CHAPTER 6

EMS personnel

David C. Cone

Introduction

The Emergency Medical Services Systems Act of 1973 was the first formal national initiative supporting and endorsing EMS in the United States [1]. The Act defined 15 components of an EMS system, and this led to the development of the Department of Transportation's national standard curricula (NSC), in an attempt to standardize the training of prehospital personnel: the first responder, the emergency medical technician-ambulance (EMT-A, which evolved into the EMT-Basic in 1994), the EMT-Intermediate (1985, revised in 1999), and the EMT-Paramedic (1989, updated in 1999).

These curricula essentially evolved from the existing practices of EMS providers in the 50 states. It was not until 2005, almost ten years after the publication of the *Emergency Medical Services Agenda for the Future* in 1996 [2], that an educationally sound, scientifically based scope of practice process was implemented. *The EMS Education Agenda for the Future: A Systems Approach* was released in 2000 and called for the development of a system to support the education, certification, and licensure of entry-level EMS personnel that facilitates national consistency [3].

> The Educational Agenda is a vision for the future of EMS education, and a proposal for an improved structured system. To educate the next generation of EMS professionals, The Educational Agenda builds on the broad concepts from the 1996 Agenda to create a vision for an educational system that will result in improved efficiency for the national EMS education process. The system will enhance consistency, education, [and] quality and ultimately lead to greater entry level graduate competence [3].

The Education Agenda proposed an EMS education system that consists of five integrated components: national EMS core content, National EMS Scope of Practice Model, national EMS education standards, national EMS certification, and national EMS education program accreditation. In 2004, the national EMS core content was released and defined the complete domain of out-of-hospital care [4]. In 2005, the National EMS Scope of Practice Model divided the core content into four "levels" of practice, defining the minimum corresponding skills and knowledge for each level of EMS provider, and established four levels: emergency medical responder (EMR), emergency medical technician (EMT), advanced emergency medical technician (AEMT), and the paramedic [5]. Each level represents a unique role, set of skills, and knowledge base for which the National EMS Education Standards define educational content [6]. The Education Standards define the minimal terminal objectives for entry-level EMS personnel to achieve within the parameters outlined in the National EMS Scope of Practice Model. Although educational programs must adhere to the Standards, its format allows for diverse implementation methods to meet local needs and evolving educational practices.

The above five integrated components are intended to establish an educational system that, when fully implemented, provides the foundation to ensure the competency of out-of-hospital EMS personnel in a way that parallels other allied health care disciplines, as well as consistency from state to state. Note that the evolution and establishment of subspecialty recognition for EMS physicians intentionally and explicitly built on the same general structure [7].

A survey published in November 2011 noted that there were 826,111 credentialed out-of-hospital care personnel in the United States [8]. Until recently, there has not been a national system to aid states in the evolution of their EMS personnel scopes of practice and licensure. In 1996, there were at least 40 different levels of EMS personnel certification in the United States [2], with, for example, a number of different "EMT-Intermediate" definitions and scopes of practice used by various states, many of which did not match either the 1985 or the 1999 NSC. This diversity and patchwork of EMS personnel licensure and certification created several problems, including public confusion, reciprocity challenges, limited professional mobility, and decreased efficiency due to duplication of effort. The National EMS Scope of Practice Model supports a system of licensure that can be recognized across all states, establishes a platform for reciprocity, allows for professional mobility, and reduces public confusion.

Emergency Medical Services: Clinical Practice and Systems Oversight, Second Edition. Volume 2: Medical Oversight of EMS.
Edited by David C. Cone, Jane H. Brice, Theodore R. Delbridge, and J. Brent Myers.

