

NATIONAL HIGHWAY TRAFFIC
SAFETY ADMINISTRATION

National
EMS
Core
Content



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Introduction

EMS Agenda for the Future

With the financial and administrative support of the National Highway Traffic Safety Administration (NHTSA) and the Health Resources and Services Administration (HRSA), the *Emergency Medical Services Agenda for the Future*, commonly known as the *Agenda*, was published in 1996. This national consensus document was a collaborative venture led by the National Association of EMS Physicians (NAEMSP), in conjunction with the National Association of State EMS Directors (NASEMSD).

The *Agenda* provided a global vision for Emergency Medical Services:

Emergency Medical Services (EMS) of the future will be community-based health management that is fully integrated with the overall health care system. It will have the ability to identify and modify illness and injury risks, provide acute illness and injury care and follow-up, and contribute to treatment of chronic conditions and community health monitoring. This new entity will be developed from redistribution of existing health care resources and will be integrated with other health care providers and public health and public safety agencies. It will improve community health and result in a more appropriate use of acute health care resources. EMS will remain the public's emergency medical safety net.

Designed for use by public and private stakeholders, the *Agenda* created a common vision to help guide EMS planning and policy development at the local, State and National levels. The *Agenda*, which addresses 14 attributes of the future emergency medical services system, has generated a number of nationally significant projects and activities including the *EMS Education Agenda of the Future: A Systems Approach*.

EMS Education Agenda for the Future: A Systems Approach

The *Agenda's* "Education Systems" attribute contained several recommendations including:

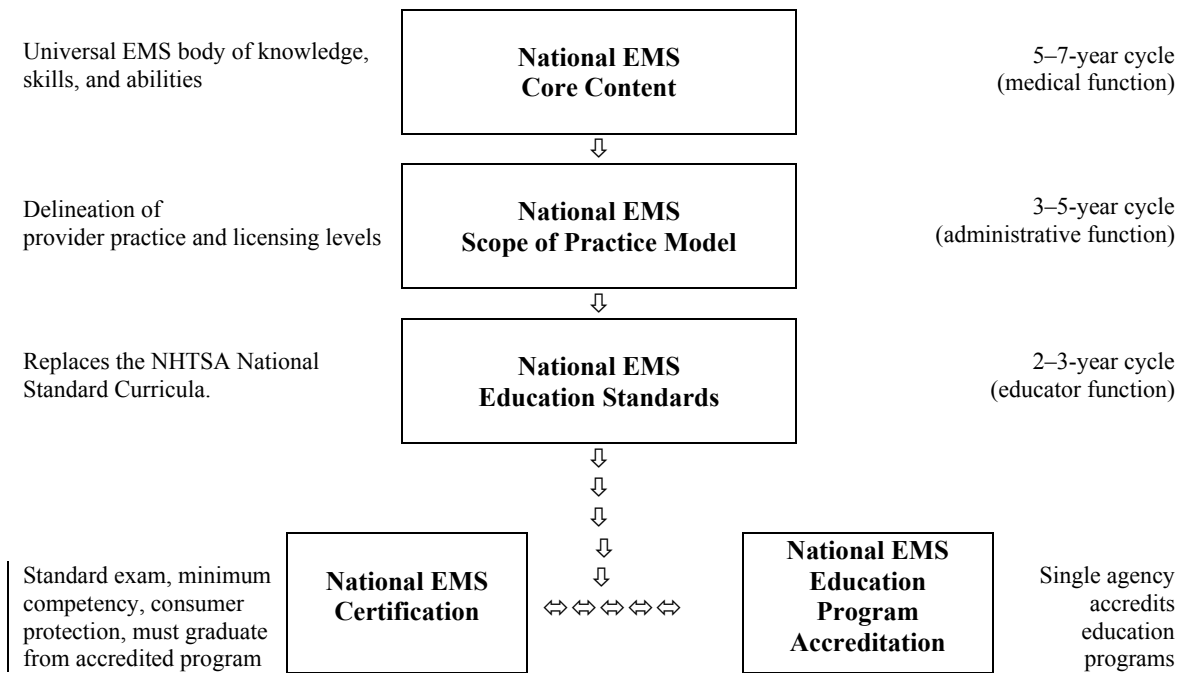
- Ensure adequacy of EMS education programs
- Update education core content frequently enough so it reflects patient EMS-health care needs
- Incorporate research, quality improvement, and management learning objectives in higher level EMS education
- Commission the development of national core content to replace EMS program curricula

Incorporating the recommendations of the *Agenda*, in 2000 a multidisciplinary task force formulated the *EMS Education Agenda for the Future: A Systems Approach* with the following vision:

EMS education in the year 2010 develops competence in the areas necessary for EMS providers to serve the health care needs of the population. Educational outcomes for EMS providers are congruent with the expectations of the health and public safety services that provide them. EMS education emphasizes the integration of EMS within the overall health care system. EMS education is of high quality and represents the intersection of the EMS professional and the formal educational system. The content of the education is based on National EMS Education Standards. There is significant flexibility to adapt to local needs and develop creative instructional programs.

The *EMS Education Agenda for the Future: A Systems Approach* describes a structured national EMS education system with five integrated components as described in the following diagram:

Diagram I



An ad hoc committee of the lead organizations for the first three components of the *Education Agenda*, convened by NHTSA in June 2001, further elucidated the purpose of each component:

- The *National EMS Core Content* will specify what knowledge and skills are necessary in the out-of-hospital setting regardless of level of practice...the domain of EMS practice. The Core Content will also determine how these tasks will be performed;
- The *National EMS Scope of Practice Model* will specify who (which level of practice) will perform specific skills and how much knowledge providers will have at each level; and,
- The *National EMS Education Standards* will prescribe how to teach the knowledge and skills to each provider level.

The *EMS Education Agenda* proposes an integrated system in which the development of each component involves a national consensus-based approach with the right organizations performing the right functions. For instance, the medical community led the development of this *National EMS Core Content*, system administrators will lead the development of the *National EMS Scope of Practice Model*, and EMS educators will lead the development of the *National EMS Education Standards*.

The first three system components are sequential. The *Core Content* forms the foundation for the *Scope of Practice Model* and the *Scope of Practice Model* forms the foundation for the *Education Standards*. The development of the *National EMS Core Content* is the first step of implementing the *National EMS Education Agenda for the Future: A Systems Approach*.

Development of National EMS Core Content

Introduction

While the *National EMS Core Content* task force (Appendix I), led by the National Association of EMS Physicians in cooperation with the American College of Emergency Physicians, was created in the fall of 2001, their deliberations were delayed by the tragic events of September 11, 2001. The task force met several times to develop the structure and format of the *National EMS Core Content* – a formidable task considering the absence of relevant EMS-specific examples and information. The task force reviewed examples from other professions including the *Model of Clinical Practice of Emergency Medicine*.

Initial task force efforts were focused on developing the rationale and underlying assumptions with subsequent work focused on the *National EMS Core Content* itself. Following opportunities for public input, the task force completed its draft document in the winter of 2003-2004.

