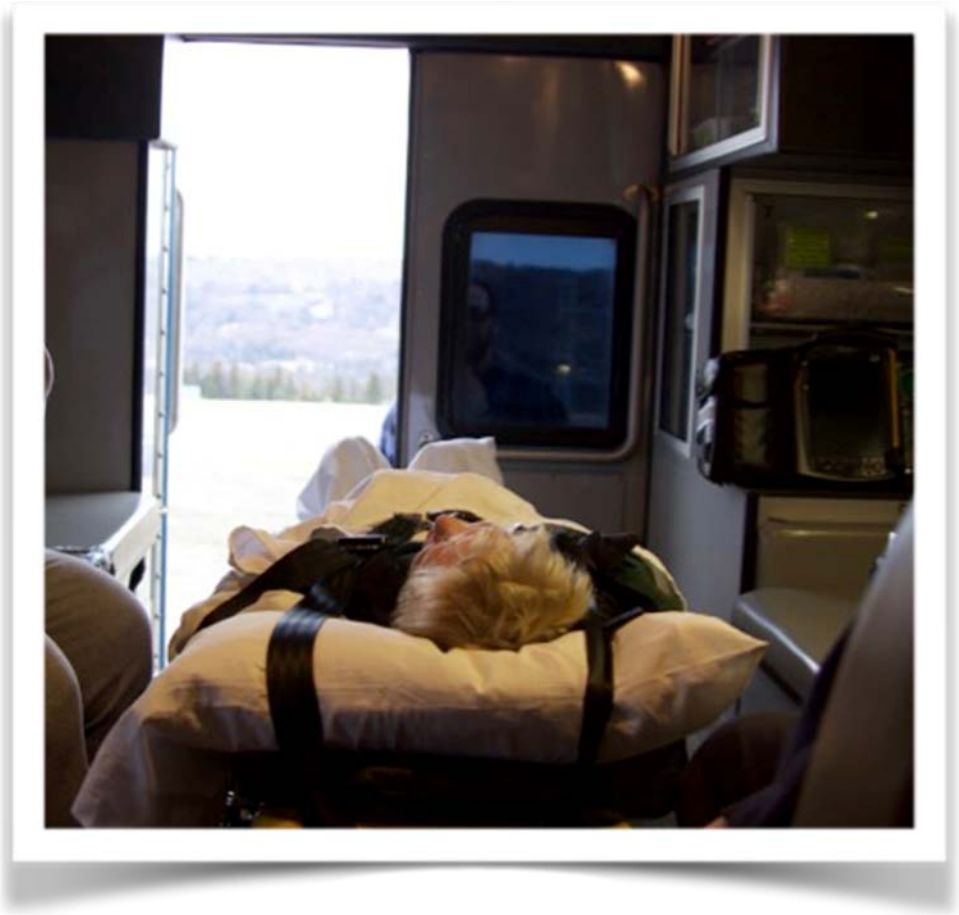
Testing and Certification in Alaska EMS: Standardization and Evidence-Based Practices at a Crossroads



Mark Miller, MS, NRP
Ken Zafren, MD
Carin Marter, NRP
Jopeel Quimpo, NREMT
Todd McDowell, NPR
Ron Quinsey, NREMT-P
Renee Escamilla, BS
Andy Jones, Section Chief

February 2016

Department of Health and Social Services
Division of Public Health
Section of Emergency Programs
Emergency Medical Services (EMS)
PO Box 110616
Juneau, AK 99811-0616
907-465-8741

Keeping focus on where EMS is going

"Top 3 reasons for using an international accepted, unbiased and fully tested EMS certification process:

PATIENT SAFETY.

PATIENT SAFETY.

PATIENT SAFETY."

"One would not want a physician to practice on our family members unless they have been fully educated, fully tested and fully clinically experienced through an independent process. EMS providers use discretion, clinical judgment, performing skills and lifesaving efforts in austere environments.

We owe it to EMS providers to insure they confirm their education via the best process available."

Mark J. Miller, Unit Manager
State of Alaska DHSS / EMS

"*Our single greatest function is to ensure that EMS providers are secure in their knowledge of their EMS duties, skills and abilities*"

Robert Wagner, Director, National Registry of EMTs
Discussing the NREMT testing process

Readiness

Response

Resourceful

Relying on each other

Contents

Executive Summary

Emergency Medical Services in Alaska is made up of a mix of rural, paid, urban, volunteer, physicians, paramedics, universities, instructors, agencies, community members and administrator. The 2014 NHTSA Reassessment provided Alaska's EMS System the Best Practices in a document for Alaska to use to improve the EMS system.

The Governor's Alaska Council on EMS (ACEMS) is tasked with advising the EMS system in all aspects of care and incorporating all members of the EMS community. Decisions must be made with the long-term sustainability of the Emergency Health Care system in mind.

Time frames need to be determined for the details outlined in this report. Yet, in order to protect the system and introduce new evidence based standards the Alaska EMS System must unite on the goal to improve. Following National Standards where practical is key. Maintaining a functioning 911 system is critical.

Please respond to the survey that will be sent out to help determine Alaska's EMS future.

Mark Miller, MS, NRP
State of Alaska DHSS / EMS Unit Manager

Specifics of the problem – EMS Education

Alaska finds itself currently not meeting all aspects of National Emergency Medical Services (EMS) Standards.

EMS has been in a state of constant evolution since its inception. Most states, including Alaska, developed unique systems and standards based on their perception of need and available resources. In more recent years, EMS has, under the guidance of the National Highway Traffic and Safety Administration (NHTSA) and other national experts, sought to standardize the provision of EMS nationwide. The NHTSA Team made recommendations for Alaska in May 2014. At the core of the recommendations in EMS education and certification:

- Adoption of National Education Standards;
- Certification levels and competency standards included in cognitive examinations;
- Creating consistency in the levels of EMS will enhance both education and patient care ensuring that all citizens of the state will receive the most appropriate and up to date pre-hospital care and consistent with the rest of the nation. Alaska has already adopted the National Registry's Accreditation Policy, which requires all advanced level education (Paramedic) to be conducted by CoAEMSP (Committee on Accreditation of Educational Programs for the EMS Profession) institutions;
- Alaska is challenged with Scope of Practice for all EMT levels. Development of standardized patient care guidelines is essential, as is the education modules for them.