Table 6.1 Scope of practice versus standard of care

	Scope of practice	Standard of care
Purpose	Deals with the question "Are you/were you allowed to do it?"	Deals with the question "Did you do the right thing, and did you do it properly?"
Legal implications	Act of commission by an unlicensed individual is a criminal offense	Acts of commission or omission may lead to civil liability
Variability	May vary from level to level; does not vary based on circumstances	Situational; depends on many variables
Defined by	Established by statute, rules, regulations, precedent, and/or licensure board interpretations	Determined by scope of practice, literature, expert witnesses, and juries

Table 6.2 Cognitive material envisioned for each level of EMS licensure

	EMR	EMT and AEMT	Paramedic
Critical	Simple	Fundamental	Complex
Emergency		Simple	Fundamental
Lower acuity			Simple

AEMT, advanced emergency medical technician; EMR, emergency medical responder; EMT, emergency medical technician.

The authors of the National EMS Scope of Practice Model recognized the responsibility of the state regulatory process to help ensure the protection of the public. Part of a state's regulatory responsibility includes the authority to establish the scope of practice for EMS personnel. Although this model is not intended to force standardization, it encourages national consistency of EMS licensure levels and their minimum competencies, while still accommodating some degree of state flexibility.

"Scope of practice" is a legal description of the distinction between licensed health care personnel and the lay public, and also among different licensed health care professionals, creating either exclusive or overlapping domains of practice. It describes the authority, vested by a state, in licensed individuals practicing within that state. Scope of practice establishes which activities and procedures represent illegal activity if performed without licensure.

Scope of practice does not define a standard of care, nor does it define what should be done in a given situation; it is not a practice guideline or protocol. It defines what is legally permitted to be done by some or all of the licensed individuals at that level, not what must be done (Table 6.1) [5].

Typically, scope of practice refers to the tasks and roles that licensed personnel are legally authorized to perform. In general, it does not describe the requisite knowledge necessary to perform those tasks and roles competently. As outlined in the EMS Education Agenda for the Future, the major responsibility for determining the knowledge necessary to safely perform tasks and roles falls to educators. The authors of the National EMS Scope of Practice Model offer a schema to provide guidance on the presumed depth and breadth of cognitive material envisioned for each level of EMS licensure (Table 6.2).

The interfacility realm of EMS is an expanding domain in which EMS providers play an ever-increasing role. With interfacility transfers of critically ill patients going from primary to tertiary care facilities, there is a need in some EMS systems to establish the core foundation of education, medical oversight, demonstration of competence, and licensure authorization for paramedics to participate in this interfacility critical care practice. The current National EMS Scope of Practice Model provides the floor capabilities for all paramedics, but does not specifically address this specialized domain.

In some cases, specialty certifications may be used to respond to local needs for flexibility or to recognize continuing education. Specialty certifications may evolve to accommodate subtle differences in skills, practice environments (e.g. tactical EMS, wilderness EMS), knowledge, qualifications, services provided, needs, risks, level of supervisory responsibility, and amount of autonomy, judgment, critical thinking, or decision making. Although it is beyond the purview of the National EMS Scope of Practice Model to define the wide array of possible specialty certificates that may exist now or in the future, some states are venturing into the realm of establishing one or more "specialty care" levels for the paramedic with additional training. A national model for this scope of practice has not been clearly defined, and currently the need is being addressed on a state-by-state basis (see Table 6.3 for a sample specialty care paramedic protocol, from Maryland [9]).

Regulation of EMS personnel

Emergency medical services personnel are expected to care for patients who often have ambiguous and conflicting complexes of signs and symptoms, and are permitted to perform interventions and administer medications that can do considerable harm to patients if performed improperly or inappropriately. EMS personnel are also afforded a significant amount of public trust and are given access to a patient's property and person in a virtually unsupervised environment. Ensuring the competence and trustworthiness of EMS professionals is thus of paramount importance to ensuring public safety and welfare.