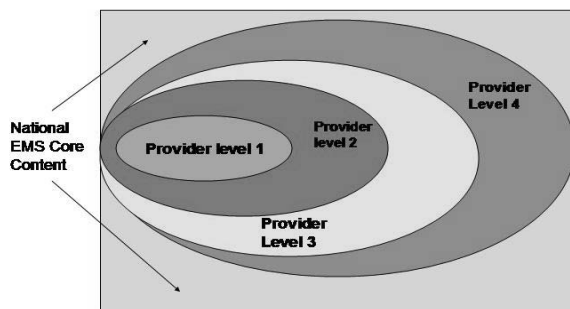
Rationale

Assumptions

The following assumptions and principles guided the development of the *National EMS Core Content*:

- While the medical community leads the development of the *Core Content*, physician involvement and direction is also imperative during the development of each component of the *National EMS Education Agenda: A Systems Approach*.
- *Core Content* defines the entire domain of out-of-hospital practice and identifies the universal body of knowledge and skills for emergency medical services providers who do not function as independent practitioners. The *National EMS Core Content* serves as the total domain from which the *National EMS Scope of Practice Model* derives national EMS provider levels. However, the *Core Content* may identify knowledge and skills that are outside the scope of practice of the highest level of EMS provider. While the actual number of provider levels is dependent on the *National EMS Scope of Practice Model*, the following illustration depicts the relation between the *Core Content* and the *Scope of Practice*:

Core Content and Scope of Practice



NOTE: Above illustration is an example only. The number and names of EMS provider levels will be determined by the *National EMS Scope of Practice Model* process.

- The *Core Content* remains flexible within the established parameters to allow local systems to incorporate into their practice the latest evidence-based medical advances consistent with applicable state laws and administrative rules.
- *Core Content* does not represent a minimum level of knowledge and competency. The *National Scope of Practice Model* will determine the minimum level of knowledge and competency for various levels of EMS providers.

Model of the Clinical Practice of Emergency Medicine

The *Model of Clinical Practice of Emergency Medicine*¹ is a consensus document describing both the process of clinical practice of emergency medicine and the knowledge one must possess. This model was developed by reviewing physician tasks for a variety of patient presentations (signs and symptoms) and pathophysiologies. The rationale for inclusion of signs and symptoms, in addition to pathophysiology, is that most patients are not diagnosed at the time of their presentation to emergency medicine.

The *Model* has several interrelated components:

- Listing of Conditions and Components: The universal body of knowledge one must possess to practice emergency medicine.
- Definitions of Acuity: Definitions of acuity are fundamental to determining the sequence of events in which the physician tasks are carried out.
- List of Patient-Physician Interactions: This list defines all processes used by the physician in delivering care to the patient in the emergency department.
- Matrix: The matrix provides a listing of patient-physician interactions and a corresponding level of acuity (critical, emergent, or lower priority). The patient acuity is fundamental to determining the sequence of patient-physician interactions. The dynamic matrix defines the complex set of interactions that describes the process of delivery of patient care in the emergency department – i.e., the emergency physician modifies the patient interactions based on the patient acuity.

The *Model of the Clinical Practice of Emergency Medicine* is not simply a listing of knowledge and skills, but rather a complex, interactive process that defines a patient-centered practice. The physician must first master the Listing of Conditions and Components, determine the level of criticality when first assessing a patient, and then perform the physician-patient interactions in an order that is dependent on patient criticality.

¹ American Board of Emergency Medicine. www.abem.org.

National EMS Core Content

Introduction

The *National EMS Core Content* uses the *Model of Clinical Practice of Emergency Medicine* as the template. This will further align the out-of-hospital community with the medical community. With out-of-hospital providers using the same terminology and definitions as other allied health care partners, this may lead to enhanced patient care and facilitate EMS's professional acceptance.

The *Model of Clinical Practice of Emergency Medicine* Listing of Conditions and Components, as well as its matrix, was used as a basis for developing the *National EMS Core Content*. The appropriateness for inclusion of each item in the Core Content was considered individually. Definitions of patient acuity and tasks were developed consistent with out-of-hospital practice.

The following principles guided the decision-making process:

- Criticality relates to patient presentation and not to the degree of emphasis that must be placed on the topic during instruction;
- A differential diagnosis needs to be developed in sufficient depth to allow the EMS provider to determine what treatment might be harmful;
- EMS education is in the form of building blocks to allow the EMS provider to integrate knowledge to care for the patient appropriately.

As with the *Model of the Clinical Practice of Emergency Medicine*, the *National EMS Core Content* is not just a list of knowledge, skills, and tasks; it describes what EMS providers must know and how they practice. The EMS providers must master, at their level of licensure, the Listing of Conditions and Components, and must learn skills and procedures unique to their practice. Then, when assessing a patient, the EMS provider must use their knowledge, skills, and procedures commensurate with the level of patient criticality.

Components of National EMS Core Content

Listing of Conditions and Components

The universal body of knowledge one must possess to practice emergency medical services. The *National EMS Core Content* used the listing of the *Model of Clinical Practice of Emergency Medicine* as a starting point. (See Appendix 2)

Patient Acuity Definitions

Definitions of acuity are fundamental to determining the sequence of events in which the EMS provider tasks are carried out. These definitions are consistent with those in the *Model of Practice of Emergency Medicine*. (See Appendix 3)

Out-of-Hospital/EMS Task Definitions/Elements

This list defines all processes used by the EMS personnel in delivering care to the patient in the out-of-hospital environment. (See Appendix 4)

Matrix of Out-of-Hospital/EMS Task Definitions/Elements

The matrix provides a listing of EMS tasks and a corresponding level of acuity (critical, emergent, or lower priority). The patient acuity is fundamental to determining the sequence of performing the tasks.

The dynamic matrix defines the complex set of interactions that describes the process of delivery of patient care in the out-of-hospital environment – i.e., the EMS personnel modify the patient interactions based on the patient acuity. (See Appendix 5)

Procedures and Skills Integral to the Practice of EMS

This listing of procedures and skills recognizes the unique characteristics of out-of-hospital practice and provides additional clarity to the Scope of Practice and National EMS Education Standards Task Forces. (See Appendix 6)

Other Components of the Practice of EMS

This listing of other practice components helps to further elucidate the practice of emergency medical services and to provide guidance to remaining components of the *EMS Education Agenda for the Future*. (See Appendix 7)

All the components of the *Core Content* together define the entire domain of EMS knowledge and skills for out-of-hospital providers based on the interaction of patient complaints, presenting signs and symptoms, and potential patient criticality. It recognizes the need for delineation of the procedures, skills, and other components of the practice of EMS. The *National EMS Core Content* provides the domain from which the *National EMS Scope of Practice Model* is derived.

