**Policy Brief**

| | |
|---|---|
| **TO:** | Training & Certification Committee |
| **FROM:** | Field/Clinical Workgroup- William "Bill" Akers, Jeffrey "JJ" Bonavita, John Cook, Catherine Gardner, Christopher Kroboth, Brian Mcintosh, Dr. Scott Weir, Greg Neiman |
| **SUBJECT:** | Proposed EMT Clinical/Field Requirements & Pilot Program to TCC & MDC |
| **DATE:** | 3/30/2022 |



## Summary

The Field/Clinical Workgroup of the Training & Certification Committee (TCC) of the Virginia EMS Advisory Board recommends that the minimum required patient contacts for EMT students remain ten (10), with five (5) contacts allowed to be completed through simulation. The Workgroup recommends the addition of required pediatric and geriatric experience to the EMT curriculum. Furthermore, the Workgroup proposes the development of a measurement tool for evaluating the effectiveness of EMT programs, and a pilot EMT program be developed with the goal of improving EMT education in the Commonwealth. The Workgroup proposes a two-year study of the effectiveness of the pilot program be conducted.

## Major Findings and Recommendations

- The Workgroup believes that there is not an easily defined number of patient contacts that will result in the development of competence in an EMT student.
- Ten (10) patient contacts has been the accepted standard across much of the country for many years.
- The COVID-19 pandemic has exacerbated the challenge for EMT programs in providing access to field and clinical experiences for EMT students. These challenges create barriers for student success and the Workgroup believes that increasing the required number of patient contacts will negatively impact EMT programs across the Commonwealth.
- The Workgroup recognizes the value in ensuring EMT students can interact with people of various age groups, The Workgroup believes that the addition of a pediatric and

geriatric experience will create the educational opportunity to learn how to interact with various age groups while providing flexibility for each EMT program to determine how best to implement this experience.

- The Workgroup acknowledges that EMT education can be improved, but that measuring effectiveness and competence of EMT students is inherently challenging. To address these concerns, the Workgroup proposes an additional measurement tool for EMT program effectiveness be developed.
- The Workgroup believes that EMT education would be enhanced through scenario-based learning and proposes a pilot program be developed that incorporates scenario-based learning, a revised set of minimum competencies, and incorporates an internal scenario-based psychomotor assessment.
- The Workgroup proposes a two-year comparative study be conducted to measure the effectiveness of such a pilot program.
- The Workgroup recommends that the charge of the Field/Clinical Workgroup be modified to work towards the achievement of these recommendations.

## Issue/Define the Problem

The Training and Certification Committee (TCC) voted to maintain the current required ten (10) patient contacts with up to five (5) that can be completed via simulation. The Medical Directors Committee (MDC) asked the TCC to reconsider whether ten patient contacts with the use of simulation will adequately prepare EMT students.

## Background/Relevant Analysis

In the early months of 2020, the COVID-19 virus swept across the globe, triggering a pandemic that radically altered how we live our everyday lives. These changes were felt acutely amongst health care workers including EMS personnel. The hospitals were overwhelmed and there was a great need for more frontline healthcare workers, including those in EMS who were backfilling hospitals and helping to care for the surge in patients. At the same time, shutdowns and restrictions impeded most educational programs' abilities to train new EMS personnel. In a survey of certified Virginia education coordinators, prior to COVID-19, only 26% found getting access for students to complete field and clinical requirements difficult; since COVID-19 restrictions began in March of 2020, approximately 75% of education coordinators expressed difficulty providing access to field and clinical sites (OEMS, 2021, 2,6). The competing demand for more frontline workers vs what was possible under various restrictions led the Virginia Office of EMS to loosen requirements. One such change was to allow EMT programs that were finding their previous field and clinical sites closed to students, to complete a portion of the required patient contacts through simulation. Another change was to grant provisional certification to all state EMS providers who completed their program and passed the cognitive exam due to the cessation of psychomotor testing across the Commonwealth. The ability to verify psychomotor

competency within a program has long been granted to accredited programs in the Commonwealth and is contingent upon the completion of a set of minimum competencies published by the Office of EMS. A third major change was to revise the minimum competency requirements for EMT programs to complete during their program.

