Emergency Medical Services Education:
Past, Present, and Future

Gregg S. Margolis, PhD, NREMT-P

As medical technology expanded and became increasingly specialized in the 1960s a need emerged for a cadre of health care workers with specific skills and knowledge. In 1966, Congress passed the Allied Health Personnel Training Act (P.L. 89-751) which paved the way for a virtual explosion in the variety and types of occupations collectively referred to as "allied health professions." Most established and newly forming allied health professions developed specialized educational program accreditation models that paralleled those of nursing and medical schools. The American Medical Association Council on Medical Education collaborated with professional associations to establish educational standards and guidelines for many health sciences education programs in this era.[1]

As a result, the educational infrastructure of most allied health programs followed a health care or medical model. Most allied health professions built educational systems by providing funding for pilot programs in established institutes of higher learning, developing faculty, and investing in national educational program accreditation and credentialing systems. Emergency medical services (EMS) education developed down a very different path which by all accounts has played a significant role in the way in which the EMS professional has been integrated into the larger health care workforce and system.

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Also in 1966, the National Academies of Science National Research Council published the landmark paper *Accidental Death and Disability: The Neglected Disease of Modern Society*, which provided considerable funding for the development of EMS throughout the nation.[2] It reported that "there are no generally accepted standards for the competence or training of ambulance attendants" and recommended that "there is a need for delineation of a standard course of instruction [for ambulance personnel]." It was from this recommendation that the practice of developing nationally standardized education for EMS personnel began and continues today.

In contrast to the model followed in most other emerging allied health professions, EMS began what would become a reliance on a centralized curriculum model. In 1969, the Highway Safety Bureau (now the National Highway Traffic Safety Administration, NHTSA) contracted with Dunlap and Associates to develop a curriculum to standardize ambulance attendant education. In 1971, the Emergency Medical Technician-Ambulance (EMT-A) National Standard Curriculum (NSC) was released and included specific learning objectives, highly detailed lesson plans, and hours of instruction.[3] This document established a precedent, and to a large extent,

Gregg S. Margolis, PhD, NREMT-P, is associate director of the National Registry of Emergency Medical Technicians. He can be reached at PO Box 29233, Columbus, OH 43229.

an expectation from the EMS educational community for federally developed, highly detailed course support materials.

The EMT-A NSC was a highly efficient method of stimulating the creation of EMT training programs nationwide. Especially in an area where few EMTs existed and in a time when many courses were taught by nurses or physicians, the NSC proved to be a useful way of providing consistent training to a new occupational group. In part due to the success of the EMT-A NSC, NHTSA contracted with Dr. Nancy Caroline, then with the University of Pittsburgh, to develop the first EMT-Paramedic National Standard Curriculum in 1977.

Throughout the late 1970s and 1980s, the NHTSA EMS curricula became the defacto standards for EMS education and were referenced in many state laws and administrative rules. The NSC had an impact beyond education and in many states became the basis for the scope of practice for EMS personnel. All levels of the NSC were revised in 1984 by the National Council of State EMS Training Coordinators and again in the mid-1990s under contract with the Center for Emergency Medicine in Pittsburgh, PA. The 1990s revisions became particularly contentious because the NSC revision process was the only major national forum for discussing EMS education and scope of practice issues. While the EMS community began to ask the question "Is there a better way?" another major EMS initiative was beginning to take shape.

In the mid-1990s NHTSA began a bold project to set a path for the future of EMS. The *EMS Agenda for the Future* proposed a vision for EMS beyond that of an emergency response system. Specifically, it proposed that EMS assume a larger public health role.[4] To support this goal, the agenda recommended a number of changes to the EMS educational infrastructure, including an expansion of accreditation, affiliation of higher level EMS education with academic institutions, and replacing the NSC with "core content."

NHTSA convened a work group to deliberate on ways to improve EMS education. The *EMS Education Agenda for the Future; A Systems Approach* proposed an improved system intended to prepare the next generation of EMS professionals. Drawing on the strengths of the existing system that relied heavily on federally developed curricula and those of other professions, a system was proposed that provides for efficiency, consistency, and coordination. The *EMS Education Agenda for the Future* proposed the replacement of the National Standard Curricula with 3 documents (National EMS Core Content, National EMS Scope of Practice Model, and National EMS Education Standards) and the further support of National EMS Certification and Educational Program Accreditation. The authors believe this approach blended the advantages of the experiences of both EMS and allied health education.

The EMS Education Standards, under development in 2007, are intended to replace the need for highly detailed, nationally standardized curricula. The standards are being written in such a way as to encourage instructional creativity and educational innovation while clearly conveying what must be included in EMS educational programs. The creation of the *National EMS Scope of Practice Model* (released in 2006) as a separate document facilitates the decoupling of education and scope of practice issues and should facilitate educational change initiatives.

The format of education standards, modeled after accreditation standards and guidelines, is admittedly broader and subject to more interpretation than detailed curricula or lesson plans. For this reason, the success of the EMS education standards will rely on the entire EMS educational system. When supported by national accreditation and certification, there will be considerable guidance as to what must be taught in each level of EMS education, with the flexibility of how to teach it left up to individual programs and instructors, where it should be.

In 2006, the Institute of Medicine of the National Academies (IOM) released the report *Emergency Medical Services at the Crossroads* which recommended that states strengthen the EMS workforce by adopting common EMS certification levels, accepting national certification for state licensure, and requiring national accreditation of paramedic education programs.[5] For EMS to evolve, these educational initiatives should receive support.