The challenge and goal is to create an EMS system in Alaska that is substantiated by a national curriculum based on evidence based guidelines, national accreditation, a national scope of practice and the passage of a nationally recognized cognitive examination by initial providers.

What are the Risks to the Alaska EMS System?

The identified risks should Alaska EMS system not seeks to improve:

- Depending on the policy decision made, increased costs to the State of Alaska.
- Risk is that Medicare may only reimburse EMS care to those providers who meet National standards.

- Risk to Alaska continuing to have EMS policies or standards inconsistent with the rest of the country.
- Risk in obtaining other Federal subsidies,grants and reimbursement.
- The lack of commercially-available education testing materials and the lack of funding and resources to provide validated EMT exams with the current system
- Risk of Alaskan-trained individuals being unable to achieve National Certification (i.e. Alaska training no longer being recognized by the rest of the country or the NREMT). This would impair cross-border responses, such as wildland fire activities in the summer, as well as the ability of military and industry providers to receive recognition for their certification occupationally. This was a significant issue with Bureau of Land Management (BLM) this summer. Federal disaster 'compacts' will be threatened.
- Legislation is currently pending to develop a federal EMS agency (FICEMS), which could mandate adherence to the National Standards. This may limit or eliminate grant opportunities to only states which are in compliant with the current EMS standards.
- The risk of EMS providers not being trained and tested to a National Standards process could impact their long-term career opportunities.
- Some risk to EMS providers for increased one-time costs at initial certification but is off-set by the enhanced career path opportunities.
- Risk to employers needing new hires to be competent and recognized by NREMT.
- Communities requesting military resources for civilians may not provide legal protection to the military EMS providers with non-standard certifications. Alaska has many community agreements that have been developed currently.

An Action Plan

This report is presented at the request of the Alaska Council on EMS (ACEMS). It is meant to highlight that the State of Alaska has some important decisions to make about the future of EMS in the state. In particular, it is meant to address some of the issues cited in the most recent NHTSA EMS system reassessment conducted throughout the State of Alaska in 2014.

At the national level, there are a number of changes taking place that will impact EMS in Alaska for many years to come. The EMS Unit is working on projects such as updating the State EMS regulations, which are in significant need of revision and modernization. Although, to maximize the effectiveness of those changes; some important decisions will have to be made along the way.

The guidelines for EMS practice have traditionally been set by the US Department of Transportation, National Highway Traffic Safety Administration (NHTSA). Although the regulation of EMS is ultimately a State responsibility, adherence to National Guidelines and evidence/research-based practice recommendations has been a hallmark nationwide. Alaska and other states have continued to use NHTSA recommendations as a basis for regulatory decisions, it has been recognized that the EMS system nationwide continues to be somewhat inconsistent and fragmented. In recognition of that issue and the acceptance that EMS practice has an important role in a rapidly evolving health care system. A foundational document to EMS nationally, entitled *The EMS Agenda for the Future,* was produced in 1996, and since been updated, to chart the course for the future of EMS delivery in all parts of the United States.

As a component of the *EMS Agenda for the Future* is the companion document, *Education Agenda for the Future: A Systems Approach*. This companion document was developed by a Task Force representing the full range of professions involved in EMS education, including EMS administrators, physicians, regulators, educators, and providers at the national level. This document proposes an education system with five integrated primary components:

- National EMS Core Content
- National EMS Scope of Practice Model
- National EMS Education Standards
- National EMS Education Program Accreditation
- National EMS Certification

The target implementation date for this proposal was 2010. Although it is significantly behind schedule across the country, momentum towards this goal has increased and many of the steps are being implemented by individual states.

Another component of that vision was *The National EMS Scope of Practice Model* that supports a system of EMS personnel licensure that is common in other allied health professions, and is a guide for States in developing their Scope of Practice legislation, rules, and regulations. Close adherence to the *National EMS Scope of Practice Model* will increase the consistency of the nomenclature and competencies of EMS personnel nationwide, facilitate reciprocity, improve professional mobility and enhance the name recognition and public understanding of EMS. This is important for daily emergency

health care delivery, but especially important in cross-border support during multi-jurisdictional disasters and events. Additionally *Recognition of EMS Personnel Licensure Interstate CompAct* (*REPLICA)* and the physician *Interstate Medical Licensure Compact* (IMLC) are rapidly achieving implementation in the United States/ The IMLC is currently supported by DHSS and is in active legislative process in Alaska with recent legislative sessions being held regarding its implementation. The Interstate Medical Licensure Compact, which offers a streamlined licensing process for physicians interested in practicing medicine in multiple states, is expected to expand access to health care, especially to those in rural and underserved areas of Alaska and facilitate new modes of health care delivery such as telemedicine.

In one of the most labor intensive projects of national significance in its history, the National Association of State EMS Officials (NASEMS) brought industry partners and experts in the field of interstate compacts together over the last two years to develop model legislation for states' consideration and enactment. The Recognition of EMS Personnel Licensure Interstate CompAct (REPLICA) final model legislation is available for download below[1] was distributed to State EMS Directors and State EMS Medical Directors in the fall of 2014.

Per the NREMT, "*The National EMS Scope of Practice Model defines and describes four levels of EMS licensure: Emergency Medical Responder (EMR), Emergency Medical Technician (EMT), Advanced EMT (AEMT), and Paramedic. Each level represents a unique role, set of skills, and knowledge base. National EMS Education Standards will be developed for each level. When used in conjunction with the National EMS Core Content, National EMS Certification, and National EMS Education Program Accreditation, the National EMS Scope of Practice Model and the National EMS Education Standards create a strong and interdependent system that will provide the foundation to assure the competency of out-of-hospital emergency medical personnel throughout the United States*."

[1] https://www.nasemso.org/Projects/REPLICA/documents/REPLICA-Final-Model-Sept2014.pdf

There is a significant amount of material to review and understand, and the State of Alaska at some point must make a policy decision regarding these new National Standards which will be key to the Alaska EMS System's sustainability.

The State of Alaska EMS and its partners have taken an official position of adopting the teaching of the National EMS Standards.

The National Registry of Emergency Medical Technicians (NREMT) has fully embraced these documents and has announced guidelines that all current and future nationally-certified EMTs and Paramedics will need to meet over the next 3-5 years. Some states have fully embraced the changes, others are "undecided", and still others have expressed frustration and an unwillingness to yield to the value of National Standards. It is a controversial topic in EMS circles at all levels.