**Effectiveness of EMT Programs**

Many were concerned that by relaxing these educational standards the resulting EMT students would be less competent. The Office of EMS investigated this concern through statistical analysis of National Registry of EMTs (NREMT) cognitive exam pass rates, a survey of Virginia-certified education coordinators, and a review of complaints reported to the OEMS Division of Compliance and Regulation. According to reported statistics from Chad Blosser, prior to the pandemic in 2019, there were 1,193 students from accredited programs and 1,972 students from non-accredited programs who attempted the NREMT exam. The first attempt pass rate from accredited programs was 76% and the cumulative pass rate within 6 attempts was 85%. The first attempt pass rate from non-accredited programs was 66% and the cumulative pass rate within 6 attempts was 78%. From the third quarter of 2020 through the third quarter of 2021 (pandemic statistics reported in the fall of 2021) there were 1,535 students from accredited programs and 1,860 students from non-accredited programs. The first attempt pass rate from accredited programs was 81% and the cumulative pass rate within 6 attempts was 88%. The first attempt pass rate from non-accredited programs was 66% and the cumulative pass rate within 6 attempts was 73%. **Surprisingly, there was an increase in performance amongst accredited programs in both first attempt and cumulative pass rates (76% to 81% first time and 85% to 88% cumulative). The performance on certification exams remained roughly the same for non-accredited programs. The Director of the Division of Compliance and Regulation, Ron Passmore, reported no increase in complaints reported to the division.**Approximately 90% of education coordinators who were surveyed believed that allowing EMT programs to verify psychomotor competency rather than a psychomotor exam, was effective (OEMS, 2021, 29). The majority of surveyed education coordinators (91%) found the changes in required psychomotor competencies easy to verify (OEMS, 2021, 32). **These results would seem to indicate that the changes in regulations spurred by the COVID-19 pandemic did not decrease the quality of EMT education. In fact, the students coming from accredited programs seemed to perform better.**

**Recommendations from the Training & Certification Committee**

In the summer of 2021, the National Registry of EMTs (NREMT) announced they will be phasing out their psychomotor exam for Advanced Life Support (ALS) students. This prompted educators in Virginia to consider whether EMT students in Virginia should continue to take a state psychomotor exam or have their psychomotor competencies verified by their educational program, as was being done during COVID-19. Most other allied health professions verify

psychomotor competence within their academic program, without a psychomotor exam. Psychomotor exams have long been criticized as being subjective. Furthermore, competence cannot be verified by a snapshot in time, but rather over a period of performance evaluation (such as a student receives during their education). When Virginia education coordinators were asked if they believed Virginia should follow the NREMT in shifting verification of psychomotor competence to the individual program rather than verification by a certification exam, 91% of those surveyed supported ending the psychomotor exam. Students from accredited programs have long been exempt from having to take a psychomotor exam and the aforementioned data seems to demonstrate that Virginia's education coordinators, in consultation with their medical directors, are capable of successfully verifying an EMT student's psychomotor competence. In November of 2021, the Training and Certification Committee voted to recommend permanently ending the psychomotor exam in Virginia.

A related concern was how to handle the other requirements that had been relaxed for COVID-19. Programs seemed to be turning out competent and successful students. If psychomotor exams are to be abolished, then the required psychomotor portfolio must ensure psychomotor competence. COVID-19 led to the creation of the TR999 form, a modified version of the prior psychomotor portfolio known as the TR90a, to verify competence. When education coordinators were sampled, 91% found the TR999 easy to administer (OEMS, 2021, 32). Those educators who did find it difficult mostly found the verification of so many skills to be time-consuming with limited resources. Prior to COVID-19, only accredited programs utilized the TR90a (and were thus exempted from the psychomotor exam). The previously required competencies were far more time-consuming than those specified in the TR999. One educator described the previous requirements (TR90a) as, "Excessive". That some educators found the TR999 burdensome, illustrates a difference in perspective between educators working in an accredited program vs those that were independent programs. Going forward, especially if the state psychomotor exam is to be sundowned, a new psychomotor portfolio needs to be devised. A Workgroup of the Training and Certification Committee was created to develop a new psychomotor portfolio.

