AND DESTINATIONS		X	X	X			X
1.5.1 Time-Life Critical Conditions		X	X	X			X
1.5.2 Special Patient Populations			X	X		X	X
2.0 MEDICAL OVERSIGHT OF EMS							
2.1 MEDICAL OVERSIGHT		X	X	X	X	X	X
2.1.1 Medical Oversight of EMS Systems		X	X	X	X	X	X
2.1.1.1 Direct medical oversight		X	X		X	X	X
2.1.1.1.1 Provision of direct patient care		X	X				
2.1.1.1.2 Physician directed care via radio or phone		X	X		X	X	X
2.1.1.1.3 Physician directed care in person		X	X		X	X	X
2.1.1.1.4 Telemedicine		X				X	X
2.1.1.2 Indirect medical oversight		X	X	X	X	X	X
2.1.1.2.1 Evidence guided development of medical care protocols		X	X	X		X	X

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2.1.1.2.2 Quality improvement programs	X	X	X		X	X
2.1.1.2.3 Determination of medical necessity in the field	X	X	X		X	X
2.1.1.3 Assessment of provider competence and fitness for duty	X			X	X	X
2.1.2 Legal Issues	X			X	X	X
2.1.2.1 Definition of a patient	X			X	X	X
2.1.2.2 Mandatory reporting issues	X	X		X	X	X
2.1.2.3 Determination and/or pronouncement of death	X	X		X	X	X
2.1.2.4 Capacity to refuse care	X	X		X	X	X
2.1.2.4.1 Understand the elements of informed consent and informed refusal	X	X	X	X	X	
2.1.2.4.2 Understand the difference between capacity and competence	X	X	X	X	X	
2.1.2.5. Federal regulations impacting EMS						X
2.2 EMS SYSTEMS	X	X			X	X
2.2.1 Public Safety Answering Points			X	X	X	X
2.2.1.1 Pre-arrival instructions	X	X		X	X	
2.2.2.2 Dispatch	X	X	X	X	X	X
2.2.2.2.1 Use of lights and sirens	X		X	X	X	X
2.2.2.2.2 Prioritization of response (e.g., determining local needs based on local resources)	X	X	X	X	X	X
2.2.2.2.3 Tiered-response			X			X
2.2.2 Design of System Components						X
2.2.2.1 Response and transport vehicles						X
2.2.2.2 EMS provider levels						X
2.2.2.3 Service delivery models						X
2.2.2.4 Equipment design and supply issues						X
2.2.3 Delivery Systems with Special Considerations						X
2.2.3.1 Urban EMS						X
2.2.3.2 Rural EMS						X
2.2.3.3 Wilderness EMS						X
2.2.3.4 Volunteer EMS						X
2.2.3.5 Inter-facility transport						X
2.2.3.6 Military EMS						X
2.2.3.7 Air medical						X
2.2.3.8 International EMS						X
2.3 EMS PERSONNEL						X
2.3.1 Scope of Practice Models						X
2.3.1.1 Military/federal government medical personnel						X
2.3.1.2 State vs. national						X
2.3.1.2.1 Levels of providers						X