The policy options include:

- Fully embracing the NREMT standards (essentially using the NREMT and the cited documents as the Alaska State standard) as well as developing a uniquely Alaskan model of EMS training and verification regarding Alaska with testing by NREMT with improved education for providers and instructors.
- Modified embrace of the NREMT standards with inconsistent application
- Continuing to employ the current model

The potential loss of support by federal agencies for not adapting its standardized EMS models may limit funding resources for operations and training. The Alaska EMS System must make decisions on how to proceed.

What the State of Alaska DHSS EMS Unit and the EMS for Children Program have done to improve our State education and certification model is:

- Sponsored a NHTSA EMS System Assessment to allow an impartial assessment of the system as a whole.
- Developed multiple gap analyses to determine what is needed to finish moving Alaska to the new standards. The EMS Unit, Training Committee and the State EMS Medical Director have all agreed there are significant gaps and improvements needed.
- Invited a representative from the NREMT to address the State EMS Training Committee at the January 2012 meeting and an additional meeting with the EMS Unit staff in December 2015. Robert Wagner, Executive Director of the National Registry of EMTs (NREMT), attended both. The NREMT has offered to send

additional staff to Alaska, for no charge, to help instructors become fully compliant with NREMT processes.

- Downloaded and reviewed all available documentations and subject matter on EMS credentialing and certification testing.
- EMS staff attended multiple National Association of State EMS Officials (NASEMSO) meetings to determine what other states are doing to meet the new standards. Other states have shared their best practices on this process.
- EMS staff attended all available webinars sponsored by NASEMSO and NHTSA to gather more information on improving Alaska's EMS System.
- Have initiated forming a plan for Transition to National EMS Standards (known as the T-Plan) and to include development of "transition" courses that would also educate all current Alaskan EMS Providers and maintain their certification standards under the new NREMT guidelines. The first webinars for Instructors are scheduled for February and March.
- The EMS Unit has adopted via regulation a fifth level of EMT: 'Advanced EMT', as certified by the NREMT. The Alaska EMS Unit staff and are working towards setting a scope of practice that is consistent with the AEMT curriculum to include following National model guidelines.
- The State has begun working with University of Alaska instructors as the Education Standards Ad-Hoc Committee to discuss specifics of AEMT development and AEMT Instructor educational processes, given they are the only entities currently providing AEMT courses.
- A regulations package dealing with Instructor requirements is currently in process.

It's Decision Time

What is needed at this point is for high-level discussions to take place to review all the available materials that have been made available and to chart a course forward for the Alaska EMS System.

From this time forward, decisions from these recommendations are required so the State of Alaska EMS Unit can immediately begin working with State EMS System partners (ACEMS, the State EMS Training Committee, regional councils, EMS services and providers); other states, the NASEMSO, NREMT, etc.

To bring true improvements to Alaska a reality with regulatory changes and policy changes, informing stakeholders must put aside long held opposition to change and embrace evidence of benefit to Alaska by following National Standards (EMS Agenda for the Future). At its core is raising the level of expertise of EMS provider through our certification standards of initial providers.

The adoption of the National Registry Testing processes will be an adjustment for the Alaska EMS System, but it will promote and confirm higher standards for our initial EMS providers in the future.

A grandfather process for current providers will exclude the need for them to test for NREMT certification, however an educational plan will update them in current evidence based medical care giving them the option to become nationally certified.

Below are links to the documents referenced in the above:

- ***EMS Agenda for the Future:*** http://www.nhtsa.gov/people/injury/ems/EdAgenda/final/
- ***EMS Education Agenda:*** http://www.nhtsa.gov/people/injury/ems/FinalEducationAgenda.pdf
- ***National EMS Education Standards:*** http://www.ems.gov/pdf/811077a.pdf
- ***National EMS Scope of Practice:*** https://www.nremt.org/nremt/downloads/Scope of Practice.pdf

Data for Alaska EMS Education Pass Rates:

Alaska 2015 Exams via ExamProfessor Online:

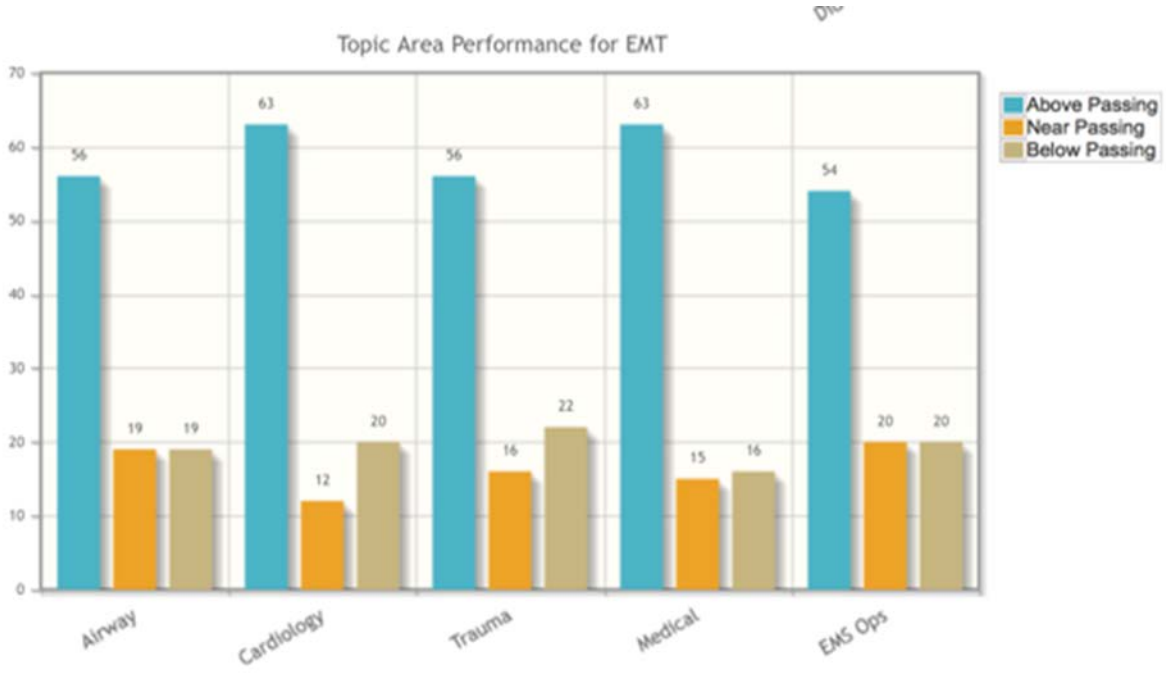
ExamProfessor 2015	
2015 EMT Scores	Average Scores
Cumulative Pass Rate (EMT-1)	89.46
Cumulative Score (EMT-1)	83.42
Cumulative Failure Rate (EMT-1)	61.36
2nd Attempt Pass Rate (EMT-1)	85.61
Cumulative Pass Rate (EMT-2)	97.2
Cumulative Score (EMT-2)	87
Cumulative Failure Rate (EMT-2)	2.8
Cumulative pass Rate (EMT-3)	95.5
Cumulative Score (EMT-3)	87
Cumulative Failure Rate (EMT-3)	4.5

