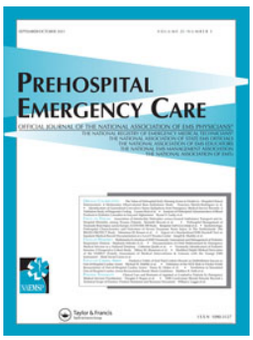

Prehospital Emergency Care

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/ipec20

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To cite this article: William J. Leggio, Tom Grawey, Joshua Stilley, Maia Dorsett & on behalf the Education Committee of the National Association of EMS Physicians (2021) EMS Curriculum Should Educate Beyond a Technical Scope of Practice: Position Statement and Resource Document, Prehospital Emergency Care, 25:5, 724-729, DOI: 10.1080/10903127.2021.1925793

To link to this article: https://doi.org/10.1080/10903127.2021.1925793

Published online: 03 Jun 2021.

EMS Curriculum Should Educate Beyond a Technical Scope of Practice: Position Statement and Resource Document

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Position Statement and Resource document approved by the NAEMSP Board of Directors on April 27, 2021.
Key words: EMS education; clinician; position statement

PREHOSPITAL EMERGENCY CARE 2021;25:724–729

Position Statement

EMS curricula have historically focused on a technical scope of practice designed to meet the traditional out-of-hospital "emergency response" function during 9-1-1 response and transport. However, EMS has served an increasingly broad clinical role to meet the health care and public health needs of communities, a role solidified by the events of 2020, from the COVID-19 pandemic to civil unrest in response to systemic inequities. The requisite knowledge, awareness, and competencies to adequately prepare EMS clinicians to meet these dynamic roles remains absent from the technician-focused EMS curricula. Graduates of EMS programs must now meet the rigors of EMS practice as clinicians, being prepared for higher order thinking and lifelong learning. As one of the stakeholders in EMS education, the NAEMSP® believes that:

- Clinical decision making grounded in higher order thinking skills and evidence-based practice is fundamental to the provision of optimal patient care in the out-of-hospital environment.
- EMS curricula must expand beyond core content required for the scope of practice at each level for technical skills and focus on developing a competency framework aligned with the role and need for EMS medicine as a versatile community health care resource. A comprehensive curriculum for EMS clinicians should align with the vision outlined by EMS Agenda 2050 by addressing the following areas:
  - Public health & epidemiology
  - Social determinants of health
  - Social equity and bias
  - Mental & behavioral health
  - Culture of safety and human factors science
  - Quality improvement
  - Health care business & finance
  - Leadership and change management
  - Evidence-based practice
  - Effective communication skills
- The depth and breadth of the additional content should increase along each level of licensure, which supports the formation and maturation of a clinician. At the paramedic level, this supports an academic and interprofessional approach in forming the degreed paramedic clinician.

Introduction

The provision of out-of-hospital care encompasses more than traditional emergency transport. Modern day EMS personnel function as clinicians rather than technicians. Technicians are strictly protocol driven, thinking in terms of "if-then" logic that lacks adaptability. Clinicians understand the "why" and acknowledge complexities; they gather, evaluate, and apply information with consideration to patient benefit. The clinician role requires knowledge beyond pathophysiology and protocol; it requires effective communication skills, understanding of situational dynamics, and the ability to incorporate new information and apply best evidence. The education of EMS clinicians must therefore extend beyond technician-focus EMS curricula to prepare them for their increasingly broad clinical roles as medical professionals.

Received April 28, 2021 from Office of the Chief Medical Officer, Austin-Travis County EMS, Austin, Texas (WJL); Department of Emergency Medicine, Medical College of Wisconsin, Milwaukee, Wisconsin (TG); Department of Emergency Medicine, University of Missouri – Columbia, Columbia, Missouri (JS); Department of Emergency Medicine, University of Rochester Medical Center, Rochester, New York (MS). Revision received April 29, 2021; accepted for publication April 30, 2021.

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doi:10.1080/10903127.2021.1925793

The Shifting Model of EMS Practice

The development of EMS systems in the United States was driven by the need to provide treatment proximate to the time of injury (1). Initial focus was on the performance of life-saving skills and ensuring an organized system of transport for the provision of emergency care. EMS medicine has evolved far past these origins into a system-based practice encompassing not only increasingly complex management of emergencies, but the care of chronic conditions, both of which are intimately related to social determinants of health.

Organized systems of care have been built around time-critical emergencies including ST-elevation myocardial infarction (STEMI), cardiac arrest, stroke, and trauma. Ample research demonstrates that the EMS phase of care has a dramatic effect on meaningful patient outcomes in all of these conditions (2–7). Even when systems of care are well established, optimal execution of the process still relies on the ability of EMS clinicians to prioritize interventions to ensure the best possible patient outcome aligned with patient values. The ability to prioritize interventions is a distinctly different skill than performing the interventions themselves, and is part of what distinguishes EMS clinicians from technicians. Optimizing patient outcomes requires understanding and acceptance of evidence-based practice; examples include identification of rapid transport to a trauma center as a priority before intravenous access (8, 9), optimizing phases of care to minimize time to reperfusion for stroke and STEMI (3–5), prioritizing on-scene resuscitation for the majority of patients in cardiac arrest (10), and honoring patient values when resuscitation is not desired (11, 12). Beyond 9-1-1 response, EMS clinicians have become a critical component of systems of care through their role in interfacility transport, which often requires a unique skill set (13). As research drives clinical practice, understanding of evidence-based practice drives acceptance of change and participation in improvement initiatives and thus forms a foundational component of modern-day EMS practice (14).

