**Chapter 19
EMS provider education**

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**Introduction**

Every medical director and EMS physician is an educator. Since the earliest days of EMS, physicians have been instrumental in the initial and ongoing education of prehospital providers. Whether one is an agency operational medical director or heads an accredited EMS education program, teaching is an essential component of the position description. As EMS has continued to evolve and mature, it is both reasonable and appropriate that educational systems have been developed that maximally utilize the capabilities of all members of a multidisciplinary team of educators, but the pivotal role of the EMS physician remains unchanged.

In 1997, the National Association of EMS Physicians (NAEMSP) and the American College of Emergency Physicians (ACEP) released a joint position paper that formally recognized the criticality of the medical director’s role in EMS education [1]. The paper identified the following tasks for the physician medical director:

* to approve the medical and academic qualification of the faculty, the accuracy of the medical content, and the accuracy and quality of medical instruction given by the faculty
* to routinely review student performance and progress and attest that the students have achieved the desired level of competence prior to graduation
* and to have a significant role in faculty selection and curriculum development, authority over presentation of medical content, and authority to assure that faculty teach established medical practices.

As the position paper notes, the successful medical director must be intimately and actively involved in all aspects of the EMS system, from administration and education to standard- setting, quality management, and research. Collaborative, collegial relationships between medical directors and their multidisciplinary teams of administrators, educators, and allied health professionals have strengthened many EMS systems by enabling medical directors to maximize their time and efforts.

While the EMS medical director should have a sound understanding of educational principles and methodology as well as knowledge of the national standards for curricula and accreditation, it is imperative to appreciate that vast amounts of learning take place outside the traditional classroom setting and that education doesn’t have to be highly structured or employ the latest iteration of simulation technology to be effective.

Emergency medical services physicians teach by example as well as by carefully crafted lectures. They teach when they create and sustain an environment that enables the prehospital providers to do their jobs safely and effectively. They teach when providing clinical care in the emergency department and have incidental interaction with providers during the bedside transfer of care. They teach when conducting case reviews around the station kitchen table. They teach each time they respond to a query from a provider that begins with “Hey Doc, got a minute?” They teach by holding themselves to the highest standards of patient care and demonstrating a commitment to lifelong learning. They teach by recognizing that education is intrinsic to system and provider development and performance improvement. They teach when they collaborate with organizational leadership and community heath care partners to implement health and safety initiatives, interagency continuing education, and multidisciplinary advocacy programs.

Given the breadth of the core content that the EMS physician must master, it is not surprising that some feel ill-prepared to teach, as educational design and methodology are rarely included in terminal professional degree programs except those leading to degrees in education. This lack of formal preparation should not dissuade one from this important task. Just as EMS medical directors indirectly touch each patient who receives care from their providers, so too does the legacy of a teacher extend indirectly to the countless lives of those touched by each person they teach.

The intent of this chapter is to provide a foundational understanding of the role of the physician in EMS education, including theories of adult learning and the language of learning as well as the evolution of EMS curricula and accreditation standards. As EMS challenges continue and systems evolve, the EMS medical director must continue to play an integral role in this process to ensure that resources are identified and appropriately applied to improve patient care and increase provider competency through education and training that is integrated with quality improvement initiatives. In addition to this textbook, a valuable addition to your professional library would be the National Association of EMS Educators’ *Foundations of Education: An EMS Approach* [2], written by and for EMS educators.

**Theories of adult learning**

Learning theories represent an ideology surrounding the art and science of learning. Pedagogy, the art and science of teaching children, had its origins between the seventh and 12th centuries modeled on the approach used in monastic and cathedral schools where priests taught basic skills to young people. This teacher-centered approach was largely unchanged for much of recorded time and is still evident in most traditional educational settings. This teacher-centered learning assumes that the learner has a need to know and is dependent on the teacher to fulfill that need [3].

**Self-directed learning**

While the term *andragogy* was in use in Germany in the early 1800s, it is Malcolm Knowles who popularized the concept in the United States after introducing the term and the concept that children and adults learn differently in the late 1960s [4]. In Knowles’ view, andragogy, the art and science of helping adults learn, is the antithesis of pedagogy in that it is student-centered and it relies on the teacher as a facilitator of learning [5].