Table 6.3 Sample specialty care paramedic protocol

SPECIALTY CARE PARAMEDIC
(Paramedic only)

The Scope of Practice for the Specialty Care Paramedic (SCP) is defined by a floor and a ceiling of care. The entry level for this program is Maryland Licensed Paramedic. The floor of this Specialty Care Paramedic is the existing Maryland Medical Protocols for EMS Providers (MMPEMSP), including the Optional Supplemental protocols: CPAP, Glycopro- tein IIB/IIIA Antagonist, Heparin, Scene/Chronic Ventilator, and Mark I / DuoDote. (The Pilot programs and the Optional Supplemental protocols the '**Wilderness**' *and* '**Transport of Acute Ventilator Interfacility Patient**' are not included as part of ALS transports.) The medications and procedures listed within the Maryland Medical Protocols for EMS Providers may be administered by the SCP based on the written interfacility transfer orders of the sending, Medical Director of the Commercial Specialty Care Service (without manipulation of the *MMPEMSP*), or receiving physician without having to request online base station medical consultation.

The ceiling for the Specialty Care Paramedic is defined by the medications and procedures that are defined as "Team" or are not listed within the tables below. Those medications or skills that are listed as "Team" require familiarization by the SCP but are the responsibility of the transport nurse or physician composing the patient care team.

If the medication or procedure are listed within the scope of practice for the Specialty Care Paramedic, this means that it is for both adult and pediatric patients.

The practice environment for these medications and procedures will be strictly for the interfacility transfer of patients and not extended into the realm of the 911 response.

Classification of Drugs and Procedures

S Solo – Paramedic may initiate, monitor, and maintain without a transport nurse if they have successfully completed an EMS Board-approved Specialty Care program. (The Commercial ambulance must still meet the requirement of an additional ALS provider and EMT driver to complete the specialty care transport.)

T Team – Means with a transport nurse or physician onboard – SCP needs familiarity with the medication or procedure but SCP may not perform or administer.

Medication - Procedure		
A. Medications	**Solo (S)**	**Team with Nurse (T)**
1. Sedatives		
a. Etomidate (amidate)		T
b. Lorazepam (ativan)	S	
c. Midazolam (versed)	S	
d. Propofol (diprivan)		T
2. Analgesics		
a. Fentanyl (sublimaze)	S	
b. Hydromorphone (dilaudid)		T
c. Meperidine (demerol)		T
d. Non- narcotic analgesics (eg Ketorolac)	S	
3. Paralytics		
a. All types		T
4. Antihypertensives		
a. All types		T
5. Volume Expanders		
a. Albumin	S	
b. Blood products		T
c. Dextran	S	
d. Hespan	S	
e. Plasmanate	S	
6. Vasopressors		
a. Dobutamine (dobutrex)		T
b. Epinephrine – drip		T
c. Norepinephrine (levaphed)		T
d. Phenylephrine		T
7. Bronchodilators		
a. Metaproterenol (alupent)	S	
b. Theophylline – IV		T
c. Terbutaline (brethine) - Inhaled	S	
d. L- Albuterol (inhaled)	S	
8. Anti-Anginals		
a. Atenolol (tenormin)		T
b. Metoprolol (lopressor)		T
c. Nitroglycerin (tridil) – IV	S (adults only)	
d. Propranolol (inderal)		T
9. Fibrinolytics/ Thrombolytics		
a. All types		T
10. Anti-Coagulants /Anti-Platelets		
a. All Types	S (adults only)	
11. Anti-Emetic		
a. All types anti-emetic	S	
12. Antibiotics		
a. All types of antibiotics	S	
13. Miscellaneous		
a. Flumazenil AD (romazicon)		T
b. Insulin – IV		T
c. Insulin in TPN	S	
d. Mannitol (osmitrol)		T
e. Mg Sulfate (added to mixed drip– eg, with vitamins)	S	
f. Potassium Chloride (only maintenance infusions; Not bolusing)	S	
g. Sodium Bicarbonate Drip	S	
h. Steroids – IV (not initiated)	S	
i. Total Parenteral Nutrition (TPN)	S	
j. Tocolytics (including Mag Sulfate)		T
k. Uterine stimulants (eg, oxytocin)		T
14. Anti-Arrhythmic		
a. Amiodarone		T
b. Bretylium (bretylol)		T
c. Digoxin (lanoxin)		T
d. Diltiazem Drip	S	
e. Esmolol (brevibloc)		T
f. Metoprolol (lopressor)		T
g. Procainamide (pronestyl)		T
h. Quinidine Sulfate & Gluconate		T
15. Anti-Convulsants (also see sedatives)		
a. Barbiturates		T
b. Phenytoin (dilantin) / Fosphenytoin	S	
c. Other non-benzodiazepine anti-convulsants		T
16. Diuretics **(NEW '13)**	S	

