



Approaches for Initial EMS Education at All Levels Following COVID-19 Pandemic

NAEMSE COVID-19 Task Force: For Initial EMS Education

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Adopted by the Following Task Force Organizations:



National Association of EMS Educators (NAEMSE)

naemse.org/



Committee on Accreditation of Educational Programs for the Emergency Medical Services Professions (CoAEMSP)

coaemsp.org/



National Association of State EMS Officials (NASEMSO)

nasesmo.org/



National Registry of Emergency Medical Technicians (NREMT)

nremt.org/

Endorsed by:



National EMS Management Association (NEMSMA)

nemsma.org



International Association of Fire Chiefs (IAFC)

iafc.org



American Paramedic Association (APA)

americanparamedics.org



National Association of EMS Physicians (NAEMSP)

naemsp.org



Commission on Accreditation for Prehospital Continuing Education (CAPCE)

cecbems.org

Introduction:

The pandemic from the SARS CoV2 virus resulting in the COVID-19 disease created immediate challenges for initial EMS education programs. Almost all programs halted and many quickly began adapting in real time to continue delivering quality EMS education at varying levels of capability. As the profession begins to transform through and beyond this pandemic, EMS educators are presented with an opportunity to identify best practices, consider incremental adjustments, and revolutionary steps for EMS education to adapt and improve future resiliency.

Collaboration and Commitments

Delivering initial EMS education has always required collaboration and experienced a variety of interruptions. EMS education programs will need to continue to collaborate and seek assistance from a variety of partners and communities of interest, which include academic institutions, advisory boards, state officials, certifying and credentialing bodies, national and state organizations, and accreditors. More broadly, continued collaboration between EMS educators with device and software manufacturers will need to continue to address current and future needs. The depth of collaboration moving forward from COVID-19 will vary based on the goal and circumstances.

Programs will have to adapt educational delivery methods to suit the circumstances of the environment while meeting requirements. This includes continuing to meet educational curriculum and content set forth by state and national requirements, local program requirements, and accreditation standards if applicable. All adjustment and efforts will require assistance from partners in government, accreditation, certification, credentialing, and EMS agencies. If programs are not able to adapt or continue, then it will be incumbent upon programs that are able to adjust to work with all EMS learners impacted by the circumstances to complete their initial education.

The EMS workforce has been affected by COVID-19 and there will likely be related attrition, whether voluntary or as result of illness. The entire profession has an interest and important role in initial EMS education and must recognize the benefit of supporting future EMS clinicians.

Regardless of the context or challenges trying to be addressed, as EMS educators we must affirm unwavering commitments to guide our decision making. At minimum, these commitments include:

- Protecting and advocating for the safety and wellbeing of learners, educators, and communities;
- Advocating for patient safety and dignity;
- Achieving educational outcomes that demonstrate entry-level competence in the cognitive, psychomotor, and affective domains of learning;
- Facilitating an experience, being accessible, and fostering an environment in which every learner confidently and successfully achieves entry-level competence.

General Program Considerations

Challenges and burdens to accessing patient care, simulation, and other learning activities in order to complete program outcomes have been placed on all levels of initial EMS education. Addressing these challenges and burdens present the following opportunities:

- Re-evaluate the feasibility of sequencing of content and learning activities for current and future schedules including program length. Common factors influencing the feasibility of program scheduling includes access to clinical and field sites as well as changes to other academic calendars. Developing a scheduling strategy will require modifications and support from learners and stakeholders as well as considering available spaces. More so, programs need to prepare for potential overlap of cohorts and starting new cohorts;
- Create hybrid and distance-based delivery programs to support EMS education for all learners. This includes access for rural settings, learners that return home, and settings without robust field and clinical access to complete program outcomes and necessary competencies;
- Work with experts and resources in developing distance-based education and transitioning content to distance-based platforms. This may include resources outside of EMS education, such as faculty development resources, Centers of Excellence in Teaching, and certificate programs focused on online education;
- Consider alternative pathways for AEMT and Paramedic education that incorporates EMT knowledge, skills, and abilities in order to waive the prerequisite for EMT. Though initially challenging, this could present an opportunity to create, allocate, and balance time, access, and resources for all levels of EMS education.

Advanced Placement Pathways

This recognizes the capabilities of EMS educators and the sophistication of our institutions and organizations to allow for prepared learners to directly enter into higher levels of EMS education resulting in entry-level competency and employability. Successful models of direct entry into advance levels of education and practice are enjoyed by many health professions. The sequential order of first completing EMT then advance levels of EMS education certainly remains acceptable as it may still be the best course for some learners.

The actions and decisions made surrounding COVID-19 forced the entire healthcare industry and our communities to mitigate the risk created by the virus. Risk to our learners has always been present, including risk of:

- Exposure to influenza, tuberculosis, hepatitis, and other infectious diseases from accidental needle sticks and other exposure hazards;
- Physical harm from performing CPR while unrestrained in a moving ambulance, patient assaults, musculoskeletal injuries from exiting ambulances, and other related injuries;
- Mental or emotional distress from witnessing death and human suffering, verbal assaults, and treating significant traumatic injuries.