Special Note Concerning Pediatric, Geriatric, and Other Special Population Patients:

The *National EMS Core Content* focuses on the domain of practice for the care of ALL patients. It does not separately address the unique knowledge, skills, and attitudes necessary to care for special patient populations, such as children, elders, cardiac, trauma, and technology-assisted patients. However, the entire *EMS Education Agenda for the Future: A Systems Approach* ultimately must assure that the EMS education system adequately prepares EMS professionals to care for each of these distinct patient populations. Specifically, this will necessitate the inclusion of additional information in both the *National EMS Scope of Practice Model* and the *National EMS Education Standards* pertaining to which EMS professional levels are best prepared to manage each of these populations in the out-of-hospital setting. The vigilance of the authors of the *National EMS Scope of Practice Model* and of the *National EMS Education Standards* toward the needs of those special populations will be paramount to assure the continuation of the tremendous strides in EMS education during the past 20 years.

For example, in addressing the needs of pediatric patients, the *National EMS Scope of Practice Model* may specify which of the conditions and components delineated in the *National EMS Core Content* affect infants and children, and which provider levels are best suited to care for them. Likewise, in addressing the needs of pediatric patients, the *National EMS Education Standards* would specify how etiology, presentation, and treatment in pediatric patients may vary from adult patients, emphasizing disparities in pediatric and adult assessment, based upon anatomic, physiologic, developmental, and behavioral differences. Thus, the *National EMS Education Standards* would likely include both specific knowledge about pediatric respiratory conditions such as croup, laryngeal foreign body, epiglottitis, bacterial tracheitis, bronchiolitis, and tracheal foreign body – in addition to asthma and pneumonia which occur in adult and pediatric populations alike; and an assessment-based approach to their management – stressing symptomatic relief of respiratory distress and failure, rather than treatment of specific diagnoses. They may also incorporate specific skills, such as intraosseous infusion, that are used rarely in adults, and could de-emphasize certain others, such as endotracheal intubation, that have been demonstrated to possess limited utility in the pediatric population. A similar approach would be used for conditions and components affecting other special populations, extending the range of the *National EMS Core Content* to patients of all ages and all health needs.

Appendices

Appendix 1: Task Force Members

American Ambulance Association

Steve Murphy, R.N.
Vice President, Government and National Services
Greenwood, Colorado

American College of Emergency Physicians

Eric Davis, M.D., FACEP
University of Rochester
Rochester, New York

American College of Surgeons

Norman McSwain, M.D., FACS
Tulane University
New Orleans, Louisiana

International Association of Fire Chiefs

Deputy Chief Allen McCullough, Ph.D.
Fayette County Department of Fire and Emergency Services
Fayetteville, Georgia

International Association of Fire Fighters

Jonathan Moore, NREMT-P
Director, Fire/EMS Operations
Washington, DC

National Association of EMS Educators

Debra Cason, MS, R.N., EMT-P
University of Texas Southwestern Medical Center
Dallas, Texas

Arthur Hsieh, M.A., NREMT-P
George Washington University
Washington, DC

National Association of EMS Physicians

Robert Domeier, M.D.
EMS Medical Director
Ann Arbor, Michigan

Vincent N. Mosesso, Jr., M.D.
University of Pittsburg
Pittsburgh, Pennsylvania

National Association of Emergency Medical Technicians

Steve Mercer, Education Coordinator
Iowa Department of Public Health, Bureau of EMS
Des Moines, Iowa

National Association of State EMS Directors

Michael Armacost
Colorado State EMS Director
Denver, Colorado

National Council of State EMS Training Coordinators

Liza Burrill
EMS Education Coordinator
New Hampshire Department of Safety, Bureau of EMS
Berlin, New Hampshire

National Registry of Emergency Medical Technicians

Chief Jon Politis
Colonie EMS Department
Latham, New York

National Volunteer Fire Council

Kenneth R. Knipper
Melbourne, Kentucky

Task Force Administrative Team

Jon Krohmer, M.D., FACEP
Principal Investigator
Kent County EMS
Grand Rapids, Michigan

John Brennan, M.D.
Co-Principal Investigator
Medical Director
Randolph, New Jersey

Beth Adams, MA, R.N., NREMT-P
Expert Writer
Fairfax County Fire and Rescue Department
Fairfax, Virginia

Debra Perina, M.D.
Subject Matter Expert
University of Virginia
Ruckersville, Virginia

Michael P. Flanagan, CAE
Grants Project Director,
National Association of EMS Physicians
Lenexa, Kansas

Federal Partners

Jeff Michael, Ed.D.
National Highway Traffic Safety Administration
Washington, DC

Drew Dawson
National Highway Traffic Safety Administration
Washington, DC

David Bryson, COTR
National Highway Traffic Safety Administration
Washington, DC

Cindy Doyle, R.N.
EMS for Children
Health Resources and Services Administration/Maternal Child Health Bureau
Washington, DC

Dan Kavanaugh, M.S.W.
EMS for Children
Health Resources and Services Administration/Maternal Child Health Bureau
Rockville, Maryland

Edward Liao, M.P.H.
National Field Director
EMS for Children National Resource Center
Silver Spring, Maryland

Appendix 2: Listing of Conditions and Components

1.0 PATIENT COMPLAINTS AND PRESENTING SIGNS AND SYMPTOMS			
	Critical	Emergent	Lower Acuity
1.1 General			
Altered mental status	X	X	X
Anxiety		X	X
Apnea	X		
Ataxia		X	X
Back pain	X	X	X
Bleeding	X	X	X
Change in behavior/interaction		X	X
Coma	X	X	
Confusion		X	X
Crying/Fussiness		X	X
Cyanosis	X	X	
Decreased level of consciousness	X	X	X
Dehydration		X	X
Dizziness		X	X
Edema		X	X
Fatigue		X	X
Feeding problems			X
Fever	X	X	X
Hypertension		X	X
Hypotension	X	X	
Jaundice			X
Joint pain/Swelling		X	X
Limp (infant)	X		
Limp (gait)		X	X
Malaise			X
Multiple trauma	X	X	
Blood & body fluid exposure (e.g., needle stick)			X
Neglect		X	X
Pain	X	X	X
Paralysis	X	X	
Paresthesia/Dyesthesia		X	X
Poisoning	X	X	X
Pruritus			X
Rash		X	X
Shock	X		
Syncope	X	X	X
Tremor			X
Weakness		X	X
1.2 Abdominal/Pelvis			
Abnormal vaginal bleeding	X	X	X
Anuria		X	
Ascites			X
Colic			X
Constipation		X	X

Cramps		X	X
Diarrhea		X	X
Distention		X	X
Dysmenorrhea			X
Dysuria			X
Hematemesis	X	X	
Hematochezia	X	X	X
Hematuria		X	X
Melena	X	X	X
Nausea/Vomiting		X	X
Pain		X	X
Peritonitis		X	
Polyuria		X	X
Rectal bleeding	X	X	X
Rectal pain		X	X
Urinary incontinence			X
Urinary retention		X	X
1.3 Chest			
Bradycardia	X	X	X
Chest pain	X	X	X
Cough			X
Dyspnea	X	X	
Hemoptysis	X	X	
Hiccough			X
Palpitations & irregular heart beat	X	X	X
Tachycardia	X	X	X
Wheezing	X	X	
1.4 Head and Neck			
Congestion			X
Diplopia		X	
Dysphagia		X	X
Ear pain			X
Eye pain		X	X
Headache	X	X	X
Loss of or change in hearing			X
Loss of or change in vision		X	
Red eye / pink eye			X
Sore throat		X	X
Stridor	X	X	
Tinnitus			X
Vertigo		X	X
Drooling	X	X	X
Dental pain			X
Swelling	X	X	X