continued

Table 6.3 *Continued*

Medication - Procedure			(T)
B. Invasive Procedures			
1. Chest Escharotomies			T
2. Chest Tubes Insertion			T
3. Chest Tube or Surgical Drain with or without vacuum system	S		
4. Laryngeal Mask Airway (LMA)	S (adult only)		
5. Needle Cricothyroidotomy	S		
6. Rapid Sequence Intubation			T
7. Surgical Cricothyroidotomy	S		
8. Tracheostomy Care and Replacement (fresh)	S		
9. Urinary catheter insertion	S		
C. Non-Invasive Procedures			
1. IV Pumps	S		
2. Ostomy care	S		
D. System Monitoring			
1. Arterial Line / Cardiac Sheath			T
2. CVP line (monitor but not performing measures)	S		
3. Intracranial Pressure Monitor/ Line			T
4. Swan-Ganz			T
E. Specialized Equipment			
1. Automatic Internal Cardiac Defibrillator (AICD)	S		
2. Acute Ventilated Inter-Facility Patient – Transport Service's Ventilator (Except as in E6)	S		
3. Internal Pacer with external control			T
4. Intra-Aortic Balloon Pump			T
5. Peritoneal Dialysis Systems	S		
6. Specialty Ventilator (eg, Pediatric or when hospital ventilator must accompany patient)			T
7. Transport Isolette /Incubator			T
8. Ventricular Assist Devices	S		

Source: Maryland Institute for Emergency Medical Services Systems. 2013 Maryland Medical Protocols. www.miemss.org/home/default.aspx?tabid=106

Intellectually, we want to limit credentialing to individuals who can demonstrate the ability to provide safe and effective out-of-hospital care. Practically, it is a more complicated issue to ensure fairness when making credentialing decisions. In this context, it is valuable to remember the greater good. The desire to be an EMT or paramedic is simply not enough, and society as a whole is best served when those who cannot perform competently are denied the privilege of providing prehospital care. Herein is the premise for the credentialing of EMS personnel.

Occupational regulation

There are many activities in which the consequences of poor quality are so great that regulation beyond market forces is necessary. It is generally held that the threshold for the justification of external regulation is that unacceptable quality must represent a clear risk to the health, safety, or welfare of the public [10]. The provision of health care services is deemed a high-risk activity and is therefore highly regulated.

In general, regulation is a "states' right" because the US Constitution does not specifically identify a role for the federal government. There are a few exceptions (for example, aviation and over-the-road trucking) in which the federal government has a role in occupational regulation. Therefore, each state has the responsibility and authority for regulation that protects the health, safety, and welfare of its citizens. A state may regulate an activity without regard to the actions of other states. For this reason, virtually all licenses are issued by state governments (e.g. a driver's license, medical license, beautician's license, or hunting license). In our increasingly mobile society, professional mobility, reciprocity, and recognition of other states' licenses have become a considerable issue and placed pressure on states to adopt similar or nearly uniform regulatory infrastructures; however, the authority and responsibility for most regulation lie at the state level of government.

There is a substantial body of literature on the theory and practice of regulation. It is beyond the scope of this text to cover the discipline in its entirety; instead, this chapter will describe basic principles and forms of regulating occupational groups in general, as well as the current and future of the credentialing of EMS personnel.