Specific recommendations for a renewed and enforced commitment to safety include:

- Required respirator fit testing for all learners, at minimum to the N95;
- Ensure utilization of appropriate PPE for all learners at all times sourced by the education program or in partnership with field/clinical sites;
- Follow CDC recommendations for public safety and related healthcare providers regarding health, well-being, and self-monitoring;

- Incorporate the process of complete donning and doffing of universal PPE, respirator, gown, and face protection in simulation, psychomotor stations, and assessments;
- Proactively work with field and clinical sites to mitigate exposure to risks;
- Identify and develop access to mental health and well-being services for all learners;
- Consider ways to ensure all learners have medical insurance or access to adequate health care services;
- Advocate to achieve for EMS learners the same benefits, coverages, and protections declared for healthcare workers and first responders.

Risk Management

Risk management is something for all EMS educators to consider and focus on preventing both risk and potential harm. This active process includes developing emergency protocols, establishing achievable expectations for student supervision, and developing clear objectives and expectations for clinical instruction and sites.¹

At all levels of EMS education, further the development and integration of individualized learner portfolios to demonstrate attainment of competencies and expected outcomes rather than performing a static number of skills, patient contacts, and completed hours. Individualized learner portfolios would include assessment of all learning domains, demonstration of expected outcomes, ability to perform technical skills, and provide patient care at the entry-level prior to graduation. Portfolios ought to be based on objective rubrics with clear requirements including variety of patient care experiences and what can or cannot be supplemented with simulation. This portfolio would support program completion and be part of seeking certification or credentialing. Individualized learner portfolios should include and be substantiated by:

- Performance on formative and summative assessments vetted by program medical director(s), program directors, and faculty;
- Demonstrated ability to provide safe entry-level patient care based on standardized, valid, and reliable measurements;
- Evaluations of all learning domains from the program director, faculty, preceptors, and medical director(s);
- Completion of capstone internships;
- Other artifacts of learner successes during the program, which could include completion of certificate or specialty courses, learning projects, student developed case presentations, service activities, etc.

Individualized Learner Portfolios

Individual learner profiles allow for broad demonstration of learning and achieving competency in all domains of learning over time rather than a single point in time assessment.² A portfolio style of assessment presents opportunities to support curriculum and demonstration of entry-level competency. These opportunities include improved broad alignment of well-defined goals and objectives³, self-regulated learning⁴, and promoting principles of adult learning.⁵

It is important to assess learning using multiple tools that are valid and reliable.⁶⁻⁷ This includes a mixture of high and low stake assessments that serve as formative or ongoing evaluation of learner performance as well as a summative or end of program assessment. Cognitive assessments can certainly extend beyond multiple choice questions to include open-ended assessments such as short answer questions, research papers, and projects.⁷ Tracking and documenting learner experiences at clinical sites and in simulation should be included as forms of assessing psychomotor and affective competencies.⁸ This includes the use of Eureka graphs and preceptor evaluations as two examples.⁸

Approaches to Didactic Sessions

Continue to integrate platforms that support *synchronous and asynchronous* delivery of learning activities normally conducted during in-person classroom sessions. This includes dedicated virtual office hours and availability to assist all learners.

Develop outcome-based assessments with a focus on assessing *higher order thinking* skills that can be securely administered remotely, such as scenario-based questions that assess decision-making abilities.

Develop robust *case-based learning* experiences to place content into context, which can be augmented with simulation or mixed media. These include case studies facilitated by an educator or developed then presented by learners.

Partner with content experts at your institution and local communities of interest to develop synchronous and asynchronous didactic experiences in support of a comprehensive EMS education curriculum.

State and national organizations develop repositories of synchronous and asynchronous content in support of a comprehensive EMS education curriculum and for EMS educators to support distance and hybrid didactic experiences.

Synchronous vs. Asynchronous

Synchronous learning allows for live interaction between the educator and learners or amongst the learners themselves, all of whom are geographically dispersed.⁹ This promotes the social aspect of learning and supports ability to discuss content and information.⁹ A common example is a didactic session delivered in real time using an interactive video platform.

Asynchronous learning is more independent learning as it is done with less direct instruction from the educator.⁹ A common example is a pre-recorded presentation.

Higher Order Thinking

Higher order thinking skills include critical thinking as well as other skills such as problem solving. Higher order thinking skills tend to expand the metacognitive dimension of knowledge, which includes awareness of one's own self and cognition to create and reflect as examples.¹⁰⁻¹¹

Case-based Learning

Case-based learning using technology is one way to give learners situated learning in support of technology enhanced classrooms.¹²

Approaches for Simulation Sessions and Performance Examinations

Collaborate with other health science programs within your institution or EMS agencies to increase available equipment when in-person simulation can occur. This may include developing a regional repository of equipment made available when needed. All of which will require a means of cleaning and disinfecting all equipment.

Identify the individualized and team lab activities that can be conducted using distance delivery technology and the activities that must be conducted in person. Then sequence or scaffold lab activities and delivery of cognitive materials to holistically support the maturation of a learner's capability and achieving entry-level competencies.