While the restrictions imposed at the height of the pandemic have eased, many EMT programs are still finding it difficult to gain access to clinical and field opportunities for their students. Even prior to the pandemic, 26% of Virginia educators surveyed found it difficult to access field and clinical sites for their students (OEMS, 2021, 2). Chief among the reasons cited were burdensome hospital requirements, especially for students who are under the age of 18, competition with students from other disciplines or programs, and logistics of scheduling students within a limited time frame. With the onset of COVID-19, educators reported that hospitals and field agencies began limiting access due to public health concerns and liability. Many hospitals have also imposed mandatory COVID vaccination mandates that bars access to students who do not wish to receive the vaccine. The shortage of personal protective equipment poses additional challenges cited by educators. When unable to get students into hospitals, the

program is forced to require their students to obtain their patient contacts through field shifts. Some program directors claim that it has been taking as many as 70-80 hours on an ambulance for students to achieve their required contacts.

Prior to COVID-19, EMT students were required to assess ten (10) patient contacts. With the onset of the pandemic, the regulations were changed to allow up to five (5) of those patient contacts to be performed by simulation. When Virginia educators were surveyed about whether ten contacts were the right number, 70% felt that it was. Of those educators that were unsatisfied with ten (10) contacts, the majority felt that more contacts were needed. Another group felt that the issue was not the number but the quality of contact. When asked if the modification for five (5) contacts to be performed by simulation was acceptable, 59% of responding educators agreed that it was. Of those who did not, many felt that simulations were not a good substitute for the real thing. When asked to suggest a required number of patient contacts, 45% of educators who responded suggested 10 patients with various specifications limiting simulated patients. Of the other respondents, 14% suggested between 15-20 patients, 17% suggested 20 patient contacts, and 12% suggested more than 20 patients. It is important to note that out of more than 700 educators, only about 70 spoke up against the changes and the majority who responded did believe the requirements were suitable.

In a special Training & Certification Committee meeting on November 12, 2021, this issue was discussed extensively. The increasing difficulty in accessing clinical and field opportunities was discussed. Clarity on the new National Education Standards was provided; the new Standards removed any recommended number of patient contacts and opted to leave it up to the individual program. The Education Standards also support utilizing simulation to supplement patient contacts. While any program, in consultation with their medical director, can raise the required patient contacts if they feel more contacts are necessary, the Committee felt that the requirements needed to be appropriate for the largest number of programs. The committee ultimately believed that with 75% of programs finding it difficult to provide access to clinical and field sites, it was important to maintain the requirement of 10 patient contacts with up to 5 being able to be completed by simulation. The TCC voted unanimously to recommend that the patient contact requirements be maintained. However, on January 6, 2022 the Medical Directors Committee voted to push the issue back to the TCC; the MDC felt that the required patient contacts were too low and they expressed concern over the quality of EMT education under these modified rules.

**Defining Competence**

The Field/Clinical Subcommittee was convened to consider whether ten (10) patient contacts, with five (5) allowed to be completed through simulation, are adequate. At the first meeting, the Subcommittee redefined their objective, to determine the optimal clinical and field internship requirements to develop competent, entry-level EMT students. The discussion was

expanded beyond simply deciding the right number of patient contacts to instead focus on improving the quality of EMT education in the Commonwealth. What does competence mean? What does a competent, entry-level EMT look like? Is there any evidence to support a set number of patient contacts that results in competence?