Alaska EMS Students tested using the NREMT for Certification

Alaska NREMT Student Pass Rate	
12/1/2014-1/27/2016 Scores	Percentages
EMT-B First Attempt Pass Rate 81 pass 103 tested	78.6
EMT-B Cumulative Failure Rate 22 fail 103 tested	21.4
EMT-B 2nd Attempt Pass Rate	85.61
AK AEMT Student Pass Rate 10 pass 12 tested	83.3
AK AEMT First Time Failure Rate	16.7
AK NRP Student Pass Rate 35 pass 42 tested	83.3
AK NRP First Time Failure Rate	16.7
AK AEMT Student Pass Rate Q12013-1/27/2016:	Below
AK AEMT Student Pass Rate 41 tested: 25 pass	61.0
AK AEMT Student Final Pass Rate 41 tested: 36 pass	85.0

**Details outlined in these two graphs essentially identify that Alaska EMS providers pass the National Registry of EMT with near equal scores to that of the State of Alaska cognitive certification examination. The method of test scoring is computed differently

NREMT Breakdown for Alaska



Rural Issues of EMS Testing

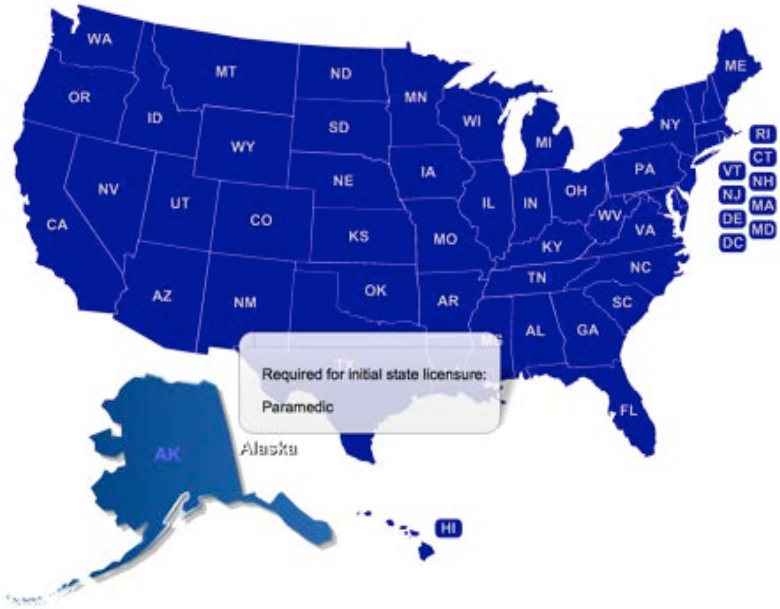
There are currently several options available to help with EMS testing in rural areas. The availability of commercial testing sites has improved significantly with the addition of GED testing requirements mandated for high schools of Alaska.

The EMS Regional Councils and the State EMS Unit must work with NREMT to establish a system for rural communities that accommodates access to one of the many test sites in Alaska. Once an obstacle of access is now becoming more available to Alaskans each day. In fact, EMS Regions have opportunity to become a test site themselves. This includes a process of providing a mobile or regional office testing service.

Reciprocity

In Alaska the process of receiving recognition as a licensed practitioner of Emergency Medical Services from another location is termed Reciprocity, formerly referred to as Comity.

The EMS practitioner is typically licensed in their home state and wishes to transfer their credentials to Alaska. The Alaska EMS Unit reviews the EMS provider qualifications, education received from another location. A criminal background check is performed and then the EMS Unit provides a state license. Reciprocity is commonly used with Wildland firefighters and Fire/EMS agencies who hire out of state EMS providers to provide services.



Reciprocity affords compact states access to resources during disaster incidents where local resources are unavailable.

The Mark King Initiative

Mr. Mark E. King (1953-2006) was the State EMS Director for West Virginia, a former NREMT board member and an EMS provider for over 25 years. He envisioned a national EMS system in which states require EMS providers to maintain their National EMS Certification. Mr. King saw National EMS Certification as a means of moving the EMS profession forward while promoting National EMS Standards. The National Registry of Emergency Medical Technicians' Board of Directors, in keeping with their mission to support National EMS Certification, has established the Mark King Reinstatement Initiative (MKI) to provide an opportunity for former Nationally Certified EMS Providers to regain their National EMS Certification without testing. This Initiative focuses on three goals:

- To support the EMS Education Agenda For The Future: A Systems Approach
- To promote National EMS standards
- To assist State EMS Offices with re-licensure processes.

To be eligible for participation in the Mark King Initiative, the following requirements must be met:

- This is a state initiative only. The state must formally request participation in the Initiative (participation can be certification level specific i.e. EMT, Paramedic)
- The state must have like or similar re-licensure/recertification requirements (reviewed by State EMS official and NREMT staff)
- The state must have current rules, regulations or statutes to require continual National EMS Certification as a part of the continued licensure process
- EMS providers enrolling must hold a current and continuous State license to practice as an EMS provider with no restrictions
- EMS providers enrolling will be certified at the provider level at which they were last Nationally Certified.
- For those states wishing to participate in MKI the following process will be implemented:
- State discusses the Initiative with NREMT staff and key stakeholders
- Formal written request from State to NREMT Board of Directors requesting participation (including confirmation that candidates' education and skills meet current National EMS Scope Of Practice Model)
- Approval of participation by the NREMT Board of Directors, upon recommendation of the Continued Competency Committee
- State to provide data file with EMS provider information to NREMT
- NREMT staff will assist State EMS Office with outreach regarding the Initiative to licensed EMS providers
- Enrollment period is defined by the State EMS Office and the NREMT

Candidates apply for the Initiative via the NREMT website; pay the current recertification fee: EMR $10.00, EMT/AEMT $15.00, Paramedic $20.00; NREMT issues appropriate National EMS Certification; EMS provider maintains National EMS Certification according to State EMS licensure rules, regulations or statutes.
1 www.nremt.org

How the NREMT Develops a Valid Examination

The following information is to explain why state EMS systems no longer write their own cognitive certification examinations.