"Low acuity" patients account for a substantial number of present day EMS calls for service (15, 16). Decision-making for lower acuity calls – perceived or truly – is at least as complex as for higher acuity calls. For example, the traditional "lift assist" includes patients with high burdens of comorbidities and non-negligible risks of adverse outcomes and mortality (17, 18). As transport to emergency departments is not a benign intervention for many of these patients, identification of who needs to be transported requires consideration of a broad differential diagnosis and a thorough, prioritized patient assessment (19). Moreover, as EMS practice has evolved to include better integration with other components of the health care system and potential for alternate destinations (20), provision of quality care relies on understanding social determinants of health, including patient access to safe housing, basic necessities, alternative forms of transportation, and follow-up care.

Beyond requests for assistance through the 9-1-1 system, EMS clinicians now also provide care for patients with chronic conditions through mobile integrated health and community paramedicine (MIH-CP) programs. MIH-CP programs take diverse forms, rooted in the health care needs of the local community; example program focuses include management of high health care system utilizers, management of chronic conditions, supplementation of hospice care, and facilitation of health care navigation (21–26).

EMS Agenda 2050 envisioned future EMS systems as "people-centered" where EMS clinicians are provided with "education and training that adequately prepares them to meet the needs of the people they are called to help." (27) The model of EMS practice has evolved greatly since its origins in timely trauma care and transport, and the needs of its patients span the continuum from time critical emergencies to a basic need for health care access. At each point in this continuum, there remains an unmet need for provision of care that is socially equitable and just. Education of the clinicians who provide this care thus must extend beyond technical scope to include these complexities.

The Current State: EMS Education Models and Associated Education Requirements

Despite national efforts to standardize, there remains significant variability in current models of EMS education. This includes course pre-requisites, course settings, requirements for additional coursework beyond the core training itself, and requirements for initial and continuing certification.

At the EMR or EMT level, age cutoff is commonly the only minimal requirement. EMS courses are often offered by different institutions that may include, but are not limited to, technical colleges, universities, hospitals, and local EMS and fire departments. Obtaining a state licensure usually requires completion of an approved training course, a certification exam offered by the National Registry of EMTs (NREMT) or the state itself, and a

background check. Many states require that the applicant hold additional certification in CPR. Most states require a minimum of a high school diploma or equivalent. Among nationally registered EMTs, 22.4% have HS/GED or less, 34.7% have some college, 16% have an associate's degree, and 26.9% have a bachelor's degree or more (28). In many areas, particularly rural, prehospital care is provided entirely by BLS clinicians (29, 30). In areas where ALS is available, BLS-only dispatches are common especially for predicted low-acuity events, defined by absence of need for ALS intervention, not decision-making (31–33). While the EMT curriculum remains technically focused on skills and protocol-driven decisions, evolving to reflect the current scope of the EMT as "a health professional whose primary focus is to respond to, assess and triage emergent, urgent, and non-urgent requests for medical care, apply basic knowledge and skills necessary to provide patient care and medical transportation to/from an emergency or health care facility" (29) will require at least some integration of a clinician mindset.

The variability in EMS education extends into the AEMT and Paramedic levels. Training courses for higher-level clinicians such as paramedics are more commonly taught at post-secondary institutions, at least partially driven by the requirements for accreditation at the paramedic level. Paramedic programs are accredited by The Commission on Accreditation of Allied Health Education Programs (CAAHEP) and its Committee on Accreditation of Educational Programs for EMS Professions (CoAEMSP). To be accredited as a sponsoring institution, the organization offering the course must "either award credit for the program or have an articulation agreement with an accredited post-secondary institution" (34). While obtaining accreditation is not required for an institution to offer a paramedic training course (unless this is defined by the individual state), completion of an accredited program is a requirement to sit for the NREMT certification exam, which is required by the majority of states, though not all (35). Access to accredited paramedic programs remains geographically unequal; while 73% of the US population lives within 30 miles of an accredited paramedic training program, this decreases to 22% in rural areas (36).

Accreditation standards for paramedics discuss college credit; however, not all paramedic programs are linked directly to degree granting programs. Educational models in many locations remain technician/certification focused and do not mandate any additional college level courses as prerequisites. In addition, the variability in training site locations makes it challenging for EMS students to take additional college courses if they are interested. This leads to a gap in college level general education coursework that could benefit the EMS clinician including foundational knowledge in writing, communication, social sciences, and psychology. Currently, there are 634 CAAHEP-accredited paramedic programs, 384 of whom offer associate's degrees and 13 of whom offer bachelor's degrees (37). Associate's degrees are more common among nationally registered paramedics than among AEMTs or EMTs (28.5% compared to 16%), and approximately half overall have academic degrees while an additional third have some college experience (36). Two states (Kansas and Oregon) currently require an associate's degree at the paramedic level (38). Texas recognizes paramedics with degrees and without degrees as separate designations: licensed paramedic for those with degrees and paramedic for those without (39). With the expanding roles and responsibilities of the EMS clinician described above, increasing opportunities for additional college-level coursework that support higher-order thinking must be created.