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2.3.1.3 Field capabilities						X
2.3.2 Education			X			X
2.3.2.1 Theories of adult learning			X			X
2.3.2.2 Education delivery models			X			X
2.3.2.3 Provider training programs			X			X
2.3.2.3.1 Initial education			X			X
2.3.2.3.2 Continuing education			X			X
2.3.2.4 Accreditation of training programs			X			X
2.3.2.5 Remediation and work force re-entry			X			X
2.3.3 EMS Provider Health and Wellness	X	X		X	X	X
2.3.3.1 Occupational culture of safety	X	X		X	X	X
2.3.3.1.1 Occupational health	X	X		X	X	X
2.3.3.1.2 Knowledge of regulations and standards (e.g., National Fire Protection Association [NFPA] 1582, Ryan White Act, Occupational Safety and Health Administration [OSHA] requirements)			X			X
2.3.3.1.3 Emergency incident rehabilitation	X		X	X	X	X
2.3.3.1.4 Awareness of ergonomic factors			X			X
2.3.3.1.5 Disordered sleep and work schedule				X	X	X
2.3.3.1.6 Prevention and intervention for psychologically stressful events				X	X	X
2.3.3.1.7 Emergency vehicle operations	X		X	X		X
2.3.3.2 Exposure to communicable disease	X	X	X	X	X	X
2.3.3.2.1 Standard PPE precautions	X	X				
2.3.3.2.2 Appropriate use of PPE for various infectious agents (contact vs. droplet vs. airborne precautions)	X	X				
2.3.3.2.3 Body substance exposure	X	X				
2.3.3.2.3.1 Knowledge of Centers for Disease Control and Prevention (CDC) guidelines for human immunodeficiency virus (HIV) and other blood-borne pathogens	X	X	X			
2.3.3.2.3.2 Medical director liaison role between hospital and EMS agency	X	X				
2.3.3.2.4 Post-exposure prophylaxis and testing	X	X				
2.3.3.2.5 Occupational health screening (e.g., tuberculosis, hepatitis)	X	X				
2.4 SYSTEM MANAGEMENT				X	X	X
2.4.1 System Finance						X
2.4.1.1 Allocation of resources						X
2.4.2 Legislation and Government						X
2.4.2.1 Working with government and public health agencies					X	X
2.4.2.2 Knowledge of state EMS laws						X

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	ACGME and ABMS Core Competencies					
	Patient Care	Medical Knowledge	Practice-based Learning	Professionalism	Interpersonal Skills	System-based Practice
2.4.2.3 Understanding of healthcare law			X			X
2.4.3 Public Health		X	X			X
2.4.3.1 Specialty hospital designations and transport of patient		X	X			X
2.4.3.2 Field triage issues		X	X			X
2.4.3.3 Public access to defibrillation (PAD)		X	X			X
2.4.3.4 Issues of hospital diversion and bypass		X	X			X
2.4.3.5 Integration of EMS with community public resources and social services	X		X			X
2.4.4 System Status Management		X				X
2.4.4.1 Response times	X		X			X
2.4.5 Service Delivery Models						X
2.4.6 Patient Safety	X	X				X
2.4.7 Ethics in EMS	X			X	X	
3.0 QUALITY MANAGEMENT AND RESEARCH						
3.1 QUALITY IMPROVEMENT PRINCIPLES AND PROGRAMS			X			X
3.1.1 Data Collection, Management, and Analysis			X			X
3.1.2 Quality Improvement Programs			X			X
3.1.3 Evidence-based Practice			X			X
3.2 RESEARCH			X			X
3.2.1 Informed Consent (e.g., Use of FDA "Final Rule" or Exception to Informed Consent)			X			X
3.2.2 Fundamental Knowledge of Biostatistics and Epidemiology			X			X
4.0 SPECIAL OPERATIONS						
4.1 MASS CASUALTY MANAGEMENT	X		X			X
4.1.1 Incident Command System (ICS)	X				X	X
4.1.1.1 Integration with fire ICS/medical operations					X	X
4.1.2 Triage	X	X				X
4.1.3 Mass Casualty Management	X	X		X	X	X
4.1.3.1 Local, state, federal assets	X	X		X	X	X
4.1.3.2 Regional resource allocation and management						X
4.1.3.3 Role of emergency management agencies			X			X
4.2 CHEMICAL/BIOLOGICAL/RADIOLOGICAL/NUCLEAR/EXPLOSIVE (CBRNE)	X	X	X			X
4.2.1 Toxic Exposure/Poisoning/Hazardous Materials (HAZMAT)	X	X	X	X	X	X
4.2.1.1 Need for HAZMAT team/antidotes	X	X				X