Knowles identified six core principles of adult learning that place the learner at the center of the learning process and exhibit basic respect for the inherent worth and dignity of each individual learner [6].

1. **Learners need to know the reason for learning**. This concept is easily related to EMS education as the provider must know and understand not only the what but also the why and how of all aspects of prehospital medicine.
2. **Self-concept of the learner**. Autonomy and self-direction are essential aspects of adulthood in our society. Adult learners need to be responsible for their educational decision making and when possible, should be included in planning (identifying learning needs and setting goals) and evaluation (evaluating learning outcomes).
3. **Prior experience of the learner**. Prior experiences, both positive and negative, serve as a foundation for learning; this is particularly true of the experienced EMS provider.
4. **Readiness to learn**. Adults tend to be most interested in learning subjects that have immediate relevance to their work and/or personal lives.
5. **Orientation to learning**. Adult learning is problem-centered rather than subject-oriented, which speaks to the immediacy for application of new learning.
6. **Motivation to learn**. As people mature, the motivation to learn is internal.

These principles should be taken into account when planning adult learning activities [7]. However, it is critical to remember that educational planning is a dynamic process and depending on the goal or purpose of an educational activity, some of these principles will be of lesser importance. As always, situational awareness is a necessity; for instance, when conducting classes for initial certification of EMS providers, prior experience will have less significance than when conducting continuing education activities for experienced providers.

**Social learning theory and self-efficacy**

In social learning theory, Albert Bandura states that behavior is learned through the process of observational learning and imitation, and is influenced by being rewarded and/or punished for these actions. Effective modeling teaches general rules and strategies for dealing with different situations [8]. Just as children learn by modeling the behavior of those around them, so too do adults learn in a similar fashion. This model has been replicated time and again in medical education as “see one, do one, teach one.”

The seminal research in social learning theory, proposed by Neal Miller and John Dollard, posits that learning relies heavily on modeling performance for learners as an integral component of the learning process. Their operating premise was that if one was motivated to learn a particular skill or behavior, learning could be enhanced through clear observation of that skill or behavior, and by imitating the observed behavior the individual would solidify the learned behavior and be rewarded by positive reinforcement [9].

While the visual model of effective performance is foundational to social learning theory, Bandura embellished the Miller and Dollard model by adding the relationship of model to the learner (symbolic coding), more robust practice, and a rich feedback component. Bandura also noted that people’s beliefs about their ability to deal with different situations affect learning by influencing their actions – what they choose to do, how much effort is invested, how long they persist in an activity when faced with adversity, and how they approach challenges. Self-efficacy, the belief in one's own ability to complete tasks and reach goals, arises from four primary sources: mastery experiences, social modeling, social persuasion, and psychological state [10].

It is not surprising that success enhances self-efficacy, while failure tends to diminish it. Failure is particularly likely to lower self-efficacy when it occurs early in learning new skills and behaviors. Seeing others perceived as similar to one’s self or one’s circumstances succeed enhances self-efficacy, as does positive external reinforcement. A person's perception about his or her emotional state or physical reactions and stress level can also affect self-efficacy in certain situations.

**Theory of margin**

Howard McClusky, an educational psychologist at the University of Michigan, described the theory of power-load margin in the 1960s [11]. The formula (margin = load/power) states that the key components of adulthood are load (the internal and external demands made upon the learner by self and society) and power (a combination of interacting support and coping factors and strategies that the individual possesses to sustain the load) [12]. This formula clearly suggests that the greater the power in relationship to the load, the more margin will be available, and the greater the margin, the greater the likelihood the learner will be able to manage the load. This model is particularly relevant in adult education as it focuses on the pressures that may affect the individual during the learning process, the competing demands for one’s time and attention that can distract the learner from learning [13].

An area of study that has emerged from McClusky's theory is the degree to which adult educators increase learner load, pioneered by Michael Day and Jim James at the University of Wyoming. Their qualitative analysis categorized instructor-generated load into four areas: attitude, behavior, tasks (structure and content), and classroom environment [14].

**Transformative learning theory**

Central to Jack Mezirow’s work in developing the transformative learning theory is the belief that “a defining condition of being human is that we have to understand the meaning of our experience” and that learning is a change process [15]. His premise is that meaningful learning occurs most readily when learners are actively engaged and use critical reflection and discourse to challenge their frames of reference, and that adult educators have an obligation to facilitate such understanding and encourage autonomous thinking.