2.0 ABDOMINAL AND GASTROINTESTINAL DISORDERS			
	Critical	Emergent	Lower Acuity
2.1 Abdominal Wall			
Hernias		X	X
Gastrostomy/enterostomy problems		X	X
2.2 Esophagus			
Infectious disorders			
Candida		X	X
Inflammatory disorders			
Esophagitis		X	X
Gastroesophageal reflux (GERD)			X
Toxic effects of caustic agents			
Acid	X	X	
Alkali	X	X	
Structural disorders			
Boerhaave's syndrome	X	X	
Foreign body		X	
Hiatal Hernias		X	X
Mallory-Weiss syndrome	X	X	
Stricture and stenosis		X	X
Tracheoesophageal fistula	X	X	
Varices	X	X	
2.3 Liver			
Cirrhosis		X	X
Hepato-renal failure		X	
Infectious disorders		X	X
Hepatitis		X	X
Tumors		X	X
2.4 Gall Bladder and Biliary Tract			
Cholecystitis			X
Cholelithiasis/Choledocholithiasis		X	X
2.5 Pancreas			
Pancreatitis	X	X	
Tumors		X	X
2.6 Peritoneum			
Peritonitis	X	X	
2.7 Stomach			
Inflammatory disorders			
Gastritis		X	X
Peptic ulcer disease		X	X
Hemorrhage	X	X	
Perforation	X	X	
Structural disorders			
Foreign body		X	X
Pyloric stenosis		X	X
2.8 Small Bowel			
Infectious disorders		X	X
Inflammatory disorders			
Gastroenteritis		X	X
Regional enteritis/Crohn's disease		X	X

Necrotizing enterocolitis	X	X	
Obstruction			
Mechanical		X	
Paralytic ileus		X	
Structural disorders			
Aortoenteric fistula	X		
Congenital anomalies		X	X
Volvulus (midgut)	X	X	
Vascular insufficiency	X	X	
2.9 Large Bowel			
Infectious disorders		X	X
Inflammatory disorders			
Acute appendicitis		X	
Necrotizing enterocolitis (NEC)	X	X	
Radiation colitis		X	
Ulcerative colitis		X	X
Irritable bowel			X
Obstruction			
Functional			
Hirschsprung's disease		X	X
Mechanical		X	X
Structural disorders			
Congenital anomalies		X	X
Diverticula		X	X
Intussusception	X	X	
Volvulus (sigmoid, cecal)	X	X	
Tumors		X	X
2.10 Rectum and Anus			
Infectious disorders			
Abscess		X	X
Inflammatory disorders			
Proctitis			X
Structural disorders			
Foreign body		X	X
Hemorrhoids			X
Rectal prolapse		X	

3.0 CARDIOVASCULAR DISORDERS			
	Critical	Emergent	Lower Acuity
3.1 Cardiopulmonary Arrest	X		
SIDS	X		
Other causes	X		
3.2 Congenital Abnormalities of Cardiovascular System			
Disorders due to anatomic anomalies	X	X	X
3.3 Disorders of Circulation			
Arterial			
Aneurysm	X	X	X
Aortic dissection	X		
Thromboembolism		X	
Venous			
Thromboembolism	X	X	

3.4 Disturbances of Cardiac Rhythm			
Cardiac dysrhythmias	X	X	X
Ventricular	X	X	
Supraventricular	X	X	X
Conduction disorders	X	X	X
3.5 Diseases of the Myocardium, Acquired			
Cardiac failure	X	X	
Cor pulmonale	X	X	
High output	X	X	
Low output	X	X	
Cardiomyopathy	X	X	X
Hypertrophic	X	X	X
Congestive heart failure	X	X	
Acute Coronary syndromes	X	X	
Ischemic heart disease	X	X	
Myocardial infarction	X	X	
Myocarditis	X	X	X
3.6 Diseases of the Pericardium			
Pericardial tamponade	X	X	
Pericarditis		X	X
3.7 Endocarditis	X	X	
3.8 Hypertensive Emergencies	X	X	
3.9 Hypotensive Emergencies			
Hypovolemic	X	X	
Distributive	X	X	
Obstructive	X	X	
3.10 Valvular Disorders	X	X	X

4.0 CUTANEOUS DISORDERS			
	Critical	Emergent	Lower Acuity
4.1 Cancers of the Skin			X
4.2 Decubitus Ulcer		X	X
4.3 Dermatitis			
Atopic			X
Contact			X
Eczema			X
Psoriasis			X
4.4 Infections			
Bacterial			
Abscess		X	X
Cellulitis		X	X
Impetigo			X
Necrotizing infection	X	X	
Fungal			
Candida (See 2.2, 7.5)			X
Parasitic			
Pediculosis infestation			X
Scabies			X
Viral			
Herpes simplex (See 10.6, 13.1)			X
Herpes zoster (See 10.6)		X	X

Pox – varicella, variola		X	X
4.5 Maculopapular Lesions			
Purpura		X	X
Urticaria		X	X
4.6 Vesicular/Bullous Lesions	X	X	

5.0 ENDOCRINE, METABOLIC, AND NUTRITIONAL DISORDERS			
	Critical	Emergent	Lower Acuity
5.1 Acid-Base Disturbances			
Metabolic or respiratory			
Acidosis	X	X	
Alkalosis	X	X	X
Mixed acid-base balance disorder	X	X	
5.2 Adrenal Disease			
Corticoadrenal insufficiency	X	X	
5.3 Fluid and Electrolyte Disturbances			
Hyper and Hypocalcemia	X	X	X
Fluid overload/Volume depletion	X	X	
Hyperkalemia/Hypokalemia	X	X	X
Hypernatremia/Hyponatremia	X	X	X
Hyper and HypoMagnesium		X	X
5.4 Glucose Metabolism			
Diabetes mellitus			
Type I	X	X	X
Type II		X	X
Glucose metabolism complications			
Diabetic ketoacidosis (DKA)	X	X	
Hyperglycemia		X	X
Hyperosmolar coma	X	X	
Hypoglycemia	X	X	
Systemic		X	X
5.5 Nutritional Disorders			
Vitamin deficiencies			X
Wernicke-Korsakoff syndrome		X	
5.6 Pituitary Disorders			
Panhypopituitarism	X		
5.7 Thyroid Disorders			
Hyperthyroidism	X	X	X
Hypothyroidism		X	X
Thyroiditis		X	X

6.0 ENVIRONMENTAL DISORDERS			
	Critical	Emergent	Lower Acuity
6.1 Bites and Envenomation (See 18.1)			
Arthropods		X	X
Insects			X
Spiders		X	X
Mammals			
Human		X	X
Rabies		X	X
Marine organisms (See 17.1)	X	X	X
Snakes	X	X	X