Cognitive Examinations – testing for competency fairly and accurately

The National Registry cognitive exam item development process follows an extensive process which takes approximately one year to complete. "Item" is known as the test question. Item development follows the same process for all four levels of EMS certification (EMR, EMT, AEMT and Paramedic).

The computer based cognitive examinations consists of items drawn from the National Registry's item bank. NREMT computer based exams are constructed to ensure that each candidate receives a distribution of items from six major categories: Airway & Breathing, Cardiology, Medical, Trauma, OB/Gyn/Peds, and Operations. The number of items from each category is determined by an examination test plan (also known as a blueprint) which has been approved by the NREMT Board of Directors.

The NREMT examination test plan is developed based upon the result of the EMT-Basic, EMT-Intermediate and EMT-Paramedic Practice Analysis conducted at five year intervals (1995, 1999, and 2004). The NREMT randomly surveys hundreds of practicing NREMT-Basics, NREMT-Intermediate and NREMT-Paramedics. The individuals are asked to provide input on the important tasks of the job of an EMT. Importance was defined as a balance between frequency, potential of harm. A committee comprised of national experts reviews the result of the data and developed a test plan which was approved by the Board of Directors.

The NREMT examinations are developed so that they measure the important aspects of pre-hospital care practice. Items are developed in relation to tasks identified in the practice analysis. The domain of practice that limits therapy addressed in an item is based upon national standard curricula developed by the National Highway Traffic Safety Administration. EMT education programs are encouraged to review the NREMT

Practice Analysis when teaching courses and as a part of the final review of the abilities of students to deliver the tasks necessary for competent patient practice.

Individual examination items are developed by members of the EMS community serving on Item Writing Committees convened by the NREMT. Item Writing Committees typically have 10 to 15 national EMS experts as members. They meet over a three to five day period to review, rewrite, and reconstruct drafted items. Consensus by the committee must be gained so that each question is in direct reference to the tasks in the practice analysis, that the correct answer is the one and only correct answer that each distracter option has some plausibility, and the answer can be found within commonly available EMT textbooks. Controversial questions are discarded and not placed within the item banks. Items are reviewed for reading level and to ensure that no bias exists related to race, gender or ethnicity.

The NREMT completed a project utilizing experts in racial and cultural issues who reviewed every word in the NREMT item bank to help assure that examinations do not discriminate on the basis of race or ethnicity. Item writing committees continue to review items to reduce possibilities of this type of discrimination.

Following completion of the item-writing phase, all items are then pilot tested. Pilot items are administered to candidates during computer adaptive exams. Pilot items indistinguishable from scored items; however, they do not count for or against the candidate. Extensive analysis of the performance of those items is conducted with those functioning properly under high stakes pilot testing being added into future live test banks. Item analysis is then completed and items are checked to determine if they are functioning properly and are psychometrically sound.

About the Cognitive Exam

Candidates for NREMT examinations at three levels: First Responder, EMT-Basic and EMT-Paramedic take Computer Adaptive Tests (often referred to as C-A-T or CAT.) There currently not enough items available to meet the requirement for examination at the Advanced EMT level. An adaptive test is an algorithm-delivered exam. This means the computer is programmed to select items in a specific, logical manner. The decision regarding passing or failing an algorithm exam is the same as with pencil-paper examinations: has the candidate reached the level of entry-level competency (pass) or has the candidate not yet reached that level (fail)?

This same method is used to develop all NREMT test items used in CAT exams. First, an item (or question) is drafted. Then it is pilot tested in a high stakes atmosphere by being placed in CAT exam test pools. The test pool is a ‘bank’ of test questions that the

computer can draw from when delivering an exam. Pilot items are placed in test pools to be calibrated—determining what on what scale of difficulty they will be placed. When the draft item is being pilot tested, it does not count towards the pass/fall score of the candidate being examined. In order for an item to be placed in a "live" (when the items counts toward pass/fail) test pool, it must meet strict calibration requirements. The difficulty statistic of an item identifies the "ability" necessary to answer an item correctly. Some items require low ability to answer correctly while others may require moderate or high level of ability.

The CAT Exam is Structured Differently than a Pencil-Paper Exam

Since CAT exams are delivered in a completely different manner than pencil-paper exams, they will "feel" more difficult. Candidates should not be concerned about the ability level of an item on the exam because their ability is being 'measured' in a different (computer adjusted) manner. This works by placing all items on a standard scale in order to identify where the candidate falls within the scale. As a result, candidates should answer *all items to the best of their ability*. Let's use an example to explain this: Suppose that a middle-school athlete is trying out to be a member of the high jump team of the track team. The coach, after many years of experience as a middle-school coach, knows that in order to score any points at a middle-school track meet, his individual jumpers need to jump over a bar placed at four feet above the ground. This is the "competency" standard. If he enters jumpers who can jump three feet, he knows these jumpers will rarely-- if ever--score points for his team during a track meet. Those who jump four feet on the first day of try-outs, after training and coaching, can not only jump four feet (the minimum) but; later may, through additional education, learn to jump five or more feet. The coach knows that it will be worth his time and effort to coach these try-out jumpers to greater heights. Therefore he tells those who jump over four feet at try-outs that they are members of the high jump team (because they have met the entry-level or competency standard).