PRIOR PUBLISHED STATEMENTS ON EMS EDUCATION

In the mid 1990s the first EMS Agenda for the Future was developed and released, describing a vision of EMS as "community-based health management that is fully integrated with the overall health care system" (40). EMS education was a key component in building this vision; the purpose of EMS education was to build "competence in the areas necessary for EMS providers to serve the health care needs of the population" (41). This led to the subsequent development and release of the EMS education agenda, which outlined a proposal for a structured EMS education system (42). That vision was grounded in the need for a consistent and high-quality education system (27, 41).

Since the release of EMS Agenda for the Future, EMS education has remained a central theme in subsequent position statements. National organizations have released position statements in support of EMS degree requirements, and others have released opposition statements. Position statements in support of EMS degree requirements emphasize the need for paramedics to be trained through a formal education process resulting in a degree (38, 43). For specialized paramedic levels of practice, such as critical care, a position in support of baccalaureate education has been made based on the specialized

curricula to cover the advance concepts (43). As described, this would augment associate level programs that match or exceed National EMS Education Standards. Statements opposing EMS degree requirements for entry into the profession describe concerns for the learners and programs, economics of such a requirement, and affecting the workforce pipeline (44). These position statements appear mainly focused on a degree requirement or mandate for entry into the profession and do not necessarily dismiss the importance of education and degrees for promotion, as one example.

EMS education was an embedded theme throughout EMS Agenda 2050, which described the degreed paramedic clinician of the future. EMS Agenda 2050 was borne from a process focused on robust engagement and input from the EMS profession. Included in Agenda 2050 was support for EMS education being guided by evidence, involvement from public safety and health care partners, and occurring in academic settings, among other characteristics (27, 45). Given the increasingly diverse roles of EMS clinicians, support for interprofessional approaches to EMS education have been stated (27, 45–47). Position statements advocating for interprofessional education identify the requisite need for a professional EMS education workforce capable of delivering EMS education in academic settings and ability to facilitate a curriculum as diverse as the demands placed upon the EMS profession now and in the future (46).

Extending EMS Education beyond a Technical Scope

The EMS Agenda 2050 sets a clear expectation that the clinician of the future must play a larger role in managing the health of the patient and the community (27). The EMS clinician needs to be able to rapidly develop a clinical picture of their patient, apply evidence-based practice, and do so in a culturally competent manner. The level of knowledge, understanding, and critical thinking required to do this increases the demands on EMS education programs.

Realizing the vision of EMS as a versatile community health care resource requires expansion of competency beyond traditional technical skills. An EMS system that can rapidly adapt to the needs of the community in completely new and complex ways, such as the way the EMS community has adapted to the COVID-19 pandemic, will require a dynamic and well-prepared workforce (48). As the pandemic has made abundantly clear, such preparation demands far more than protocolized knowledge of common emergencies. It requires appreciation of the complex network of health care, the public health system, evidence-based practice, quality improvement activities, and the widespread effects of racial and social inequities on health outcomes.

Much like traditional college degrees, the requirement for general education classes will be an important component of future paramedic education. While technical skills are necessary, current paramedic practice requires complex problem solving, effective verbal and written communication, and a lifelong approach to learning. Paramedics take on many roles in the course of their clinical practice; beyond assessment and management of diverse health care conditions, they also play the role of empathetic communicators in times of emotional distress, health care navigators, and flexible problem-solvers. A technically focused program of study lasting the equivalent of 6 months of full-time work cannot adequately prepare the paramedic clinician of the future to meet this broad range of competencies.

As EMS practice continues to grow in depth, breadth, and scope, EMS education programs will have to put increased time and resources into the non-technical areas of focus. The EMS Education Standards 2021 Update supports the increased need for non-technical skills education (49). As EMS education programs increase instruction in these areas, the amount of education provided overall must grow as well. Students should receive academic credit for these longer programs of study.

Conclusions

The practice of EMS medicine has evolved past the narrow focus of traditional 9-1-1 emergency response, moving toward the vision of a versatile community-based health care resource. This evolution was largely driven by the most important participants in the health care system: our patients. Within our fragmented health care system, patients have found that when they need health care access, whether it be for an emergent, urgent, or non-urgent condition, it can be achieved by calling 9-1-1. For some, this is the only perceived option. When entire communities have overwhelming health care needs, EMS is again part of the solution to meet those needs. While many are drawn to the specialty of EMS medicine because it affords the opportunity to manage the critically ill, EMS medicine encompasses far more. The future of EMS medicine depends on clinicians whose educational foundations reach well beyond the technician scope to a

broad, modern paradigm that meets the needs of the professionals we educate, the patients we serve, and the communities for whom we care.

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