Frames of reference (mind schemes) are the structures or assumptions through which we understand our experiences. Based on the totality of an individual’s experience over a lifetime, there are three components that serve to set and shape one’s expectations and attitudes: cognitive (perception, knowledge, memory, judgment, reasoning), conative (drive, impulse, action), and emotional (expression, feelings, beliefs, attitude). We tend to reject ideas that fail to fit our frames of reference. Transformation is the “process by which we transform our taken-for-granted frames of reference (meaning schemes, habits of mind, mindsets) to make them more inclusive, discriminating, open, emotionally capable of change, and reflective so that they may generate beliefs and opinions that will prove more true or justified to guide action” following an activating event that exposes the limitations of one’s current knowledge or approach [16].

The adult educator can foster transformative learning in professional training programs by creating an open and safe environment that in the face of an activating event allows the learner to identify and assess current assumptions, encouraging critical reflection and discourse, giving students an opportunity to test new perspectives and fostering openness [17].

**Context-based learning**

The core principle of context-based learning is that adult learning takes place in context where tools and the context intersect with interaction among people. Devised at McMaster University in Hamilton, Ontario, in the 1960s, context-based learning (formerly known as problem-based learning) was initially used to prepare medical students by replacing the traditional lecture approach to teaching with a student-centered approach that emphasizes self-directed learning, placing the adult educator in the role of facilitator [18].

Context-based learning is a teaching strategy organized around scenarios that are relevant to desired learning outcomes, but it is not organized by topics or disciplines. Students work in groups to resolve real-life scenarios or situations. Through a student-led process, the group identifies relevant learning needs, which are then explored by the students using current research and resources to consolidate information and develop a strategy to resolve the situation based on the necessary concepts and principles. Clinical scenarios processed in this manner encourage research, critical thinking, and the development of lifelong learning skills.

**Evidence-guided education**

While Glick’s model for evidence-guided education is not truly an adult learning theory, it does warrant inclusion as foundational material for the EMS physician. Glick’s concept builds on earlier efforts to combine outcome data with education and to correlate outcome data with practice improvement. Evidence-guided education focuses on patient outcomes rather than best practices, and Glick posits that there is benefit to the systematic integration of such information to augment all aspects of medical education, although it may be most easily integrated into continuing medical education initiatives or postadverse event remediation activities [19]. Sources of outcome information may be based on a single adverse event or a system-wide practice analysis, the key being to identify those topics or scenarios that are most generalizable. Evidence-guided education recognizes that a continuum exists in which education, clinical care, patient outcomes, and performance improvement are inextricably linked.

**Language of learning**

**Education delivery systems**

There are predominantly three education delivery systems: traditional (face to face), distance education, and blended/hybrid models. In traditional education, learning is a synchronous activity that occurs at the same time in the same place and typically involves a teacher-centered classroom setting. While one might think that distance education is a by-product of the late 20th century, its earliest beginnings were pen and paper exchanges via the postal service. Distance education is student-centered and in its purest form occurs in different times and at different places. Learners choose when and where to learn and when and where to access instructional materials. Simonson et al. identify four components of distance education: institutionally based (academic institution, corporation, etc.), separation of student and teacher, interactive telecommunications (synchronous or asynchronous), and learning experiences (instructor–student sharing of data and resources) [20]. Hybrid or blended learning combines face-to-face classroom interactions with distance learning techniques to disseminate information to members of a learning community. This type of learning blends the use of technology-based asynchronous teaching methods and traditional teaching methods. This model may be seen in cohort postgraduate programs where each semester is launched by a short (5–10 days) face-to-face session and the balance of the learning and student–teacher interaction is conducted via distance education.

Given the proliferation of technology and social media options, the opportunities available to enhance even the most traditional educational delivery are only limited by one’s imagination. Regardless of the chosen educational delivery model, the challenge for the educator is to create a safe, supportive environment based on mutual respect where a community of learners can explore ideas, master concepts, and learn new skills.