The desire to develop competent, entry-level EMTs drove the efforts of the Subcommittee. According to a definition put forward in the Journal for the American Medical Association, competence is, "The habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and the community being served" (Epstein & Hundert, 2002, 226). Another definition pulled from the nursing world, is "An observable ability of a registered nurse at entry-level that integrates the knowledge, skills, abilities, and judgment required to practise nursing safely and ethically" (College of Registered Nurses of Manitoba, 2019, 1). In other words, competence is the ability to put together everything learned during formal training in order to function as a professional. We often discuss competence in terms of competencies, typically expressed as a list of the required knowledge, skills, and behaviors expected. Take the National EMS Education Standards for example; the document lays out a long list of competencies that the entry-level EMS provider should master (NHTSA, 2021). However, competency is the ability to integrate knowledge, skills, and behaviors to function. Therefore, our concern with EMT education is developing the student's ability to function as an EMT: manage a scene, assess a patient, analyze the situation, develop a treatment plan, implement the plan, and successfully transport the patient to definitive care. Competence is a high-level ability that is developed over multiple domains throughout their entire education. Competence is a moving target that we strive for continuously; it can not be mastered through a finite number of patient contacts or even during the extent of their education. The goal for EMS education should be entry-level competence, which is the ability to function safely, while imperfectly, in the role being trained for. A credentialing process, guided practice, and personalized evaluation is then needed to further develop an EMT. **In short, an EMT course was never meant to turn out fully competent prehospital providers and it is important we are clear about our expectations for EMT students.**



**Developing Entry-Level Competent EMTs**

What does it take to develop entry-level competent EMTs? To develop the requisite knowledge requires a curriculum that spans the necessary topics (outlined in the Education Standards). The EMT student must learn and practice the important psychomotor skills. More importantly, the EMT student must learn how to integrate the skills and learn how to critically think and manage a patient. The Education Standards outline some of these skills and Virginia defines the psychomotor requirements of the EMT student. The field and clinical component of the EMT's education is designed to give the student an opportunity to practice communicating and assessing real patients while performing as an EMT in a structured environment. The

experience serves as a culminating experience that is essential to the new EMT's education. It takes all components of the EMT curriculum to develop competent EMTs, however, the live patient contacts are undoubtedly a critical component to a new EMT's development. How many patient contacts does it take to achieve competence? A review of the literature is inconclusive.

Much of the literature concerns the training of anesthesiologists, who have to master various complex psychomotor skills during their rotations. A study from 1996 found that 20-25 procedures were necessary to gain a level of baseline competence (Kopacz & Pollock, 1996). If a 90% success rate was desired then it took 45-60 attempts. Another study from 2005 found measurable improvement over 20 attempts (Charuluxananan, Kyokong, Premsamran, 2005). A study from 2010 looked at 765 epidural block attempts (Guasch, Diez, Gilsanz, 2010). Seven of the residents became competent within 23 procedures while 2 residents did not become competent during the timeframe, indicating that student learning varies. Russell et al found that it only took 11 attempts to become proficient at using lung ultrasound for quantifying B‑lines (Russell et al, 2020).

**It has been suggested that a better way to measure competence is to utilize learning curves and to measure against a desired failure rate (long-term performance vs a snapshot in time).** Konrad et al demonstrated that the learning curve measurement is valid (Konrad et al, 1998). Bouchacourt & Castroman utilized a version of this technique, the CUSUM method, in a study and demonstrated that an acceptable failure rate (10%) of intubations was achieved within 3 months of their student's education and an average of 41.3 attempts (Bouchacourt & Castroman, 2007). It took their students 11 months and an average of 67.3 attempts to achieve a failure rate of 5%. Komatsu et al studied 15 interns as they developed bag and mask ventilations and orotracheal intubation (Komatsu et al, 2010). It took 14/15 interns between 14-40 attempts with a median 25 attempts to achieve acceptable failure rates with bag-mask ventilations and 9/15 interns achieved acceptable failure rates with intubation within 18-34 attempts with a median of 29 attempts. In total it took a median of 25 procedures for the interns to reach a failure rate of less than 20%. One of the largest studies evaluated 802 paramedic students and 6,464 intubation attempts; it took a median of 7 attempts to reach proficiency and the average success rate was 87% (Want et al, 2005). The learning curve showed that proficiency was impacted by the setting intubations were performed (prehospital, ED, OR, ICU). In general, success rates exceeded 80% within 10-20 attempts.