6.2 Dysbarism			
Air embolism	X	X	
Barotrauma	X	X	X
Decompression syndrome	X	X	
6.3 Electrical Injury (See 18.1)	X	X	X
Lightning	X	X	
6.4 High-Altitude Illness			
Acute mountain sickness		X	X
Barotrauma of ascent		X	X
High-altitude cerebral edema	X	X	
High-altitude pulmonary edema	X	X	
6.5 Submersion Incidents			
Cold water immersion	X	X	
Near drowning	X	X	
6.6 Temperature-Related Illness			
Heat			
Heat exhaustion		X	X
Heat stroke	X	X	
Heat Cramps			X
Cold			
Frostbite		X	X
Hypothermia	X	X	

7.0 HEAD, EAR, EYE, NOSE, THROAT DISORDERS			
	Critical	Emergent	Lower Acuity
7.1 Ear			
Foreign body		X	X
Impacted cerumen			X
Labyrinthitis			X
Meniere's disease			X
Otitis externa			X
Otitis media			X
Perforated tympanic membrane			X
7.2 Eye			
External eye			
Burn confined to eye and adnexa		X	
Conjunctivitis			X
Corneal abrasions		X	X
Foreign body		X	X
Inflammation of the eyelids			X
Chalazion			X
Hordeolum			X
Anterior pole			
Glaucoma		X	X
Hyphema		X	X
Iritis		X	X
Posterior pole			
Papilledema	X	X	
Retinal detachments and defects		X	
Orbit			
Cellulitis		X	

7.4 Nose			
Epistaxis	X	X	X
Foreign body		X	X
Rhinitis			X
Sinusitis			X
7.5 Oropharynx/Throat			
Dentalgia			X
Dental abscess			X
Diseases of the oral soft tissue			
Ludwig's angina	X	X	
Foreign body	X	X	
Larynx/Trachea			
Epiglottitis	X	X	
Laryngitis			X
Tracheitis		X	X
Oral candidiasis (See 2.2, 4.4)			X
Peritonsillar abscess		X	
Pharyngitis/Tonsillitis			X
Temporomandibular joint disorders			X

8.0 HEMATOLOGIC DISORDERS			
	Critical	Emergent	Lower Acuity
8.1 Blood Transfusion			
Complications	X	X	
8.2 Hemostatic Disorders			
Coagulation defects	X	X	X
Acquired	X	X	X
Hemophilias	X	X	X
Disseminated intravascular coagulation	X		
Platelet disorders	X	X	X
Thrombocytopenia		X	X
8.3 Lymphomas		X	X
8.4 Red Blood Cell Disorders			
Anemias			
Aplastic	X	X	
Hemoglobinopathies		X	X
Sickle cell disease		X	X
Hemolytic		X	
Hypochromic			
Iron deficiency		X	X
Megaloblastic		X	X
Polycythemia		X	X
Methemoglobinemia	X	X	
8.5 White Blood Cell Disorders		X	X
Neutropenia			
Leukemia		X	X
Multiple myeloma		X	X
Pancytopenia	X	X	X

9.0 IMMUNE SYSTEM DISORDERS			
	Critical	Emergent	Lower Acuity
9.1 Collagen Vascular Disease			
Raynaud's disease			X
Rheumatoid arthritis		X	X
Systemic lupus erythematosus		X	X
9.2 HIV and Manifestations	X	X	X
9.3 Hypersensitivity			
Allergic reaction		X	X
Anaphylaxis	X		
Angioedema	X	X	
Drug allergies	X	X	X
9.4 Transplant-Related Problems	X	X	X
Immunosuppression		X	X
Rejection	X	X	

10.0 SYSTEMIC INFECTIOUS DISORDERS			
	Critical	Emergent	Lower Acuity
10.1 Bacterial			
Bacterial food poisoning		X	X
Botulism	X	X	
Chlamydia		X	X
Gonococcal infections		X	X
Meningococemia	X	X	
Mycobacterial infections		X	X
Tuberculosis		X	X
Other bacterial diseases	X	X	
Gas gangrene (See 11.6)	X	X	
Sepsis/Bacteremia	X	X	
Shock	X		
Toxic shock syndrome	X	X	
Spirochetes			
Syphilis		X	X
Tetanus	X	X	
10.2 Biologic Weapons	X	X	
Awareness level of current agents for all EMS personnel		X	
10.3 Fungal Infections		X	X
10.4 Protozoan – Parasites			
Malaria		X	
giardiasis			X
10.5 Tick-Borne			
Ehrlichiosis		X	
Lyme disease		X	
Rocky Mountain spotted fever		X	
10.6 Viral			
Infectious mononucleosis		X	X
Influenza/Parainfluenza		X	X
Hantavirus	X	X	
Herpes simplex		X	X

Herpes zoster/Varicella		X	X
Rabies	X		
Roseola			X
Rubella			X
Smallpox		X	X

11.0 MUSCULOSKELETAL DISORDERS (NONTRAUMATIC)			
	Critical	Emergent	Lower Acuity
11.1 Bony Abnormalities			
Osteomyelitis		X	
Tumors		X	X
11.2 Disorders of the Spine			
Disc disorders		X	X
Low back pain			
Cauda equina syndrome (See 18.1)		X	
Sprains/Strains			X
11.3 Joint Abnormalities			
Arthritis			
Septic		X	
Gout		X	
Rheumatoid (See 9.1)			X
Osteoarthritis			X
Slipped capital femoral epiphysis		X	
11.4 Muscle Abnormalities			
Myalgia/Myositis			X
Rhabdomyolysis	X	X	
11.5 Overuse Syndromes			
Bursitis			X
Muscle strains			X
Peripheral nerve syndrome			X
Carpal tunnel syndrome			X
Tendonitis			X
11.6 Soft Tissue Infections			
Fasciitis		X	
Gangrene	X	X	
Paronychia		X	X
Flexor tenosynovitis of the hand		X	X

12.0 NERVOUS SYSTEM DISORDERS			
	Critical	Emergent	Lower Acuity
12.1 Cranial Nerve Disorders			X
Bell's palsy			X
Trigeminal neuralgia			X
12.2 Demyelinating Disorders	X	X	
Multiple sclerosis		X	
12.3 Headache	X	X	X
Muscle contraction			X
Vascular		X	X
12.4 Hydrocephalus		X	X
Normal pressure		X	X
VP shunt		X	

12.5 Infections/Inflammatory Disorders			
Encephalitis	X	X	
Meningitis			
Bacterial	X	X	
Viral		X	X
12.6 Movement Disorders		X	X
Dystonic reaction		X	X
12.7 Neuromuscular Disorders			
Guillain-Barré syndrome	X	X	
Myasthenia gravis	X	X	
Amyotrophic lateral sclerosis (ALS)			X
Muscular dystrophy			X
12.8 Other Conditions of the Brain			
Dementia			X
Parkinson's disease			X
12.9 Seizure Disorders	X	X	X
Febrile		X	X
Neonatal		X	
Status epilepticus	X		
Generalized, focal		X	X
12.10 Spinal Cord Compression	X	X	
12.11 Stroke			
Hemorrhagic			
Intracerebral	X	X	
Subarachnoid	X	X	
Ischemic	X	X	
12.12 Transient Cerebral Ischemia		X	X
12.13 Tumors		X	X