**Domains of learning**

Bloom’s taxonomy is a classification of learning objectives, named for Dr Benjamin Bloom who chaired the committee of educators that developed the taxonomy. They identified three domains of educational activities or learning: cognitive (knowledge), affective (attitude), and psychomotor (skills) [21]. A goal of the taxonomy was to motivate educators to focus on all three domains, creating a more holistic form of education and promoting a higher level of thinking.

Bloom also proposed a taxonomy of six levels within the cognitive domain, ranging from the simple recall or recognition of facts (knowledge) as the lowest level, through increasingly more complex and abstract mental levels to comprehension, application, analysis, and synthesis, ending at the highest order, which is classified as evaluation (judgment) [22].

When designing learning activities, the instructor should remember that rarely does learning take place in a vacuum or a single domain. Just as prehospital care requires EMS providers to demonstrate mastery of the appropriate combination of cognitive, affective, and psychomotor skills to meet the needs of a given patient, so too should the design of our educational activities prepare them for that eventuality. Understanding the domains of learning is an essential consideration when writing goals and objectives as part of the instructional design process for any learning activity. Well-designed learning activities are progressive and sequential, allowing the student to demonstrate success at one level of cognition before moving on to the next.

**Learning styles**

Learning styles are a popular concept in psychology and education which seek to identify how people learn best. The concept that there are three dominant learning styles (auditory, visual, kinesthetic) had widespread popularity during the 1970s and 1980s, although there is no evidence that learning styles actually influence learning results or that one style is better than another [23].

While there are many ways to categorize learning styles, Neil Fleming’s model is among the most popular. In 1987, Fleming developed an inventory designed to help students learn more about their individual learning preferences. This model is sometimes referred to as the VARK learning styles (visual learning, auditory learning, reading/writing, or kinesthetic learning) [24].

While the validity of VARK as well as other learning style theories has been questioned and even criticized, the premise remains popular. As noted earlier, education takes place in many venues and by many methods. The instructor who actively seeks to engage the learner through a variety of modalities that stimulate the senses and captivate the mind conducts the most effective educational activity.

**Early EMS education**

Education and training for EMS personnel began much as EMS care began, uncoordinated and fragmented. The American College of Surgeons developed training programs for ambulance attendants in the mid-1950s and the American Academy of Orthopedic Surgeons conducted courses with the first EMT textbook *Emergency Care and Transportation of the Sick and Injured.* The “orange book,” as it was commonly known, was published in 1967 and was edited by Dr Walter Hoyt. As pockets of emergency prehospital care were developed, training of these personnel occurred in various forms. The National Academy of Sciences and National Research Council also attempted to standardize ambulance attendant training with the text *Training of Ambulance Personnel and Others Responsible for Emergency Care of the Sick and Injured at the Scene and During Transport.*

In 1966 Congress passed the National Highway Safety Act and funds were provided for the development of educational programs for EMS personnel and to pilot advanced-level program development. The first EMT curriculum was written in 1969–1971 and delivered to the National Highway Traffic Safety Administration (NHTSA) in 1971. The first paramedic curriculum was developed in 1977. The need for standardization in EMS education was recognized and a third-party contractor (Dunlap and Associates) was awarded the contract for this curriculum development. The curricula provided much detailed information such as how to plan a course, structure, amount of time to deliver, detailed lesson plans, and content. As states adopted NHTSA recommended model, EMS legislation, which included curriculum, scope of practice, and other curricula specifics, became tied to these curriculum documents [25].

NHTSA continued to support updated curricula as well as an additional level between EMT-Basic and EMT-Paramedic that was known as EMT-Intermediate. New clinical evidence such as American Heart Association guidelines did not necessarily show up in curricula as the revisions were expensive and could not be done often. The first meeting of the National Registry of Emergency Medical Technicians (NREMT) was held in 1970 to provide uniform standards to credential ambulance attendants. In 1975, the American Medical Association gave the paramedic profession recognition as an allied health occupation and subsequently worked with the Joint Review Committee on Education Programs for the EMT-Paramedic (JRCEMT-P) to develop standards or essentials for paramedic education programs seeking accreditation. Although most developing allied health professions created a tie between graduating from an accredited education program and taking national credentialing exams, EMS did not at that time. EMS education and training issues were the topic of a consensus workshop in 1990 and representatives of the EMS community discussed and determined training priorities for the 1990s.