Fundamentally, the purpose of occupational regulation is to protect the public. According to Schmitt and Shimberg [11], occupational regulation is intended to ensure that the public is protected from unscrupulous, incompetent, and unethical practitioners; offer some reasonable assurance to the public that the regulated individual is competent to provide certain services in a safe and effective manner; and provide a means by which individuals who fail to comply with the profession's standards can be disciplined, including revocation of the right to practice. As a secondary benefit, regulation also creates a mechanism for raising the standards of practice, ensuring quality of service, setting codes of ethical behavior, and disciplining for fraudulent, incompetent, and unethical behavior [12]. Fundamentally, the only defensible justification for occupational regulation is public protection. This is a point often misunderstood by occupational groups that occasionally seek regulation as a way to elevate the social status of the group or to restrict competition.

Regulating health care professions

The regulation of health care professionals often involves complementary governmental and non-governmental credentialing activities that occur at the national, state, and local levels.

Regulatory options

Licensure

Licensure is the process by which a governmental agency grants time-limited permission to an individual to engage in a given activity or occupation after verifying that he/she has met

predetermined and standardized criteria. Licensure is a mandatory process in that it is illegal to engage in an activity without the license. The licensure process also makes it illegal for an individual to present himself to the public as a qualified individual if he does not possess the credential (known as title protection).

Licensure offers the greatest form of public protection and is consequently the most restrictive form of professional credentialing. Licensure extends from a state's police powers and involves granting legal authority to practice a profession within a designated scope of practice. Under the licensure system, states define, by statute, the tasks and function or scope of practice of a profession and provide that these tasks may legally be performed only by those who are licensed. As such, licensure prohibits anyone from practicing a profession who is not licensed [13].

Licensing laws typically are referred to as "practice acts" and define what aspects of the practice are legally regulated [11]. Generally, the responsibility for the oversight of licensed professions resides in a regulatory board or a state administrative official.

Certification

Certification is the process by which an agency grants a time-limited recognition and use of a credential to an individual after verifying that he/she has met predetermined and standardized criteria. In general, certification is used for one of two purposes.

1 A mechanism to identify specialty training and competence (e.g. CCRN, CEN) among already licensed individuals.
2 The competency assurance part of a state licensing process (e.g. CRNP, PA-C).

Certification affirms a knowledge and experience base for practitioners in a particular field, their employers, and the public at large. Certification represents a declaration of an individual's competence in a specific area of professional competence, and can be performed by governmental entities (statutory certification) and private certification agencies (non-governmental certification).

Statutory certification is a government-sponsored form of credentialing that is less restrictive than licensure. Statutory certification provides government with a regulatory option when an activity is not prohibited by law. For example, in many states there is no legal requirement that school teachers be certified; however, most teachers have undergone a governmental (state Department of Education) sponsored credentialing process that enables them to present themselves to the marketplace as "certified." Obviously, most school districts seek to hire certified teachers and may have local policies regarding the hiring of only certified teachers, but they are not prohibited from using uncertified teachers.

Although they carry no legal weight, private certifications play an important role in professional regulation. Certifications issued by a private organization identify individuals who have successfully completed the certification process (usually entailing successful completion of experiential, educational, and testing requirements) and demonstrated their ability to perform their profession competently.

Many professions use private certifications as either preservice or postservice requirements. Perhaps the most sophisticated system of postservice certification is in the medical profession, where board certification serves as an important complement to the medical license. The United States Medical Licensing Exam (USMLE) assesses a physician's ability to apply basic knowledge, concepts, and principles, and to demonstrate fundamental patient-centered skills that are important in health and disease and that constitute the basis of safe and effective patient care at the entry level. States require USMLE certification as part of the licensure process for physicians.

Specialty board certification is used to identify physicians with specialty training. Specialty certification carries no legal permission to practice medicine or perform an otherwise restricted activity. For example, a physician can legally perform an operation in any state in which he or she is licensed, regardless of whether he or she is certified by the American Board of Surgery. Certification is an important complement to the medical license, because most hospitals will not permit physicians who are not board certified (or at least board eligible) to practice within their facility.