13.0 OBSTETRICS AND GYNECOLOGY			
	Critical	Emergent	Lower Acuity
13.1 Female Genital Tract			
Infectious disorders			
Pelvic inflammatory disease		X	
Ovary			
Cyst			X
Torsion		X	
Uterus			
Dysfunctional bleeding		X	X
Endometriosis			X
Prolapse			X
Vagina and vulva			
Bartholin's abscess		X	
Foreign body		X	X
Vaginitis/Vulvovaginitis			X
13.2 Normal Pregnancy			X
13.3 Complications of Pregnancy			
Abortion		X	
Ectopic pregnancy	X	X	

Hemorrhage, antepartum			
Abruptio placenta (See 18.2)	X	X	
Placenta previa	X	X	
Hyperemesis gravidarum		X	X
Pregnancy-induced hypertension		X	X
Eclampsia	X	X	
Preeclampsia		X	
Infections		X	
13.4 High-Risk Pregnancy	X	X	
13.5 Normal Labor and Delivery		X	X
13.6 Complications of Labor			
Fetal distress	X		
Premature labor (See 18.2)		X	
Premature rupture of membranes		X	
Rupture of uterus (See 18.2)	X		
13.7 Complications of Delivery			
Malposition of fetus	X	X	
Nuchal cord	X		
Prolapse of cord	X		
13.8 Postpartum Complications			
Endometritis		X	
Hemorrhage	X	X	

14.0 PSYCHOBEHAVIORAL DISORDERS			
	Critical	Emergent	Lower Acuity
14.1 Addictive Behavior			
Alcohol dependence			X
Drug dependence			X
Eating disorders		X	X
Substance abuse			X
14.2 Mood Disorders and Thought Disorders			
Acute Psychosis	X	X	
Bipolar disorder		X	X
Depression		X	X
Suicidal risk	X	X	
Grief reaction			X
Schizophrenia		X	X
14.3 Factitious Disorders			
Drug-seeking behavior			X
Munchausen's by proxy		X	X
14.4 Neurotic Disorders			
Anxiety/Panic			X
Obsessive compulsive			X
Phobic			X
Post-traumatic stress			X
14.5 Organic Psychoses			
Chronic organic psychotic conditions			X
Alcoholic psychoses		X	X
Drug psychoses		X	X
Delirium		X	
Dementia			X

Intoxication and/or withdrawal			
Alcohol			X
Hallucinogens		X	X
Opioids	X	X	X
Phencyclidine		X	
Sedatives/Hypnotics/Anxiolytics	X	X	X
Sympathomimetics and cocaine	X	X	X
14.6 Patterns of Violence/Abuse/Neglect			
Domestic			
Child, spouse, elder		X	
Homicidal Risk	X	X	
Sexual assault	X	X	
Staff/Patient safety		X	
14.7 Personality Disorders			X
14.8 Psychosomatic Disorders			
Hypochondriasis			X
Hysteria/Conversion			X

15.0 RENAL AND UROGENITAL DISORDERS			
	Critical	Emergent	Lower Acuity
15.1 Acute and Chronic Renal Failure	X	X	X
15.2 Complications of Renal Dialysis	X	X	
15.3 Infection			
Cystitis			X
Pyelonephritis		X	
15.4 Male Genital Tract			
Genital lesions			X
Hernia		X	X
Hydrocele			X
Inflammation/Infection			
Epididymitis/Orchitis		X	X
Gangrene of the scrotum (Fournier's gangrene)	X	X	
Prostatitis		X	X
Urethritis			X
Structural			
Paraphimosis/Phimosis		X	
Priapism		X	
Prostatic hypertrophy (BPH)			X
Torsion of testis		X	
Testicular masses			X
Undescended testicle			X
15.5 Structural Disorders			
Calculus of urinary tract		X	X

16.0 THORACIC-RESPIRATORY DISORDERS			
	Critical	Emergent	Lower Acuity
16.1 Acute Upper Airway Disorders			
Infections			
Bacterial tracheitis		X	X
Croup		X	
Epiglottitis	X	X	

Pertussis/Whooping cough	X	X	
Upper respiratory infection			X
Obstruction	X		
Trauma	X	X	
Tracheostomy/Complications	X	X	
16.2 Disorders of Pleura, Mediastinum, and Chest Wall			
Costochondritis			X
Hemothorax	X	X	
Pleural effusion		X	X
Pleuritis			X
Pneumomediastinum		X	
Pneumothorax			
Simple		X	
Tension	X		
16.3 Noncardiogenic Pulmonary Edema	X	X	
16.4 Obstructive/Restrictive Lung Disease			
Asthma/Reactive airway disease	X	X	
Bronchiolitis (RSV)		X	X
Bronchopulmonary dysplasia		X	X
Chronic obstructive pulmonary disease	X	X	X
Cystic fibrosis	X	X	X
Environmental/Industrial exposure including acute and chronic nature	X	X	X
Foreign body	X	X	
16.5 Physical and Chemical Irritants/Insults			
Toxic effects of gases, fumes, vapors	X	X	X
16.6 Pulmonary Embolism/Infarct	X	X	
16.7 Pulmonary Infections			
Lung abscess		X	
Pneumonia			
Aspiration	X	X	
Infectious	X	X	X
Pulmonary tuberculosis		X	
16.8 Tumors			
Breast			X
Chest wall			X
Pulmonary		X	X

17.0 PHARMACOLOGY			
	Critical	Emergent	Lower Acuity
17.1 Basic principles of pharmacology	X	X	X
Drug legislation and control	X	X	X
Drug naming and classification	X	X	X
Drug schedules	X	X	X
Drug storage and security	X	X	X
Drug administration routes	X	X	X
Autonomic pharmacology	X	X	X
Drug metabolism and excretion	X	X	X
Mechanisms of drug action	X	X	X
Phases of drug activity	X	X	X
Pharmacokinetics	X	X	X

Drug response relationships	X	X	X
Factors affecting response	X	X	X
Predictable responses	X	X	X
Iatrogenic responses	X	X	X
Unpredicted adverse responses	X	X	X
Drug interactions	X	X	X
Drug toxicity	X	X	X
17.2 Drug and Chemical Classes			
Analgesics			
Acetaminophen		X	
Nonsteroidal anti-inflammatories		X	X
Opiates and related narcotics	X	X	
Salicylates	X	X	
Alcohol			
Ethanol	X	X	X
Glycol	X	X	
Isopropyl	X	X	X
Methanol	X	X	
Amphetamines	X	X	
Anesthetics	X	X	
Anticholinergics/Cholinergics	X	X	
Anticoagulants	X	X	
Anticonvulsants	X	X	
Antidepressants	X	X	
Antiparkinsonism drugs		X	
Antihistamines and antiemetics		X	
Antipsychotics	X	X	
Beta Blockers	X	X	
Bronchodilators		X	
Carbon monoxide	X	X	
Cardiovascular drugs			
Antiarrhythmics	X	X	
Antihypertensives	X	X	
Beta blockers	X	X	
Calcium channel blockers	X	X	
Caustic agents			
Acid	X	X	
Alkali	X	X	
Cocaine	X	X	X
Cyanides, hydrogen sulfide	X	X	
Hallucinogens		X	X
Hazardous materials	X	X	
Heavy metals	X	X	
Herbicides, insecticides, and rodenticides	X	X	
Household/Industrial chemicals	X	X	X
Hormones/Steroids		X	X
Hydrocarbons	X	X	
Hypoglycemics/Insulin	X	X	
Inhaled toxins	X	X	
Iron	X	X	