**EMS Agenda for the Future**

The EMS Agenda for the Future is a 1996 document, which was supported by NHTSA and the Health Resources and Services Administration of the Maternal and Child Health Bureau. The project purpose was “to determine the most important directions for future EMS development, incorporating input from a broad, multidisciplinary spectrum of EMS stakeholders.” The Agenda says, “This document provides guiding principles for the continued evolution of EMS, focusing on out-of-facility aspects of the system” [26]. Fourteen attributes were identified for the future of EMS, and education systems was one of them.

The education systems component made several recommendations for the future of EMS, including an improved system of education that would allow for meeting the workforce and patient needs on an ongoing basis based on research, medical direction at all levels of training, and accreditation by a nationally recognized accrediting agency. Academic institutions, academic credit, and appropriate bridging and transition programs were identified as important characteristics of education as well as innovative technology solutions to address challenges of travel and time.

**EMS Education Agenda: A Systems Approach**

Soon after the EMS Agenda for the Future was disseminated, NHTSA convened another education and training conference that eventually became the force behind the 2000 document *EMS Education Agenda for the Future: A Systems Approach*. The Education 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 Education Agenda builds on broad concepts from the 1996 Agenda to create a vision for an education system that will result in improved efficiency for the national EMS education process. This system will enhance consistency in education quality and ultimately lead to greater entry level graduate competence” [27]. The new EMS education system is intended to include infrastructure that promotes national uniformity and is still responsive to local and regional needs. Five components of the new EMS education system are the National EMS Core Content, National EMS Scope of Practice Model, National EMS Education Standards, National EMS Program Accreditation, and National EMS Certification ([Figure 19.1](https://jigsaw.vitalsource.com/books/9781118990827/epub/OPS/Vol2/c19.xhtml#c19-fig-0001)).



**National EMS Core Content**

The first component is the National EMS Core Content, a broad content base for the education agenda. The intent of the Core Content is to describe the entire domain of knowledge and skills of out-of-hospital care. This component is similar to physician education programs to define the scope of a specialty discipline. This project was led by physicians from NAEMSP and ACEP who worked with other stakeholders.

**National EMS Scope of Practice Model**

This second component identifies “levels” of EMS providers and designates specific skills for each of the provider levels. The project was led by the National Association of State EMS Officials (NASEMSO) and what was the National Council of State EMS Training Coordinators, working with a broad group of other EMS stakeholders. The scope of practice skills that were identified in this project are a floor for each practitioner level. Since states set scope of practice for their EMS providers, this project is a model for the states to adopt to promote consistency and reciprocity between them.

**National EMS Education Standards**

The third component is the EMS Education Standards, which identify competencies, clinical behavior and judgments, educational infrastructure, and the depth and breadth of content to include in each level of education. This section was led by the National Association of EMS Educators (NAEMSE) with cooperation from various stakeholder groups. Physician involvement in the development and review of education standards was prominent. Content identified is broad and less proscribed than the former national standard curricula, so that changes can more easily occur as evidence is collected. Instructor creativity and flexibility are encouraged and local needs must be considered.

The EMS community responded to the broad-brush strokes of the Education Standards by saying that they were not adequate and more direction was still needed in EMS education. Consequently, companion documents of content outlines were developed for each level to provide some framework for programs to develop the curriculum. These documents are called Instructional Guidelines and are available on NHTSA website. The Education Standards and Instructional Guidelines were released to NHTSA in January 2009 and as of this writing, no updates have been made. Consequently, it is imperative for educators and medical directors to keep abreast of what new evidence in clinical practice should be taught in the EMS classroom.

**National EMS Accreditation**

National EMS Accreditation is sometimes called one of the Education Agenda “bookends.” National certification is the other bookend. According to the Education Agenda, “accreditation is defined as a non-governmental, independent, collegial process of self and peer assessment. The purpose of accreditation is to provide a system of public accountability and continual improvement of academic quality” [28]. The Agenda further states that a single national accreditation agency will be identified and accepted by state regulatory offices. NASEMSO designated the Commission on Accreditation of Allied Health Education Programs (CAAHEP) and its Committee on Accreditation of EMS Professions (CoAEMSP) as the agency in 2010. Currently there are 14 organizations that sponsor the CoAEMSP. Each organization has two representatives on the CoAEMSP board. The sponsoring organizations are listed in [Box 19.1](https://jigsaw.vitalsource.com/books/9781118990827/epub/OPS/Vol2/c19.xhtml#c19-fea-0001).