Reviewing the evidence led the Subcommittee to draw several conclusions. While practice certainly improves performance, the number of times a particular skill must be practiced varies by student and by skill. This sentiment was shared by researchers in a 2021 study on neonatal intubation, "The number of neonatal intubations required to achieve procedural competence is variable, and overall intubation competence rates are modest. Although repetition leads to skill acquisition for many trainees, some learners may require adjunctive educational strategies. An individualized approach to assess trainees' progression toward intubation

competence is warranted" (Evans et al, 2021). A study performed by Kwak in 2017 attempted to redesign an anesthesiology training program based on these conclusions, "In the context of practical skills, exposure to a predetermined time in a clinical subspecialty and a target number of cases does not guarantee competence in that clinical area. There are large variations in total experience and caseload among anesthesiology residents, even when they share the same rotation program… Thus, there is a need to match the level of teaching to the individual resident, rather than relying on the duration of exposure to certain procedures" (Kwak, 2017). Kwak utilized the idea of proficiency curves to track each student's performance in an attempt to, "Standardize the learning outcome and individualize the learning process" (Kwak, 2017).

The previous version of the National EMS Education Standards set the number of patient contacts at 10 and set the parameters for clinical and field experiences, "Students should observe emergency department operations for a period of time sufficient to gain an appreciation for the continuum of care. Students must perform ten patient assessments. These can be performed in an emergency department, ambulance, clinic, nursing home, doctor's office, etc. or on standardized patients if clinical settings are not available" (NHTSA, 2009, 58) Most states have retained this requirement, though many have modified it. According to research conducted by the Subcommittee **(see appendix A), twenty (20) states require ten (10) patient contacts**. We were unable to locate specific requirements for eleven (11) states, though most of those states reference the National EMS Education Standards which prior to 2021 recommended ten (10) patient contacts. The Subcommittee suspects that most, if not all of those eleven (11) states require ten (10) patient contacts as well. Seven (7) states require less than ten (10) patient contacts, and **only one state requires more than ten (10).** The remaining states had time requirements rather than patient contact requirements. The large majority of states require ten patient contacts or less. The Subcommittee also surveyed the cumulative pass rate of the NREMT EMT exam within three attempts and compared them to the state's clinical and field requirements; there was no correlation between number of patient contacts required and student success on the certification exam. In fact, the highest average performance on the NREMT exam came from a state where we were unable to determine a clear required number of patient contacts. Meanwhile, the state with the largest required number of contacts had a relatively low average pass rate, below the national average. Analysis of this data suggests that entry-level competence cannot be accomplished simply by increasing the number of patient contacts required or time spent in a clinical setting.

**Designing a More Effective EMT Education**

"Necessity is the mother of invention," or so the saying goes. In the wake of a global pandemic without modern precedent, and despite the relaxing of regulations, Virginia's EMT students demonstrated an increase in performance on the NREMT certification exam. How did this occur? The Subcommittee hypothesizes that while EMS educators were learning how to flip their classrooms into a virtual format, with limited face-to-face instruction, they were forced to

prioritize and reinforce the essentials. With the TR90a replaced by the TR999, programs had the time to reinforce the essential competencies. Under restrictions brought on by the pandemic, rote skill memorization and repetition were often supplemented with scenario-based education and an emphasis on achieving competency.