Since the coach knows the competency standard, he can hold a try-out to see who meets entry-level competency. The coach will likely set the bar at or near 3 feet 6 inches for the first jump attempt. Those who make it over this bar will then progress to perhaps 3 feet 9 inches to test their ability at that height. After a group has passed 3 feet 9 inches the coach will again raise the bar to 4 feet and have the successful jumpers attempt to clear it. A smart coach will likely not tell the team the necessary height so that he can learn the maximum ability of each try-out jumper. At the 4 foot level the coach may find that seven of ten athletes clear the bar. He will then raise the bar to 4 feet 3 inches and later to 4 feet 6 inches. He will increase the height of the bar until he determines the maximum individual ability of each try-out jumper. If he has four slots on his team, he will select the top four or five jumpers and begin the coaching

process to help them reach even greater heights. In this manner, the coach has learned about the ability of the try-out jumpers based upon a standard scale (feet and inches). The coach then sets a standard (4 feet) for membership on the team, based upon his knowledge of what is necessary to score points at track meets (the competency standard).

CAT Exams Are Different for Every Candidate

The above illustration can describe the way a CAT exam works. Every item within a live item pool has been calibrated to determine its level of difficulty. Now the computer adaptive test must learn the ability level of the candidate. Here is how it works: The test typically starts with an item being administered that is slightly below the passing standard. The item may be from any subject area in the test plan (or 'blueprint': airway, cardiology, trauma, medicine, OB/Peds, or Operations.) After the candidate gets a short series of these items correct, the computer will choose items of a higher ability, perhaps near entry-level competency. These items will also be taken from a variety of content areas of the test plan. If the candidate answers most of the questions in this series of items correctly, then the computer will choose new items that are at a higher ability level. Again, if the candidate answers many of these items correctly the computer will again present the candidate with items of an even higher ability level. Eventually every candidate will reach his or her maximum ability level. In this way, the computer learns whether or not the individual is above the standard (entry-level competency) in these content areas, and the examination will end.

95% Confidence is Necessary to Pass or Fail a CAT Exam

The high achiever who is able to answer most of the questions correctly will find that the computer ends the exam early. Many candidates worry that something is wrong because the exam was so short. In reality, the computer was able to determine that the candidate jumped far higher than the standard level—or was well above the level of competency In a CAT exam. The computer stops the exam when it is 95% confident that the individual candidate has reached the level of competency.

As mentioned before the length of a CAT exam is variable. Sometimes a candidate can demonstrate a level of competency in as few as 60 test items. Sometimes, after 60 questions, the candidate has shown to be close to entry-level competency but the computer has not determined within the 95% confidence requirement that the candidate is either above or below the entry-level competency standard. In cases when the computer is not 95% confident, the test continues to provide additional items. This provides more information in determining whether or not a candidate is at entry-level competency. Regardless of the length of the test, items will still vary over the content

domain (airway, cardiology, etc.). When (and if) the candidate reaches the maximum length of an examination, the ability estimate of that candidate will be most precise. Using the high jumper example, the computer will be able to determine those who jump 3 feel 11 inches from those who jump 4 feet 1 inch. Those who clear 4 feet more times than they miss 4 feet will pass. Those who jump 3 feet 11 inches but fail to clear 4 feet enough times will fail and be required to repeat the test. Some candidates won't even be able to jump close to four feet. These candidates are below or well below the entry-level of competency. This too can be determined fairly quickly and these candidates may have their examination ended quickly. When the examination is near 70 questions and a candidate fails, he or she has demonstrated within 95% confidence that he or she cannot reach the entry-level of competency.

Because of the structure of the CAT exam, the candidate needs to answer every question to the best of his or her ability. The CAT exam provides the candidate with more than adequate opportunity to demonstrate his or her ability, and is able to provide precision, efficiency, and confidence that a successful candidate can become an NREMT.

Exam Results

Results are posted on the NREMT's password-secure website through an individual's login account--typically within the next day. Those candidates who pass the exam will be sent National EMS Certification credentials by the NREMT. Because the candidate has met the criteria, a breakdown of results is not necessary.

Candidates who fail to meet entry-level competency will be sent information sheets regarding their testing experience. This information is useful for identifying areas to concentrate study in preparation for the next attempt. The information sheets indicate if a candidate is "above," "near," or "below," the level of entry-level competency in the various content areas. Candidates who are "above" the standard can be somewhat confident they have sufficient knowledge in that content area, allowing them to pass the exam. However, failure to review the material in that content area can result in failing the exam again. Candidates who are "near" the standard can be slightly above or slightly below the standard and should certainly study these areas. Being "near" does not indicate pass or fail but it can be interpreted as an area to study. Candidates who are "below" the standard need to enhance their study in this area. Candidates who fail the examination will have test items for future attempts "masked." This means a masked item will not appear on future exams taken by that candidate. Studying examination items to prepare to do the job of an EMT is not helpful. Studying the tasks and the job of an EMT provides the best preparation. Candidates who memorize items

in hopes of "getting them right," the next time are wasting their time because masking items prevents them from seeing the same item again.

A CAT examination is very precise in determining a candidate's level of competency. Candidates who fail the exam and do not study for their next attempt will most likely be measured at the same level as when they took the exam the first time. Failing candidates who do not change their ability level (be able to jump higher) will again be measured the same. The best way to improve ability is to practice—in this case, study.

The NREMT produced a DVD video, which explains the purpose of the NREMT, how computer adaptive testing works and how to register for the examination. All candidates are urged to watch the video.

View the videos below at:
https://www.nremt.org/nremt/about/about_exams.asp (Requires high speed Internet connection)

- **Purpose of the NREMT**
- **Learn More about Computer Based Testing**
- **Step-by-Step Instructions for Applying Online for the NREMT Test**

The NREMT staff is dedicated to customer service and can help candidates through the examination process. Candidates should understand, however, that the NREMT is the National EMS Certification for EMS providers and not an educational agency. Therefore, the NREMT regrets they are not able to advise candidates on how to pass the test or what to study.

The NREMT Board of Directors determines the pass/fail score of the examination as guided by psychometric consultants. The National Registry conducts regular detailed analysis of every item in the test bank to ensure that they are functioning properly. The item and statistical data are reviewed by the National Registry to assure that each item and the examination are functioning properly. Statistics are generated for training sites, states, and/or national results.

All items have one correct or best answer as agreed upon by the Item Writing Committee. All items have been reviewed for reading level. No items are "K type" items. All items have been reviewed to prevent regional bias. All items have been reviewed to assure they cover current clinical therapy. All items relate to the practice of out-of-hospital care and when not in a practice case scenario have answers that are available

in common EMS textbooks. The entire process has been devised and directed by a psychometrician with a PhD in Educational Measurement.