 **Box 19.1 CoAEMSP sponsoring organizations**

* National Association of EMS Physicians
* American College of Emergency Physicians
* American College of Osteopathic Emergency Physicians
* American College of Cardiology
* American Society of Anesthesiologists
* American Academy of Pediatrics
* American College of Physicians
* National Association of EMS Educators
* National Association of EMTs
* National Registry of EMTs
* National Association of State EMS Officials
* American Ambulance Association
* International Association of Fire Chiefs
* International Association of Fire Fighters

Accreditation’s primary purpose is to protect the student by ensuring that programs meet minimum standards. Additionally, accreditation protects the program and institutions by assisting in quality assurance.

Accreditation is either institutional or programmatic. Programmatic is sometimes called “specialized” or “professional.” The US Department of Education or the Council for Higher Education Accreditation (CHEA) must recognize accreditors. Institutional accreditation assesses the entire institution without evaluation of any specific institutional programs. A regional accreditation agency such as the Southern Association of Colleges and Schools is an example of institutional accreditation. Programmatic accreditation relates to a specific academic program that prepares students to practice in a specific profession. The CAAHEP is an example of this programmatic accreditation. It has 18 committees on accreditation for various health professions, and is CHEA recognized. The CoAEMSP is one of the committees that functions under the CAAHEP. The CAAHEP only accredits programs that are longer than one academic year or two semesters, and consequently EMT and EMR programs are not accredited in this system. The CoAEMSP is currently evaluating the need for accreditation of Advanced EMT programs.

**The accreditation process**

As in most accreditation systems, paramedic program accreditation involves the self-evaluation and then peer evaluation of programs reviewed against Standards and Guidelines that follow a prescribed CAAHEP template, and are developed in conjunction with the EMS community ([Box 19.2](https://jigsaw.vitalsource.com/books/9781118990827/epub/OPS/Vol2/c19.xhtml#c19-fea-0002)). The standards are reviewed every 5 years and adjusted to move forward with the profession. A program wishing to become accredited first completes and submits a self-study document that responds to a series of questions about the program to facilitate self-evaluation. Once the self-study document is submitted, the program receives feedback and then a site visit takes place with a team of paramedic educators and a physician involved in EMS education. Once the site visit is completed, the program receives a report concerning compliance with Standards and Guidelines to assist in making changes if necessary. Changes are documented and may take a period of time to come into compliance based on the length and frequency of the paramedic course. Programs are often required to submit progress reports for the CoAEMSP to monitor movement toward compliance of standards. The CoAEMSP reviews programs and those meeting the standards or making progress toward compliance are recommended to the CAAHEP board for accreditation. This sequence occurs every 5 years, and a report is submitted annually with outcome data from the program, such as graduate and employer satisfaction, state or NREMT exam pass rates, job placement rates, and other factors.

**Box 19.2 CAAHEP Standards and Guidelines for Accreditation**

CAAHEP accreditation standards and guidelines address many academic issues.

1. Sponsorship
2. Program goals and objectives
3. Resources
	* Type and amount
	* Personnel
	* Curriculum
4. Student and graduate evaluation/assessment
	* Student evaluation
	* Outcomes
5. Fair practices
	* Publications and disclosure
	* Lawful and non-discriminatory practices
	* Safeguard
	* Student records
	* Substantive changes
	* Agreements

Source: [www.cecbems.org](http://www.cecbems.org/) [32].

**Medical direction required for accreditation**

Accredited paramedic programs must have documentation of an active medical director. The CAAHEP standards include qualifications and responsibilities of a medical director ([Box 19.3](https://jigsaw.vitalsource.com/books/9781118990827/epub/OPS/Vol2/c19.xhtml#c19-fea-0003)). According to Standards interpretations, the medical director is responsible overall for medical oversight. The medical director needs to interact with students in some manner, whether it is teaching a class lecture or lab instruction or instruction in the emergency department. The medical director must review high-stakes exams for accuracy and relevance. Content of the course should be frequently evaluated to identify any information or practice issues that should be added. A sample terminal competency form for the medical director to sign off student competency is available on the [www.coaemsp.org](http://www.coaemsp.org/) website.