A few professions (e.g. advanced practice nurses and physician assistants) have incorporated national certification as part of the state licensure process. In these professions, national certification ensures a consistent definition of entry-level competence and establishes eligibility and continued competency requirements. These are the most closely analogous systems to the role that national certification is given by most states in EMS.

As mentioned earlier, regulatory terminology is often misused, even in state statutes, rules, and regulations (Table 6.4). Due to the imprecision of the vocabulary, the courts tend to

Table 6.4 The certification/licensure word game

If it is illegal to perform an activity if you are not credentialed, and	It is illegal to misrepresent yourself as a credentialed individual, and	The issuer of the credential is governmental, then	The proper regulatory term is licensure
If there is no legal restriction on the activity, but	It is illegal to misrepresent yourself as a credentialed individual, and	The issuer of the credential is governmental, then	The proper regulatory term is statutory certification
If there is no legal restriction on the activity, and	It is improper (but not illegal) to misrepresent yourself as a credentialed individual, and	The issuer is a private certification agency, then	The proper regulatory term is non-governmental certification

look at the structural elements of regulation, rather than its title. The distinction between certification and licensure does not depend on the "independence" of practice, but rather on the legal authority to perform regulated tasks or roles. Fundamentally, when government vests certain individuals with legal permission to perform some act (function as an EMT or paramedic) that without said permission is illegal, it carries the legal effect of licensure. Following this logic, in the eyes of the judicial system, EMS personnel are licensed in every state.

Unfortunately, confusion between the terms certification, licensure, and registration is common in EMS. Some states refer to their EMS licensure process as "certification." In every state, however, it is illegal to function as an EMS professional without governmentally issued permission to do so. Consequently, the proper term for the state governmentally issued EMS credentialing is "licensure," regardless of what it may be labeled.

Occupational regulation

The oversight of the licensure of health care professions is generally accomplished in one of two ways: by a regulatory board or as an administrative governmental function (typically within a state's Department of Health). Both have advantages and disadvantages, with independent regulatory boards more commonly used in medicine and nursing and governmentally administered oversight functions more common in EMS.

Members of regulatory boards and administrative officials owe a duty of loyalty to the individuals served by licensees, not to licensees or to the profession regulated. It is thus the fundamental responsibility of the regulatory infrastructure to insure that every licensee in a jurisdiction is and remains competent, and advocacy on behalf of individuals or the profession represents a conflict of interest.

One of the ways in which regulatory boards remain vigilant on their primary responsibility is to include public members. Public members are able to more fully represent the interests of the consumer and often identify conflicts of interest that are difficult for members of the profession to recognize. The Pew Commission Taskforce on Healthcare Workforce Regulation recommends that professional boards should have at least one-third public representation [14].

The regulation of EMS personnel

Emergency medical services is a high-risk activity. EMS personnel treat millions of patients in one of the most challenging, uncontrolled, and unsupervised environments in all of medicine. The decisions they make have a significant effect on the health and safety of the patients they treat. Clearly, the competence of EMS personnel is a major public safety concern.

Regulation of EMS personnel presents a number of challenges. There is a pervasive notion in the EMS community that "EMS is different" from other professions. Although important differences do exist, to be accountable to the public that we serve, the EMS profession should be regulated in a manner similar to, and just as rigorous as, other health care occupations. It does not matter if an individual is paid or volunteers, or practices in an urban or rural environment; incompetence represents a significant risk to the public.

In many respects, the EMS profession is fragmented and tends toward a provincial perspective. This creates some additional regulatory challenges. First, some state EMS regulatory systems seem to operate in relative isolation and without regard to other states' regulation, frequently citing the uniqueness of the EMS environment in "our state." Until quite recently, there has been little national consistency in the occupational titling of EMS personnel and the scopes of practice of various levels of EMS personnel vary, sometime considerably, from one state to another [5].