Establishing the Pass Fail Score

The National Registry establishes the cognitive exam pass/fail score (cut score) based upon the definition of entry-level competence to safely and effectively practice. Entry-level competency is the NREMT standard. Establishing a cut score requires the NREMT to follow an established, peer review and published, psychometric formula and process. Psychometrics is a science that revolves around measurement of the human mind via mathematical processes. All examinations that are valid involve psychometrics. Validity of an examination centers around the meaning of the cut score and interpretations (judgments) made about that score. A test with good questions from known educational materials may have content validity, but unless the cut score is derived from an approved process the test is not valid. Development of a cut score and the psychometrics involved in a computer adaptive test (CAT) is very complex and requires experts in the field of psychometrics to lead subject matter experts (EMS providers) through the process.

The NREMT examination cut score begins with a nationally selected committee of EMS providers, known as the Angoff committee. (The Angoff process is a criterion-referenced evaluation procedure which is used for standard setting). These committee members have varying backgrounds and include active EMS physician medical directors, EMS licensing officials who have clinical expertise, and EMS providers. The field providers are certified at the level of the test. For example, EMT-Basics set the Basic cut score and Paramedics set the Paramedic cut score. The field providers are experienced in a variety of services including fire, volunteer, paid private and 3rd party services. The gender and racial mix of the group is also important. The committee also includes individuals who recently passed the National Registry examination.

The Angoff committee members attend a meeting hosted by a Ph.D. psychometrician who leads the group through the discussion. They begin, as a group, to write a short essay describing the abilities and expectations of an entry-level provider. After the essay is completed and a consensus is reached regarding the definition of entry-level, the group begins to judge potential test items. The judgments are based upon the committee's opinion of what percent of newly trained entry-level providers would get an individual question correct. Feedback is given to the group from the psychometrician and the process continues until a minimum of 120 items have been reviewed. Items are from all six topical areas covered in the EMS test plan. Once the committee has completed its judgments, the Psychometricians then use empirical data obtained over

the items via pilot testing and apply a Raush Model mathematic formula to the judgments to arrive at a difficulty scale for individual items.

Following completion of a cut score report a meeting is held of the NREMT Standards and Examination Committee of the Board of Directors. This committee reviews the report, considers it along with their own experience with entry-level competent EMS providers and then establishes a recommended cut score. Once the Standards and Examination Committee completes its process a recommendation is made to the Board of Directors who adopts the standard. The standard adopted by the Board becomes the NREMT standard and is the definition of entry-level competency.

This description provides an overview of the cut score process. The process is very complicated, is legally defensible, psychometrically sound and follows the American Psychological Associations Standards for Educational and Psychological testing and the standards of the National Commission for Certifying Agencies (NCCA). The NCCA has accredited all NREMT certifications and has reviewed the process the NREMT uses to develop its examinations and establish its cut score.

Understanding NREMT Cognitive Exam Scores

The NREMT written examination is a “criterion referenced” exam intended to identify individuals who have the knowledge necessary to provide safe and effective pre-hospital care. As a criterion referenced exam the passing standard is predetermined. The test is not “graded on a curve”, it is not intended to identify the highest performers, nor does it have a predefined percentage of candidates that must fail. The exam is constructed so that anybody taking the exam that is able to meet the standard can pass.

This is different from many other tests. Most students who progress through typical education programs take “norm-referenced” examinations. It is important to know the different characteristics of norm-referenced examinations compared to criterion-based examinations.

Criterion-based examinations like the National Registry have only one score that counts: did the candidate meet the criteria (pass) or did the candidate not meet the criteria (fail). When taking a criterion-based examination, candidates are in competition with the criteria, not other candidates. Candidates who take NREMT examinations are trying to demonstrate they have enough knowledge so that they can safely and effectively practice.

Norm-referenced tests are typically designed to measure achievement, not competency. They are designed to answer the question, "Who is the best?" This answer is beneficial for example in a promotional examination or an admissions test. Norm referenced exams are also commonly used in a classroom where a teacher wants to award "A's" to the best students. The Scholastic Aptitude Test (SAT) is also an achievement test. The SAT helps college admission committees make decisions as to which applicants learned the most in high school and provides them guidance to selecting the types of students who they want to attend their college.

People who take norm-referenced tests are in competition with each other. They are trying to "beat" out other candidates and achieve a high score. These tests are usually timed, so that most candidates have to hurry through the test, answering as many questions correctly as possible, in a short time period. They may begin with simple questions and rapidly progress to very difficult questions. Some may not be answerable only by the very best candidates. The tests are designed to "spread" the students out so they can distinguish between high, moderate and low achievers, usually along a "bell-shaped" distribution curve.

Educators are often under pressure resulting in a well documented phenomenon known as "grade inflation." Some schools may have a policy that says scores above 90% equal an "A", and those between 80 and 89% equal a "B" and so on. In this case, a teacher must develop a test that ranks students, gives them a sense of accomplishment and rewards those who learn the most. Setting the pass/fail score under this type of policy is difficult. They have learned that too many difficult questions will lower the scores and too many easy questions will raise the scores. Students too have interpretations of these scores. A high score makes them feel confident and well learned. When a student takes a well-constructed test, this is true. But when the student takes a test that has too many easy questions, a false sense of confidence can arise. In fact some students use tests to guide their learning behavior. They study for the first test, perhaps three hours, and if they get an "A" on an easy test, they use this experience to guide their study for the next test, perhaps maybe as little as one hour. They'll judge their entire learning experience based upon the results of their scores on teacher made tests. This can be dangerous and at times detrimental to the student, if the teacher develops poor tests. The other end of the perspective is also possible but less likely to occur.

Difficult teacher made tests can cause some to fail the course that should pass. Every teach knows how difficult it is to construct good test questions; it is even more difficult to define a pass/fail score for the entire test. Teachers are often attempting to develop tests that have "predictive validity," a test that can predict if the student will do well on a

different test with known validity, such as the NREMT examination. It is improper to think scores on NREMT examinations are like teacher made, norm-referenced, achievement tests. A score of 85% on the NREMT examination is not a "B", or "good job". NREMT doesn't measure achievement, but measures if the candidate meets the criteria of entry-level competency.