The Subcommittee shares a concern for the quality of EMS education. Accounting for what we've learned over the pandemic, the Subcommittee proposes the development of a pilot EMT program to be trialed over a one or two-year period. This pilot program would be based on a more flexible psychomotor portfolio that emphasized scenario and hands-on learning. The pilot program would involve periodic scenario-based assessment modeled after the integrated-out-of-hospital scenario from the National Registry paramedic exam. Resources for educators, including an assessment rubric, scenario templates, and a database of vetted scenarios will be developed to assist educators in implementing the program. For this model to be successful, the programs must be given flexibility and autonomy to run their programs, and the Subcommittee proposes a leaner psychomotor portfolio (akin to the TR999) and reasonable clinical and field requirements (we propose maintaining the requirement at ten contacts with the opportunity for half to be completed by simulation). These requirements create time and flexibility within the program for the educator to focus on simulation and scenario-based education. The Subcommittee proposes adding a "pediatric experience" and a "geriatric experience", loosely defined to allow maximum programmatic creativity on how to accomplish this experience, rather than stratifying the patient contact requirements. The Subcommittee proposes that an internal summative psychomotor assessment be included in the pilot and prior CTS evaluators can be incorporated into this new program. Finally, the committee proposes creating a measurement survey tool to be implemented to compare pilot program graduates to graduates of traditional programs. This survey would be developed and administered using accepted scientific methods.

**Conclusion**

The past two years have led to a paradigm shift in the way we operate. Despite these challenges, EMS educators across the commonwealth adapted with great success. The lessons learned over the past two years, coupled with changes in the National EMS Education Standards and pending changes from the National Registry of EMTs have led the Subcommittee to the conclusion that we need to reconsider how EMS education is delivered in Virginia. We believe that the challenges of placing students in clinical and field experiences vary across the Commonwealth, and these challenges have been exacerbated by the pandemic. **While we believe the clinical and field experience is crucial for developing entry-level competent EMTs, there is little evidence to suggest that increasing the required number of patient contacts will result in more competent providers. Therefore, the Subcommittee recommends that the current requirement for ten (10) patient contacts with the ability to complete half of them by simulation be maintained**. The current standard is consistent with the majority of the other

states in the country while Virginia's EMT students have some of the higher pass rates in the country. Allowing the option for simulation is also consistent with the current EMS Education Standards.

Instead of focusing on the number of patient contacts, the Subcommittee believes that EMS education can be enhanced in other ways. The Subcommittee acknowledges that learning how to communicate and interact with people of various age groups is essential, and proposes the addition of a flexible pediatric and geriatric experience to the EMT internship requirements. The Subcommittee also believes that a scenario-based education will increase the competence of graduating EMT students. **To this end, the Subcommittee proposes a pilot EMT program be developed and a comparative study be conducted to determine the effectiveness of these changes. To facilitate this study, the Subcommittee also proposes a new qualitative tool for evaluating EMT graduate competence be developed and utilized in addition to traditional quantitative methods (i.e. pass rates).**

## References


Bouchacourt, J.P. & Castroman, P. (2007). Orotracheal intubation training: assessment with the cumulative sum method. *Revista espaniola de anestesiologia y reanimacion, 54*(6). 349-354. Retrieved from https://pubmed.ncbi.nlm.nih.gov/17695945/ Epstein, R.M. &

Charuluxananan, S., Kyokong, O., Premsamran, P. (2005). Comparison of 25 and 27 gauge needle in spinal anesthesia learning curve for anesthesia residency training. Journal of the Medical Association of Thailand, 88(11). 1569-1573. Retrieved from https://pubmed.ncbi.nlm.nih.gov/16471104/

College of Registered Nurses of Manitoba. (2019). Entry-Level Competencies (ELCs) for the Practice of Registered Nurses. Retrieved from https://www.crnm.mb.ca/uploads/document/document_file_92.pdf