For systems as complex, diverse, and decentralized as EMS agencies, multiple supportive layers of over-sight help to ensure public protection. The EMS Education Agenda for the Future proposes three overlapping layers of regulation: national certification, state licensure, and local credentialing [2] (Box 6.1). Together, these three overlapping layers are complementary and form a comprehensive approach to ensuring patient safety. None obviates the need for the other two. The best systems work hard to ensure that all three are strong and work together in an integrated system of checks and balances.

National EMS certification

In 2000, the EMS Education Agenda for the Future recommended that a single certification agency be used to assess the competence of all EMS personnel nationwide [3]. In 2006, the Institute of Medicine concurred with this recommendation and also recommended that "states accept national certification as a prerequisite for state licensure and local credentialing of emergency medical services providers" [15].

The task force that authored the EMS Education Agenda for the Future believed that there is a single definable level of minimum competency for each level of EMS credentialing and that only those able to demonstrate ability at or above that level should be permitted to carry the title of an EMS professional. The competency standard should not change by state, demographics, geography, rurality, agency type, or remuneration status of the individual being assessed.

As the EMS community strives for more national unity, consistency, and integration, the EMS Education Agenda for the

Box 6.1 Complementary national, state, and local processes

National certification: provides nationally consistent initial and continued competency assessment
State license: enables implementation of state-specific practice requirements and disciplinary action against licensed individuals
Local credentialing: selection of employees from a pool of qualified candidates, verification of competence in additional job-related skills (emergency vehicle operation, etc.), orientation, quality assurance and improvement

Future emphasizes the need for a single national EMS certification agency as essential. National certification ensures that all EMS professionals have demonstrated the same degree of competence, and licensure is the mechanism by which to implement state level statutory or regulatory requirements.

The National Registry of EMTs is currently part of the licensure process in 47 states (Table 6.5). In these states, national certification serves to verify entry-level competency of licensees. In the remaining states, local exams are used. It is important to note that even if required by the state credentialing entity, national certification, by itself, does not give an individual the right to practice; this is the role of state licensure. Although the National Registry of EMTs offers a recertification process, it is currently used in only 13 states (Table 6.6).

State licensure

As discussed earlier in this chapter, the state bears the authority and responsibility to issue licenses. The oversight of the licensure process can be accomplished through a regulatory board or as an administrative function. In either case, the oversight is involved in a variety of activities related to the licensure of the individuals providing prehospital care. These can broadly be classified as rule making, initial competency assessment, entrance requirements, assuring continued competence, and discipline [11]. Each responsibility is described below.

Rule-making

Some states have EMS practice acts that are very similar to those of other health professions, whereas others use different forms of legislation to enable the regulation of EMS in that state. In any case, some entity (regulatory board or administrative official) is granted the legal responsibility for oversight of EMS within the state. Legislation is usually general in nature and requires a group of EMS experts to develop rules and regulations that make the general statute more specific and measurable. The regulatory entity may not change or alter the law but has the responsibility to interpret and implement it. Additionally, the regulatory entity is often in the position of commenting on proposed legislation affecting the profession and recommending changes to statute as the profession evolves.

Assessment of initial competence

Emergency medical services, like most professions, requires that new applicants demonstrate knowledge and/or skill prior to the issuance of a license to practice. In order to be credible, the certification examination must be "psychometrically sound and legally defensible." According to Pope [16], the majority of legal challenges of exams are related to one of four areas: reliability, validity, fairness, and the passing standard. Reliability is a measure of how consistently the test measures the latent variable that is being assessed. Validity (in this context) refers to whether the test is measuring what it intends to measure. A fair test measures only the construct it was designed to measure, with no systematic advantage or disadvantage given to a demographic group or subpopulation. The passing standard is the methodology used to determine whether a candidate has demonstrated an appropriate level of knowledge or skill on the test.

Establishment of entrance requirements

Although theoretically possible, it is impractical to create tests and examinations that measure every aspect of professional competency. As a result, many states have entry requirements beyond simply passing. Educational and/or experiential requirements may be imposed to ensure that applicants have the

Table 6.5 National Registry of EMTs used for initial certification of EMS personnel

	US states & D.C.	Federal organizations	Territories	Total
EMR	25	0	0	25
EMT	41	3	6	50
AEMT	36	1	0	37
Paramedic	46	2	0	48
Total	47	3	6	56

AEMT, advanced emergency medical technician; EMR, emergency medical responder; EMT, emergency medical technician.