		ACGME and ABMS Core Competencies					
		Patient Care	Medical Knowledge	Practice-based Learning	Professionalism	Interpersonal Skills	System-based Practice
4.2.1.2	Field identification of toxins/hazardous materials	X	X				X
4.2.1.3	Field/provider/patient decontamination	X	X				X
4.2.1.4	Protecting the public (containment)/public health concerns				X	X	X
4.2.1.5	Resuscitation during contamination while wearing PPE	X	X				X
4.2.1.6	Knowledge of various levels of PPE			X			X
4.2.1.7	Knowledge of federal law enforcement reporting requirements						X
4.2.1.8	Knowledge of poisons, antidotes, chemical properties of hazardous materials, radiation and effects of exposure	X	X				
4.2.2	Immediate Danger to Life and Health (IDLH) Environments	X	X				
4.2.2.1	Knowledge of asphyxiation and other gas and fire hazards	X	X				
4.2.3	Explosive Incidents						X
4.2.3.1	Improvised explosive devices (IEDs) and terrorist activity						X
4.2.3.2	Community risk assessment						X
4.2.3.3	Integration with search and rescue						X
4.2.4	Weapons of Mass Destruction and Related Injury						X
4.2.4.1	Secondary devices and scene safety						X
4.3	MASS GATHERING	X	X				X
4.3.1	Disaster Planning and Operations			X			X
4.3.2	Human Resource Needs in Disaster Response	X	X				X
4.3.2.1	Care teams	X	X				X
4.3.2.2	Physician placement	X	X				X
4.3.3	Training and Drills			X			X
4.3.4	Design of Temporary Treatment Facilities						X
4.3.4.1	Level of care						X
4.3.4.2	Ingress/egress						X
4.3.5	Equipment Needs						X
4.3.5.1	Communications				X	X	
4.3.5.2	Integration of telecom systems with existing EMS system						X
4.4	DISASTER MANAGEMENT	X	X				X
4.4.1	National Incident Management System (NIMS) & National Response Framework						X
4.4.1.1	NIMS 100, 200, 700, 800						X
4.4.2	Catastrophic Events						X
4.4.2.1	State and federal criteria for disaster declaration						X
4.4.2.2	State emergency mutual aid compacts						X
4.4.3	Health and Medical Resources						X
4.4.3.1	National Disaster Medical System (NDMS)						X

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	ACGME and ABMS Core Competencies					
	Patient Care	Medical Knowledge	Practice-based Learning	Professionalism	Interpersonal Skills	System-based Practice
4.4.3.2 Specialized teams						X
4.4.3.3 Non-governmental agencies						X
4.4.3.4 Regional medical response corps						X
4.4.3.5 State and federal assets						X
4.4.4 Special Response Considerations						X
4.4.4.1 Allocation of scene resources			X			X
4.4.4.2 Provider credentialing issues				X		X
4.4.4.3 Altered standards of care			X		X	X
4.5 EMS SPECIAL OPERATIONS	X	X				X
4.5.1 Tactical	X	X				X
4.5.1.1 Low or no light environment of care	X	X				X
4.5.1.2 Care in a hostile environment	X	X				X
4.5.1.3 Care with limited supplies	X	X				X
4.5.1.3.1 Hemostatic agent use	X	X				
4.5.1.3.2 Airway management in low or no light	X	X				
4.5.1.4 Remote assessment	X	X				X
4.5.1.5 Knowledge of tactical combat casualty care	X	X				X
4.5.1.6 Operational considerations for provider & casualty	X	X				X
4.5.2 Casualty Evacuation	X	X				X
4.5.2.1 Evacuation triage	X	X				X
4.5.2.2 Conventional EMS vs. unconventional transport modalities	X	X				X
4.5.2.3 Knowledge of ground, sea, and air transport	X	X				X
4.5.2.4 Potential for delayed/prolonged evacuation	X	X				X
4.5.3 Limited Patient Access Situations	X	X				
4.5.3.1 Confined space care (OSHA definition)	X	X				
4.5.3.2 Extrication	X	X				
4.5.4 Wilderness EMS Systems	X					X
4.5.4.1 Management of traumatic and medical disorders in a wilderness environment	X	X				
4.5.4.2 Evacuation/non-traditional transport	X	X				
4.5.4.3 Multi-agency response						X
4.5.4.4 Survival skills and ability to operate independently in remote/wilderness environments						X

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ABMS = American Board of Medical Specialties; ACGME = Accreditation Council for Graduate Medical Education; CHF = congestive heart failure; CPAP = continuous positive airway pressure; DNI = do not intubate; DNR = do not resuscitate; EMS = emergency medical services; FDA = Food and Drug Administration; HAZMAT = hazardous materials; ICS = incident command system; OSHA = Occupational Safety and Health Administration; PPE = personal protective equipment; SARS = severe acute respiratory syndrome; STEMI = ST-segment elevation myocardial infarction.