Work with leadership to implement best practices in mitigating spread of infectious disease to resume in-person small group learning activities. Best practices include self-monitoring, proper donning and doffing of appropriate PPE, as well as cleaning and disinfecting surfaces. This includes modifications to physical spaces to enhance isolation between learners or candidates and controllers or examiners, which includes indoor vs. outdoor activities.

Consider modifying schedules to facilitate laboratory sessions focused on deficits identified by analysis or trends in individual and group portfolios rather than a static schedule for all learners.

Assess knowledge typically recalled or recited to perform a technical skill or broad application of an algorithm as part of other assessments such as technology enhanced multiple choice questions and learner portfolios. Examples include static and dynamic cardiology, establishing vascular access, and trauma assessment. This technique then can free time for higher fidelity experiences to supplement field and clinical access and summative demonstrations of expected outcomes.

Develop assessments and implement immersive technology that responds in real time based on realistic physiology, pathophysiology, and pharmacodynamics to the learner's actions or inactions. This methodology can be useful for both formative and summative assessment.

Distance Delivery Technology

Distance delivery technology can be used to facilitate obtaining patient history and interviewing from a standardized patient, as one example.¹³ This also presents an opportunity to incorporate the program director, faculty, community of interest members, and program medical directors to become involved as standardized patients. Whereas some activities, such as airway management, may be more effective to conduct in person because of equipment limitations as well as the need for hands-on demonstration and assistance in developing appropriate techniques.

Small Group Learning Activities

Small groups is a common approach for simulated learning and can support cooperative, collaborative, team-based, and problem-based learning.¹⁴ Some small group learning activities may be most effective in person and some may still be effective using distance delivery technology. Consider using distance delivery technology for additional small group learning activities such as case discussions, role-playing, and peer-review activities.¹⁴

Develop summative performance exams aimed to exhaust the learner's knowledge and capacity to demonstrate expected outcomes to manage a patient at entry-level competence. This exam should be combined with assessment of technical skills over time using a portfolio rather than a single point in time evaluation of skills performance.

Prepare the foundation that could enable development of certifying and licensing performance examinations to test clinical judgment and teamwork in a manner that could allow for remote participation in conjunction with rigorous portfolio standards. This could allow for remote scoring using evaluators from across the country which could enable enhanced quality assurance, interrater reliability, and third-party evaluation or recording when needed.

Performance Examinations

Performance exams aim to assess the skills and abilities necessary to demonstrate entry-level competency.⁹ Validity and reliability are important for any assessment and consistency of results across multiple forms of assessment help with both.⁹ Oral examination is one potential form of examination that can more closely approximate entry-level expectations.⁹ A well-structured and vetted oral examination could present a patient and scene using mixed media followed by a series of questions to explore the learner's capacity to synthesize the situation and make decisions based on their synthesis and knowledge. Oral exams are difficult to develop, require a rigorous process to establish accepted standards, and require examiner training.

Approaches for Field and Clinical Education:

Work with field and clinical sites to be able to access patient care experiences after ensuring appropriate PPE for learners.

Shift focus to experiences and opportunities for the learner rather than a focus on being in just Emergency Departments and EMS internships. Identify additional affiliate sites that provide opportunities to complete patient assessments, procedures, and skills. This includes healthcare settings with emerging roles for EMS clinicians, such as public health, adult and pediatric primary care, inpatient care or services, and preventive medicine.

Experiential learning reminds us that learning begins with an experience and experience is the catalyst for learning.⁸ Setting plays part to the experience but is not the entire experience. Experiential learning includes immersing into complex thought and actions as well as evaluation and reflection.⁸ All of which help to develop recognition, increased knowledge, and capability to assess and treat future patients.

For all EMS learners, develop metrics for individualized demonstration of entry-level competency through a portfolio rather than meeting broad static numbers of skills, patient contacts, and contact hours applied to all. This process includes establishing the balance between simulated experiences and what must be live patient encounters.

Create relationships with field and clinical sites modeled after internship, apprenticeship, or employment opportunities like other healthcare professions.

Re-evaluate the ability for an identified learner to complete precepted skills, procedures, and patient assessments in support of program portfolio requirements while employed.

Summary

Content in this document is based on our commitments as professional educators and required collaborative efforts with program partners and stakeholders. The content discussed in this document is not a “one size fits all” solution and when applied will require some modification. However, the aim of this document was to provide guidance as a path forward and introduce revolutionary steps to further our resiliency and commitment to graduating competent entry-level EMS clinicians. If EMS educators only think of the future based on what we have always done in the past and work back to what was normal, then there is no future to think of rather than just a continuation of the past. Let us as EMS educators reframe the COVID-19 pandemic into an opportunity to challenge ourselves in thinking of the future in light of this experience.

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Foundations of Education: An EMS Approach (3rd edition) was used to provide additional discussion on concepts and terms discussed in this document. This text is commonly available, focused on EMS education, and recently went through a revision. The rigorous editorial and revision process included a focus on vetting of information and examples. This single source provides a starting point for further literature search and investigation.

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