Four Recommendations

Adopting Nationally Consistent Levels of Practice and Nomenclature

There is considerable state to state variation in the titles and scope of practice of EMS personnel; thus, the training and education of EMS personnel varies from state to state. A recent study conducted by the National Council of State EMS Training Coordinators identified at least 39 unique levels of EMS provider (many with slightly different titles) in a survey of 29 states. An EMT in one state may not have the same (or even similar) education, training, or scope of practice as in another state. This variation causes confusion among the public and colleagues in other disciplines as well as making professional mobility and recognition challenging. The lack of consistency creates inefficiencies because educational support materials and services (eg, accreditation and certification) may not be aligned with an individual state's requirements.

Require National Certification for State Licensure

The primary purpose of licensure and certification must be to protect the public against subcompetent providers.[6] Most mature health care professions have a single national standard for the measurement and verification of entry level competence. Unfortunately, no such system exists in EMS. The National Registry of EMTs is utilized by 45 states as part of the credentialing process for each level of EMS personnel. Fourteen states and the District of Columbia use a state level credential for at least one level of EMS personnel.[7] These systems vary in credibility, validity, and content. For EMS to mature as a discipline, a single national definition of competence at each provider level must exist and be adhered to by all states.

The EMS Name Game

The credentialing and titling of emergency medical personnel is currently a confusing picture for individuals not intimately familiar with emergency medical services (EMS). First, it is essential to realize that each state has the responsibility and authority to create EMS licensure/certification levels. While many other levels exist, the National Highway Traffic Safety Administration has developed curricula for 5 levels of EMS personnel: First Responder, Emergency Medical Technician (EMT)-Basic, EMT-Intermediate (1985 edition), EMT-Intermediate (1999 edition), and EMT-Paramedic. Most states have adopted some of these levels (with minor changes in scope of practice), and many states have created additional levels to address local needs.

National level	Approximate number of training hours	Number nationally certified[1]	General role	Examples of skills and knowledge
First Responder	40-60 hours	13 510	Intended to serve as the initial responder generally arriving before other EMS resources.	Cardiopulmonary resuscitation (CPR), oral airways, bleeding control, ventilation.
EMT-Basic	110-140 hours	198 200	Intended to represent the minimum training necessary to serve as an ambulance team member.	Basic airway management, bag valve mask ventilation, automated external defibrillator (AED) use, spinal immobilization, splinting, extrication.
EMT-Intermediate 85	60-120 hours[2]	12 701	An EMT-Basic with a few selected advanced skills.	Dual lumen airways, intravenous access and fluid administration.
EMT-Intermediate 99	200-400 hours[2]	2527	Intended to provide core advanced resuscitation skills, especially in rural settings.	Endotracheal intubation, basic electrocardiogram (EKG) recognition, cardiac arrest resuscitation medications.
EMT-Paramedic	800-1200 hours[2]	61 121	Represents the highest level of EMS credential and intended to provide advanced assessment and treatment of a broad range of emergency conditions.	Needle cricothyrtomy, needle thoracentesis, advanced EKG recognition, emergency medications and pain relief.

The recently released National EMS Scope of Practice Model proposes 4 levels of credentialing for EMS personnel: Emergency Medical Responder, Emergency Medical Technician (EMT), Advanced Emergency Medical Technician (AEMT), and Paramedic. It is expected that many states will be transitioning to these levels over the next few years.

1 As of Jan 2007. Note, no reliable data exists on the number of state licensed/certified EMS personnel, but it may be 2 to 3 times the number of those nationally certified.

2 In addition to EMT-Basic, which is generally a prerequisite.

Link National Certification Eligibility to Graduation from an Accredited Institution

The primary purpose of the accreditation of educational programs is to protect students and potential students from enrolling in an educational process that lacks credibility. Accreditation of educational programs plays a small role in EMS compared to most other allied health professions. The Committee on Accreditation for the EMS Professions (CoAEMSP) currently accredits 220 paramedic programs—probably representing one-half to one-third of the paramedic programs nationally. While accreditation is technically a voluntary process, most professions limit eligibility of entering the credentialing process to graduates from accredited programs. Without requiring a single national educational program accreditation process, it will be effectively impossible to implement national EMS educational change initiatives.

Increase the Role of Higher Education in EMS

One educational issue not recommended by the IOM but that deserves support is to increase the role of higher education in EMS. Formal post secondary educational institutes play a comparatively small role in EMS education. While many community college, technical schools, and universities sponsor EMS educational programs, a large percentage of EMS education remains agency or hospital based. A significant portion of EMS education still occurs in an academy setting or is sponsored by small proprietary training companies. While some of this training is excellent, it offers the student little in terms of formal recognition of EMS education toward the achievement of larger academic or degree goals.

The EMS community should recognize the associate degree as the appropriate academic preparation for paramedic level education. Emergency Medical Technician-Basic education should be sponsored by academic institutions that have the resources, student/faculty support services, and stability necessary to assure quality education. All EMS-related courses should offer college level credit.

Currently, 14 institutions offer bachelor's degrees in EMS.[8] Unfortunately, there is no consensus as to the role that these degrees play in EMS career progression and there is little consistency in the curricula. While these programs should be supported, they must be encouraged to develop a vision for the role of bachelor's (and master's) level education in EMS.

Conclusion

Occupational groups that have successfully transformed themselves have typically done so through improvement of their educational systems. Education is the catalyst for change, growth, and evolution of groups of people. The history and sociology of professions are filled with examples (many in health care) of workers who had a desire for an expanded role that offered greater service to the community. The EMS professions are at such a crossroads and will be able to realize the vision of the *EMS Agenda for the Future* only through bold leadership and support of educational change initiatives. **NCMJ**

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