Evans, P., Shults, J., Weinberg, D.D., Napolitano, N., Ades, A., Johnston, L., Levit, O., Brei, B., Krick, J., Sawyer, T., Glass, K., Wile, M., Hollenberg, J., Rumpel, J., Moussa, A., Verreault, A., Mehrem, A.A., Howlett, A., McKanna, J., Nishisaki, A., Foglia, E.E. (2021). Intubation Competence During Neonatal Fellowship Training. Pediatrics, 148(1). https://doi.org/10.1542/peds.2020-036145

Guasch, E., Diez, J., Gilsanz, F. (2010). Monitoring skill acquisition in obstetric epidural puncture at a university hospital using the cumulative sum method. *Revista espaniola de anestesiologia y reanimacion, 57*(1). 11-15. https://doi.org/10.1016/s0034-9356(10)70157-2

Hundert, E.M. (2002). Defining and Assessing Professional Competence. *Journal of American Medical Association, 287*(2). 226-235, https://doi.org/10.1001/jama.287.2.226

Komatsu, R., Kasuya, Y., Yogo, H., Sessler, D.I., Mascha, E., Yang, D., Ozaki, M., (2010). Learning Curves for Bag-and-mask Ventilation and Orotracheal Intubation. *Anesthesiology, 112*. 1525–1531. https://doi.org/10.1097/aln.0b013e3181d96779

Konrad, C., Schupfer, G., Wietlisbach, M., Gerber, H. (1998). Learning manual skills in anesthesiology: Is there a recommended number of cases for anesthetic procedures? Anesthesia and Analgesia, 86(3). 635-639. https://doi.org/10.1097/00000539-199803000-00037

Kopacz, D.J., Neal, J.M., Pollock, J.E. (1996). The regional anesthesia “learning curve”. What is the minimum number of epidural and spinal blocks to reach consistency? Regional Anesthesia, 21(3). 182-190. Retrieved from https://pubmed.ncbi.nlm.nih.gov/8744658/

Kwak, Y.L. (2017). Redesigning an anesthesiology resident training program to improve practical procedure competency. *Korean Journal of Anesthesiology, 70*, 118. https://doi.org/10.4097/kjae.2017.70.2.118

National Highway Traffic Safety Administration. (2009). National Emergency Medical Services Education Standards. Retrieved from https://www.ems.gov/pdf/National-EMS-Education-Standards-FINAL-Jan-2009.pdf

National Highway Traffic Safety Administration. (2021). National Emergency Medical Services

Education Standards. Retrieved from https://www.ems.gov/pdf/EMS_Education_Standards_2021_v22.pdf

Russell, F.M., Ferre, R., Ehrman, R.R., Noble, V., Gargani, L., Collins, S.P., Levy, P.D., Fabre, K.L., Eckert, G.J., Pang, P.S. (2020). What are the minimum requirements to establish proficiency in lung ultrasound training for quantifying B‐lines? *ESC Heart Failure, 7*. 2941–2947. https://doi.org/10.1002/ehf2.12907

Virginia Office of EMS. (2021). Survey of Virginia Certified Education Coordinators: EMT Student Field/Clinical Requirements and Competency Verification.

Wang, H.E., Seitz, S.R., Hostler, D., Yealy, D.M. (2005). Defining the "learning curve" for paramedic student endotracheal intubation. Prehospital Emergency Care, 9(2). 156-162. https://doi.org/10.1080/10903120590924645

## Appendix A- National Comparison of Clinical and Field Requirements

| Required Patient Contacts for EMT Students by State | | | |
|---|---|---|---|
| **State** | **# Pt. Contacts** | **Cumulative 3rd Attempt NREMT Pass Rate (2021)** | **Notes** |
| Arizona | Unable to Locate Specific Requirements (0?) | 82% | Cannot locate reference to required patient contacts; One program requires only 10 simulated patients (assumption that this indicates no live patient requirements). |
| Massachusetts | 0 | 71% | I don't believe there is a field/clinical requirement; some programs list it as optional |
| Alaska | 0 | 78% | N/A |
| Vermont | 5 | 82% | N/A |
| Missouri | 5 | 74% | N/A |
| Nebraska | 5 | 84% | Must be treated in the field. |
| North Dakota | 5-10 | 77% | 5 were listed in the instructor manual (2022). 10 were listed in EMT Portfolio (2020) |
| Montana | Observe 5 pts, assess 5 patients | 80% | 10 hours required |