Table 6.6 National Registry of EMTs used for recertification of EMS personnel

	US states & DC	Federal organizations	Territories	Total
EMR	6	0	0	6
EMT	10	3	0	13
AEMT	9	1	0	10
Paramedic	12	2	0	14
Total	13	3	0	16

AEMT, advanced emergency medical technician; EMR, emergency medical responder; EMT, emergency medical technician.

Acknowledgment

This chapter merges concepts and material from two chapters in the first edition of this text, and the contributions of the authors of those chapters are gratefully acknowledged: Richard L. Alcorta, Gregg S. Margolis, Dan Manz, Jimm Murray, and David Swankin.

References

1 Emergency Medical Services Systems Act of 1973. Public Law 93-154, Title XII of the Public Health Services Act. Washington, DC, 1973.
2 National Highway Traffic Safety Administration. *EMS Agenda for the Future*. Washington, DC: US Department of Transportation, 1996.
3 National Highway Traffic Safety Administration. *EMS Education Agenda for the Future: A Systems Approach*. Washington, DC: US Department of Transportation, 2000.
4 National Highway Traffic Safety Administration. *National EMS Core Content*. DOT HS 809 898. Washington, DC: US Department of Transportation, 1998.
5 National Highway Traffic Safety Administration. *National EMS Scope of Practice Model*. Washington, DC: US Department of Transportation, 2005.
6 National Highway Traffic Safety Administration. *National Emergency Medical Services Education Standards*. Washington, DC: US Department of Transportation, 2009.
7 Cone DC, Krohmer JR. EMS physician certification: just one piece of the puzzle. *Prehosp Emerg Care* 2005;9:371–4.
8 Anonymous. EMS industry snapshot: NAESMEO national survey. EMS Insider 2011;38(11):1,8,9.
9 Maryland Institute for Emergency Medical Services Systems. *The Maryland Medical Protocols for Emergency Medical Services Providers*, Baltimore, MD: Maryland Institute for Emergency Medical Services Systems, 2013, pp.279–82.
10 Shoon C, Smith I. The licensure and certification mission. In: Shoon C, Smith I (eds) *The Licensure and Certification Mission: Legal, Social, and Political Foundations*. New York: Forbes Custom Publishing, 2000.
11 Schmitt K, Shimberg B. *Demystifying Occupational and Professional Regulation: Answers to Questions You May Have Been Afraid to Ask*. Lexington, KY: Council on Licensure, Enforcement, and Regulation, 1996.
12 Ehri D. *Regulating Health Care Professionals: An Overview*. Lexington, KY: Council on Licensure, Enforcement, and Regulation, 1994.
13 Abram TG. Legal opinion: "certification" v "licensure." Available at: www.nremt.org/nremt/about/Legal_Opinion.asp
14 Finocchio LJ, Dower CM, Blick NT, Gragnola CM, Task Force on Health Care Work Force Regulation. *Strengthening Consumer Protection: Priorities for Healthcare Workforce Regulation*. San Francisco: Pew Health Professions Commission, 1998.
15 Institute of Medicine. *Emergency Medical Services at the Crossroads*. Washington, DC: National Academies Press, 2006.
16 Pope G. *The Legal Defensibility of Assessments: What You Need To Know*. Norwalk, CT: QuestionMark, 2007.
17 Relman A. Regulation of the medical profession: a physician's perspective. In: Jost T (ed) *Regulation of the Healthcare Professions*. Chicago, IL: Health Administration Press, 1997, pp.199–210.
18 Roman JR. Mutual recognition: an alternative to national licensure. Federation of State Medical Boards, Dallas. *J Med Licensure Discipline* 1993:155–64.