**Box 19.3 Standards for responsibilities and qualifications of a medical director**

**Responsibilities**

1. Review and approve educational content for all medical aspects of the program
2. Review and approve quality of medical instruction, supervision and evaluation of students
3. Review and approve each student’s progress through the program and assist in corrective measures
4. Assure competency of each graduate in the cognitive, psychomotor and affective domains
5. Be cooperatively involved with program director
6. Assure adequate controls of the quality of delegated responsibilities

**Qualifications**

1. Be a physician currently licensed to practice medicine within the US and currently authorized to practice within the geographic area served by the program with experience and current knowledge of emergency care of acutely ill and injured patients
2. Have adequate training or experience in the delivery of out-of-hospital emergency care
3. Be an active member of the local medical community and participate in professional activities related to out-of-hospital care
4. Be knowledgeable about the education of the EMS professions, including professional, legislative, and regulatory issues

Source: [www.cecbems.org](http://www.cecbems.org/) [32].

edical directors are typically the EMS champions in the medical community and advocate for student involvement in the operating room for airway clinical practice and other locations that may take some special encouragement. Connecting students with patients, patient assessments, and patient pathologies is a special talent medical directors can bring to their students. One should never minimize the learning that can occur in the clinical setting with an enthusiastic physician who teaches in the clinical area.

Comprehensive information on accreditation can be found at [www.coaemsp.org](http://www.coaemsp.org/).

**National EMS Certification**

National EMS Certification is the other “bookend” of the National EMS Education Agenda. The Education Agenda calls for a single, national certifying organization to be identified and accepted by state regulatory offices. NASEMSO designated NREMT to be that agency in 2010. NREMT has been credentialing EMTs of varying levels since 1970 at the recommendation of President Lyndon Johnson’s Committee on Highway Traffic Safety. The mission of NREMT is to provide a valid, uniform process to assess the knowledge and skills required for competent practice required by professionals throughout their careers. NREMT holds accreditation from the National Commission for Certifying Agencies (NCCA), which is the accreditation arm of the National Organization for Competency Assurance. NCCA is recognized as the authority on accreditation standards for professional certification organizations and programs. NCCA accreditation means that the standards set by NREMT have been reviewed by NCCA and deemed credible for ensuring the health, welfare, and safety of the public.

**Regulatory terms**

Confusion exists among the general public, as well as among state agencies, concerning words related to regulatory concepts. *Certification* is issuing a certificate by a non-governmental private agency (such as NREMT) based on adopted competency standards. Certification affirms a knowledge and experience base for individuals who practice in a particular field, as well as their employers and the public. This is different from *licensure,* which is granted by a legislative entity such as a state government, giving an individual permission to do a job or task that requires such permission. A driver’s license is an example of such permission. Generally speaking, a licensed individual in health care has a certain amount of autonomy in delivering that service. *Registration* is a list of individuals who have attained a specific professional status, so that NREMT keeps a list of persons who have met the criteria for practice. Registration does not allow an individual to practice in a state, but may be a prerequisite for such permission to practice (licensure) [29,30].

NREMT certifies that individuals who pass the skills and cognitive exam are entry-level competent; states take that information and award licensure if deemed appropriate. In EMS as in other heath care fields, an additional step to verify competency is a local credential, which may verify other criteria for practice such as professional behavior or local protocol exams. The local EMS agency and medical director typically accomplish this step.

**Certification tied to accreditation**

The Education Agenda further clarified the relationship between accreditation and certification. The document states, “A graduated phase-in plan will be developed for implementation of national accreditation. Each state should identify a graduated time line for adoption. After the phase-in date, only graduates from accredited programs will be eligible for national certification to qualify for state licensure” [31]. In 2007 NREMT board of directors made a bold move: effective January 1, 2013, a paramedic candidate must graduate from a CAAHEP-accredited program in order to take NREMT paramedic examination. As of this writing, over 365 paramedic programs are accredited, and 275 more are in the process of becoming accredited.

For successful applicants, NREMT grants 2-year registration. At the time if this writing, 47 states require NREMT registration at one level or another for state licensure. In some states, continuing registration using NREMT criteria for re-registration is required for continued state licensure. The medical director of individuals who are attempting to re-register their EMS certification are required to verify online that requirements are met in order for the individual to be re-registered.