| | | | |
|---|---|---|---|
| Washington | 10 | 85% | 5 may be simulated |
| Maryland | 10 | 82% | 4 may be simulated |
| California | 10 | 81% | N/A |
| North Carolina | 10 | 81% | N/A |
| Minnesota | 10 | 80% | N/A |
| Virginia | 10 | 80% | N/A |
| New York | 10 | 78% | N/A |
| Ohio | 10 | 78% | 10 hours required |
| Wisconsin | 10 | 78% | N/A |
| Connecticut | 10 | 75% | N/A |
| Idaho | 10 | 72% | Simulation permitted for all 10 |
| Pennsylvania | 10 | 72% | N/A |
| Utah | 10 | 71% | N/A |
| South Dakota | 10 | 70% | Simulation permitted for all; 10 hours required |
| Indiana | 10 | 69% | 8 hrs clinical and 8 hrs field required |
| Delaware | 10 | 66% | N/A |

| | | | |
|---|---|---|---|
| West Virginia | 10 | 62% | 8 hours required |
| Kentucky | 10 | 74% | 5 must be treated in the field |
| Georgia | 10 + 1 successful team lead | 74% | 16 hours required; simulation permitted for 5. |
| Alabama | 20 | 72% | N/A |
| New Jersey | 10 hour clinical | 85% | N/A |
| Hawaii | 130 hours | 82% | N/A |
| Florida | 20 hours | 78% | 10 must be in the ED |
| Illinois | 25 clinical hours | 73% | N/A |
| Michigan | 32 hours | 79% | N/A |
| Oklahoma | 36 hours, 8 must be in ED of Field | 74% | Regulations specifically state that curriculum is based on 2009 National Education Standards, which specified 10 pt contacts. |
| Mississippi | 45 hours | 62% | N/A |
| Texas | 48 hours | 75% | Unclear if the 48 hours are current policy or proposed. |
| Oregon | 8 hrs ED, 8 hrs field | 85% | N/A |

| | | | |
|---|---|---|---|
| Wyoming | Unable to Locate Specific Requirement | 88% | References 2009 National Standards- 10 patient contacts. |
| Colorado | Unable to Locate Specific Requirement | 83% | Seems to be regulations concerning clinicals, most programs have hour requirements, can't find minimum patient contact requirement |
| Arkansas | Unable to Locate Specific Requirement | 80% | Requirements vary between simple hours requirements and patient requirements between programs |
| Tennessee | Unable to Locate Specific Requirement | 79% | I believe a clinical experience is required but uncertain of specifics |
| New Hampshire | Unable to Locate Specific Requirement | 78% | N/A |
| South Carolina | Unable to Locate Specific Requirement | 76% | Seems to refer to previous National standards- 10 patient contacts |
| Louisiana | Unable to Locate Specific Requirement | 73% | There is a requirement; during COVID they changed to allow for 5 simulated patients. I can't locate the original requirement. I suspect 10 but cannot verify |
| Maine | Unable to Locate Specific Requirement | 73% | N/A |

| | | | |
|---|---|---|---|
| Nevada | Unable to Locate Specific Requirement | 73% | N/A |
| New Mexico | Unable to Locate Specific Requirement | 73% | N/A |
| Iowa | Unable to Locate Specific Requirement | 71% | N/A |
| Kansas | Unable to Locate Specific Requirement | 71% | Reference to time requirements |
| Rhode Island | Unable to Locate Specific Requirement | 65% | EMT Training Manual excludes any requirements for EMT but lists requirements for AEMT and paramedic. Does align with National Standards |
| **National Average:** | | **76%** | |