Isoniazid	X	X	
Marine toxins	X	X	
Methemoglobinemia	X	X	
Mushrooms/Poisonous plants	X	X	
Neuroleptics	X	X	
Non-prescription drugs		X	X
Nutritional supplements herbal agents		X	X
Paralytics	X		
Organophosphates	X	X	
Recreational drugs	X	X	X
Sedatives/Hypnotics	X	X	
Stimulants/Sympathomimetics	X	X	
Strychnine	X	X	
17.3 Toxicology			
General concepts of toxicology	X	X	X
Toxidromes			
Narcotics	X	X	X
Organophosphates	X	X	
Recreational drugs	X	X	X
Carbon monoxide	X	X	X
17.4 Hazardous materials	X		

18.0 TRAUMATIC DISORDERS			
	Critical	Emergent	Lower Acuity
18.1 Trauma			
Abdominal trauma			
Diaphragm	X	X	
Hollow viscus	X	X	
Penetrating	X	X	
Retroperitoneum	X	X	
Solid organ	X	X	
Vascular	X	X	
Chest trauma			
Aortic dissection/Disruption	X		
Contusion			
Cardiac	X	X	X
Pulmonary	X	X	
Fracture			
Clavicle		X	X
Ribs/Flail chest	X	X	X
Sternum		X	X
Hemothorax	X	X	
Penetrating chest trauma	X	X	
Pericardial tamponade	X		
Pneumothorax			
Simple		X	
Tension	X		
Cutaneous injuries			
Avulsions		X	X
Bite wounds		X	X
Burns			

Electrical	X	X	X
Chemical	X	X	X
Thermal	X	X	X
Lacerations		X	X
Puncture wounds		X	X
Facial fractures			X
Dental		X	X
Le Fort	X	X	X
Mandibular		X	X
Orbital		X	X
Genitourinary trauma			
Bladder		X	
External genitalia		X	
Renal		X	
Ureteral		X	
Head trauma			
Intracranial injury	X	X	
Scalp lacerations/Avulsions		X	X
Skull fractures		X	X
Injuries of the spine			
Dislocations/Subluxations	X	X	
Fractures	X	X	X
Sprains/Strains			X
Lower extremity bony trauma			
Dislocations/Subluxations		X	
Fractures (open and closed)		X	X
Neck trauma			
Laryngotracheal injuries	X	X	
Penetrating neck trauma	X	X	
Vascular injuries			
Carotid artery	X	X	
Jugular vein	X	X	
Ophthalmologic trauma			
Corneal abrasions/Lacerations		X	X
Corneal burns			
Acid		X	
Alkali		X	
Ultraviolet		X	X
Eyelid lacerations		X	
Foreign body		X	
Hyphema		X	
Penetrating globe injuries		X	
Retinal detachments		X	
Traumatic iritis		X	X
Otologic trauma			
Hematoma		X	X
Perforated tympanic membrane			X
Pediatric fractures			
Epiphyseal		X	X
Greenstick		X	

Torus			X
Pelvic fracture	X	X	
Soft-tissue extremity injuries			
Amputations/Replantation		X	
Compartment syndromes		X	
High-pressure injection		X	
Injuries to joints		X	X
Knee		X	X
Penetrating		X	
Penetrating soft-tissue		X	X
Periarticular			X
Sprains and strains			X
Tendon injuries			
Lacerations/Transections		X	
Ruptures		X	
Achilles tendon		X	
Patellar tendon		X	
Spinal cord/nervous system trauma			
Cauda equina syndrome		X	
Injury to nerve roots		X	X
Peripheral nerve injury		X	X
Spinal cord injury	X	X	
Spinal cord injury without radiologic abnormality (SCIWORA)		X	
Upper extremity bony trauma			
Dislocations/Subluxations		X	
Fractures (open and closed)		X	X
18.2 Trauma in Pregnancy			
Abruptio placenta	X	X	
Perimortum C-section	X		
Premature labor		X	
Rupture of uterus	X		
18.3 Multi-system Trauma	X	X	
Blast injury	X	X	

Appendix 3: Patient Acuity Definitions

Note: These definitions match the *Model of Clinical Practice of Emergency Medicine* and acknowledge that the patient's acuity level is essential for identifying priorities for care in the out-of-hospital setting.

Critical	Emergent	Lower Acuity
Patient presents with symptoms of a life-threatening illness or injury with a high probability of mortality if immediate intervention is not begun to prevent further airway, respiratory, hemodynamic and/or neurologic instability.	Patient presents with symptoms of an illness or injury that may progress in severity or result in complications with a high probability for morbidity if treatment is not begun quickly.	Patient presents with symptoms of an illness or injury that have a low probability of progression to more serious disease or development of complications.

Appendix 4: Out-of-hospital/EMS Task Definitions/Elements

TASKS	DEFINITIONS/ELEMENTS
Operational readiness	Vehicle operations, staffing, communications network, equipment & supplies, medical oversight, legal/ethical, standard operating procedures/guidelines, Special Ops, rescue; MCI/ICS
Scene management	Environment, hazards, violence, safety & scene stabilization, BSI/PPE, security, additional or specialized resources, access, communications
Pre-arrival care	Home remedies, lay rescuer, EMD, first on scene; AED, on-scene physician
Primary assessment & emergency stabilization	ABCs/qualitative assessment of vital functions, general initial impression, initiate treatment/procedures needed to preserve life
Secondary assessment	ABCs, history & physical exam, mechanism of injury, vital signs, ABGs
Modifying factors	Age, gender, race, ethnicity, weight, special needs/disabilities, communication barriers (language, hearing impairment, etc.), religious beliefs, sexual orientation, underlying disease, mental status, family dynamics or bystanders, environment, available resources
Professional issues	Legal/ethical, jurisdictional, education (primary & CME), CQI/data analysis/research, certification/licensure, interaction with other health care professionals, wellness/stress reduction, disease exposure, impairment issues, team performance, professional associations, health promotion, role in continuum of care, community health, scope of practice, death & dying, DNR, advanced directives, family dynamics, reportable diseases or conditions, applicable regulations
Assessment tools & adjuncts	Stethoscope, sphygmomanometer, BP monitoring devices, ETCO ₂ , pulse oximetry, physical exam skills, thermometer, EKG, 12-lead EKG, glucometer, field lab tests
Differential diagnosis and field impression	Based on clinical presentation & assessment identify potential causes. Clinical judgment/critical thinking
Therapeutic interventions	Pharmacological & nonpharmacological therapy, procedures, therapeutic communication/counsel.
Reassessment	On-going assessment, evaluate & re-evaluate effectiveness of interventions

Communication/consultation	Direct/indirect, patient/family, collaboration (M.D.s, specialty consultants), receiving facility notification, EMTALA, media, dispatch.
Documentation	Written/verbal patient care reporting, transfer & release of information; reportable diseases/conditions/situations, standardized format (minimum data set), privacy issues, CQI
Disposition	EMTALA, diversion destination issues, appropriate facility, non-transport issues, specialty transport (aeromedical), dead on scene, termination of resuscitation, community resources
Prevention & education	Injury prevention, public education, community resources (social services, support groups, shelters, mental health), federal/state regulations.
Multitasking & team management	ICS/MCI, risk management, multiple agency response, special operations, ICS, domestic preparedness, homeland security.