NREMT stays busy keeping exam item databases updated and adding new items. Exam items are based on a practice analysis at each level completed every 5 years as required by NCCA. NREMT hosts approximately ten item-writing meetings annually to manage the databases. EMS physicians are important contributors to the item-writing sessions, and EMS fellows also participate.

**Continuing Education Coordinating Board for EMS Accreditation**

The Education Agenda did not address continuing education issues except to say a systems approach should be developed for continuing education and continued competency assurance in EMS. Although such a system is not currently in place in EMS, continuing education courses do have a national accreditation agency. The Continuing Education Coordinating Board for EMS reviews and accredits EMS-related continuing education. This national accreditation makes it possible for students to obtain credit outside their state and to receive credit through distance education. For more on CECBEMS accreditation, see [www.cecbems.org](http://www.cecbems.org/) [32].

**Remediation and workforce reentry**

The EMS physician who serves as an agency medical director should collaborate with organizational leadership to develop policies regarding remediation and workforce reentry for the authorized providers in that system. Such policies should address identification, strategies, and evaluation criteria in accordance with existing agency human resources policy. Workforce reentry policies are often time-based and usually correlate with prolonged absences from operational status due to illness, injury, maternity leave, or military deployment. If the EMS provider returning from military deployment served in a medical capacity during deployment, it may be reasonable to consider an abbreviated reentry strategy.

**Identification**

Identification of EMS providers needing remediation will likely arise from two areas: failure to successfully complete an orientation/internship process, or as a result of a patient care error, such as medication misadministration, inability to recognize patient acuity, or errors in 12-lead ECG interpretation. When provider deficiencies are related to a patient care event, it is usually easy to identify the specific area of weakness and develop a strategy for remediation. However, the inability to complete orientation/internship is often a more global issue and will rely heavily on documentation of deficiencies, as well as ongoing efforts at remediation that were noted throughout the daily evaluation during the orientation/internship to lay the foundation for the remediation plan.

**Strategies**

Once a provider has been identified as needing remediation, the EMS physician should meet with the provider and his/her supervisor as well as whoever will be responsible for conducting the remediation activity; ideally this will be someone in the training division. The following information should be available at this meeting: the identified deficiency, remediation plan objectives, what method of evaluation will be used to verify completion, the time frame for completion, and the consequences of failure. The EMS physician should also be prepared to solicit input from the provider about additions to the remediation plan. As noted earlier, human resources should be involved in remediation plans in the event that failure to successfully remediate may affect a provider’s authorization to provide care or their employment status.

In some cases, the remediation activity may only involve a case review with the crew and/or single provider conducted by the EMS physician in a setting where the errors in judgment can be reviewed and discussed in a non-threatening manner. In other situations, when specific cognitive or psychomotor skill deficiencies have been identified, there may need to be a more structured schedule of activities such as attending a presentation on a particular topic or a specific number of practice scenarios or skills sessions with a trainer before being allowed to be evaluated. Objectives for remediation should be specific, measurable, achievable, realistic, and time bound (SMART).

Workforce reentry planning should be guided by the same principle of SMART objectives with the intention of providing a structured opportunity for the EMS provider to demonstrate competency in all aspects of his or her position prior to being returned to full duty. Content areas for reentry plans should include insuring that all required certifications are current, as well as providing the necessary resources and practice opportunities to acquire or refresh technical skills or master new protocols prior to being returned to full duty.

**Evaluation**

Evaluation activities associated with remediation or reentry should be clearly delineated at the outset of the remediation or reentry period. Depending on the circumstance for each individual provider, evaluation activities may include cognitive testing, practical scenarios, psychomotor skills performance, and/or oral interview/case reviews. It is imperative that evaluation activities be consistent with existing organizational standards; evaluation standards should not be more stringent for the EMS provider who is completing remediation or reentry processes than they are for any other provider.

**Conclusion**

Emergency medical services education is essential to the provision of prehospital care and its continued evolution into the 21st century. As a medical director, the EMS physician is first and foremost a patient advocate, so it is critical that physicians be actively involved in all aspects of the education process for their providers and knowledgeable about the structure and process of educational program accreditation.

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