Appendix 5: Matrix of out-of-hospital/EMS tasks by patient acuity

Note: This matrix is not intended as a chronological listing of tasks but rather recognizes that the patient's acuity level is essential for identifying priorities for care and guiding on-scene decision making as well. Task elements and definitions are enumerated in Appendix 4.

TASKS	PATIENT ACUITY		
	CRITICAL	EMERGENT	LOWER ACUITY
<ul style="list-style-type: none"> • Operational readiness • Scene management • Pre-arrival care • Primary assessment/emergency stabilization • Secondary assessment • Modifying factors • Professional issues • Assessment tools & adjuncts • Differential diagnosis/field impression • Therapeutic interventions • Reassessment • Communication & consultation • Disposition • Documentation • Multitasking & team management • Prevention & education 			

Appendix 6: Procedures and Skills Integral to the Practice of Emergency Medical Services

The *Core Content* specifies those procedures/skills that are medically acceptable in the out-of-hospital setting. This list should not be considered restrictive with the exception of those skills that should be prohibited. The task force felt strongly the “prohibited skills” should not be included as part of the scope of practice for any level of nonphysician EMS provider.

This list outlines the general principles of skills, not specifics techniques.

AIRWAY TECHNIQUES

Airway adjuncts

Airway Maneuvers

Alternate Airway Devices

Cricothyrotomy

Obstructed Airway Clearance

Intubation

1. Nasotracheal
2. Orotracheal
3. Pharmacological facilitation
4. Confirmation procedures

Oxygen Delivery Systems

Suction

Ventilation – assisted / mechanical

Anesthesia (Local)

Pain Control & Sedation

Blood and Component Therapy Administration

Diagnostic Procedures

Blood chemistry analysis

Capnography

Pulmonary function measurement

Pulse Oximetry

Ultrasonography

Genital/Urinary

Bladder catheterization

1. Foley catheter

Testicular detorsion

HEAD AND NECK

Control of epistaxis

1. Anterior packing

Tooth replacement

Hemodynamic Techniques

Arterial catheter insertion and maintenance

Central venous access

Intraosseous access & infusion

Peripheral venous access & maintenance

Hemodynamic monitoring

12-lead ECG monitoring

Obstetrics

Delivery of newborn

Other Techniques

Bleeding control

Foreign body removal

Incision/Drainage

Intravenous therapy

Medication administration

Nasogastric tube

Pericardiocentesis

Pleural decompression

Patient restraint

Sexual assault victim management

Trephination of nails

Wound closure techniques

Wound management

Resuscitation

Cardiopulmonary resuscitation (CPR) (all ages)

Skeletal Procedures

Care of the amputated part

Fracture/Dislocation immobilization techniques

Fracture/Dislocation reduction techniques

Spine immobilization techniques

Thoracic

Cardiac pacing

Defibrillation/Cardioversion

Thoracostomy

Body Substance Isolation / PPE

Lifting and moving techniques

****MEDICALLY UNACCEPTABLE PROCEDURES and SKILLS****

Burr holes

Demand valve devices without flow-restricted heads

EOA/EGTA

Field Amputation

Ipecac

Perimortum C-section

Appendix 7: Other Components of the Practice of EMS

Administration

- Diversity
- Finance and reimbursement
- Health care systems
- Licensing or certification/credentialing
- Negotiation

Critical care activities

- Critical care transport – ground and air medical
 - 1. Flight physiology
- Interfacility issues
- Neonatal transport
- High-risk OB transport

Disaster and domestic preparedness issues (WMD)

- Emergency management
- MCI/Disaster preparedness
- Terrorism preparedness

Disposition issues

- ED transport
- Nontransport
- Alternative destination
- Against medical advice
- Transfer of care
- Medical Examiner investigation

Education

- Education principles & practices
- EMS personnel education
- Patient education
- Public education

EMS safety & well-being

Episodic/nonacute care activities

- Patient home assistance
- Social assistance
- Home health care assistance

Hazmat decontamination and treatment

Interagency cooperation

Legal and regulatory issues

Accreditation

1. Training programs
2. Agencies

Compliance

1. Health and safety standards
2. Reimbursement

Confidentiality

1. HIPAA

Consent and Refusal of Care

Emergency Medical Treatment and Active Labor Act (EMTALA)

Liability and Malpractice

Reporting (Assault, Communicable Diseases, surveillance programs)

Forensic issues

Management and training

Quality management / performance improvement

Service training officer development

Field training officer development

Field supervision

General EMS service operations

Communications and interpersonal issues

Teamwork

Medical director

Nonprofit and volunteer management

Basic research design, methods and interpretation

Medical oversight

Online & off-line

Protocol development

Qualifications of the medical director

Roles and responsibilities of the medical director

Miscellaneous

End of life care – termination of resuscitation

Life span development

Organ and tissue procurement

Patients with special health care needs

Post-resuscitative care

Nontraditional environments

Nursing homes

Physician offices

Wilderness

Prolonged transport

Rural EMS

Occupational/industrial settings

Operations

- Access and response
- Crime scene operations
- Dispatch activities
- Documentation
- Emergency vehicle operations
- EMS operations command and control
 1. ICS
 2. Strategies and tactics
 3. Command and control
- Equipment use and maintenance
- Extrication/rescue
 1. Machinery
 2. Vehicle
 3. Hazardous terrain / environments
- System design and management

Professionalism

- Ethics
- Impairment
- Leadership (leading, directing and mentoring)
- Personal well-being
- Professional development and learning
- Death and dying issues
- Cultural diversity
- Societal issues
 1. Homeless
 2. Co-dependency issues - addiction
 3. Social/economic issues – financial burdens

Public Health Issues

- Public health principles
- Injury prevention
- Health promotion
 1. Care of chronic illness
 2. Community health monitoring
- Immunization programs
- Epidemiology
- Surveillance
- Public education
- Home health care
 1. Post-discharge follow-up

Special events and mass gathering

Specialty care issues

- TEMS
- Agrimedecine
- Fire ground support
- USAR/confined space
- Hazmat medicine

Appendix 8: Documents used in the preparation of the National EMS Core Content

American Board of Emergency Medicine and American College of Emergency Physicians: *The Model of the Clinical Practice of Emergency Medicine*. East Lansing, Michigan: 2001.

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