Finally, norm-referenced examinations provide a ranking of scores, from the highest to the lowest score. However, criterion-referenced tests are not designed to “rank” people. They are designed to identify those who have met the predefined standard. The purpose of the NREMT exam is not to identify the best, but to identify who is "competent." We want to know this so we can pass this information along to you, your State EMS Office so you can get a license, to a future employer, and most importantly to the patients you will take care of. The NREMT is not trying to assure EMTs are “experts”. We’re saying EMTs are good enough to work at the entry-level. We know EMTs need experience to be the best. We know EMTs in great EMS systems that expect quality patient care will get better with experience. We know attitude effects care. We know EMTs who work in progressive systems will excel. Our mission is to certify and register EMTs throughout their careers by a valid and uniform process that assess the knowledge and skills for competent practice. Passing the NREMT examination demonstrates the potential EMT has met the criteria of entry-level competence. It enables you to start a career in EMS—your learning has only just begun.

Why adopt NREMT standards

The National Registry of Emergency Medical Technicians (NREMT) certification process does not authorize the provision of patient care in any state (National Registry of Emergency Medical Technicians, 2013). NREMT is a credentialing body who determines floor and ceiling competencies for pre-hospital medical providers. The competencies address clinical and didactic capabilities and the NREMT provides testing and registry for successful completion of the established criteria. Providers with a current EMS license issued by a State or U.S. Territory are acknowledged as the only official licensing source. The origin of the NREMT stems from a 1970 U.S. Government recommendation:

“*President Lyndon Johnson's Committee on Highway Traffic Safety recommended the creation of a national certification agency to establish uniform standards for training and examination of personnel active in the delivery of emergency ambulance service. The result of this recommendation was the inception of the National Registry of Emergency Medical Technicians (NREMT) in 1970.*” (NREMT web, 2013)

How Other Healthcare Programs do Testing

Paramedics, Nurses, and other associated healthcare professionals use Pearson Vue testing. The Alaska Certified Nurse's Aide program certifies approximately 372 Certified Nurse Aides (CNA's) annually using the Pearson Vue testing system.

The total population of CNA's is approximately 3500 (3451 in 2015), which is approximately haif the number of Alaska EMS providers. The CNA examinations use paper exams and are performed at Pearson Vue testing centers around the State of Alaska. In rural areas there is coordination for a minimum of 2 test-candidates prior to establishing an exam proctor. Travel is paid for by applicant, or employer after training is completed. If two candidates are available, then program will arrange for local proctor at the earliest convenience.

Alaska EMS Regional Council Involvement

The EMS Regions currently are crucial to arranging the practical and written exams. Each region should review their current business plan, office space and community requirements to determine if becoming a regional Pearson Vue testing site is a benefit to their business model. The Pearson Vue models also allow for other professional testing purposes and could be helpful to sustaining revenue source, especially with unpredicted budgetary issues that is currently happening in Alaska. There are grants that other testing locations have used to help pay for the infrastructure upgrades and the State of Alaska EMS Unit could help coordinate those funding sources. Not only would Regional Councils have another source of income, they will be contributing to the improvement of the Alaska EMS System.

The Conclusion about EMS Testing for Alaska

The State of Alaska does not have the resources to develop and manage a computer adaptive exam nor to even maintain a paper exam without a significant change in staffing and budget. As the NREMT test writing discussion shows proving competence with a small number of examinees is extremely difficult. It is only by standardizing and teaching to the EMS standards that we can truly verify the competence of our EMS providers. We have a long history of variability in EMS education nationally and in the state regarding teaching to the test versus teaching students to understand the clinical implications of information.

A verifiable exam process is the only reasonable option moving forward and the gold standard for that process nationally is the NREMT exam. Alaska has shown with their current scores that they can handle the NREMT testing at all levels but we need to make changes to improve the instructor and student focus which may include additional

exam preparation, instructor re-education and time and energy focused on challenging students to meet this new standard.

The Training Committee has had mixed success with creating exams. The group was tasked in the past with creating questions and did not follow through at various times and there was a long period of test question stagnation. The testing materials are no longer available from commercial vendors after multiple conversations and legal reviews. 42 States have now adopted National Registry as the certification standard due to many of these same issues.

A cost analysis for the EMT exam preparation shows that the amount of staff time and total expenditures would equal approximately $199 dollars per individual exam for each EMT-1, EMT-2 and EMT-3 tested annually with approximately $120,000 total cost. Although these costs are estimates, nationally the resources for the State to provide the ability to author such an exam does not readily exist.

Benefits to the System

Approximately 601 new EMS providers are added to the Alaska Emergency Medical System annually. Greater than 60% of new EMS providers will stay in Alaska long term and volunteer or work immediately after receiving an EMS certification. A large proportion of paramedic's students will study Paramedicine in Alaska and do their clinical rotations in the lower 48 states, returning with their skills and experience.

- National Registry allows greater flexibility in scheduling students' time.
- Rural areas may benefit from greater flexibility and educational time for mastery of the written exam
- Multiple tests: The National Registry model is more flexible to the providers with immediate feedback on areas of they scored weak on. Test can be taken three times before additional work of remediation is required.
- Possibilities for test compromise are eliminated.
- Instructors and Certifying Officers can be more flexible about practical examinations scheduling. Weather delays and additional time due to retesting will be minimized.
- Feedback for provider with areas to improve their knowledge will be automated. Currently it is a manual process.
- Provides a career path and progression that will allow more flexibility for the providers.
- Hiring managers and volunteer coordinators throughout Alaska will be able to be more certain of the competency of the provider.

Time Frames

The Emergency Medical Services System in Alaska is critically important and must be maintained in order to provide clinical care and transport to the citizens of Alaska. The State EMS Unit staff sees this responsibility as the most critical function of their office. Providing guidance as to how best to maintain the system and make improvements to it is a key function of the EMS Office.

Additional important events will need to be added to these time frames. Some suggested time frames for implementation of changes that would allow for orderly transition of personnel include:

Recommendations from the EMS Unit

- ACEMS should definitively support NREMT testing for our Basic EMT's as the benchmark
- Establish a target date for implementing National Registry as the State of Alaska EMS Basic EMT (EMT-1) Initial certification exam. Currently certified EMT-1s will follow a regular continuing education system to become updated in National EMS Education Standards.
- Establish a grandfathering process for current EMT-2 and EMT-3 that includes a Transitional process to National EMS Education Standards.
- Establish a target date for implementation of Advanced EMT Initial training statewide.
- Apply for Mark King Initiative. Provide a Formal written request from State to NREMT Board of Directors requesting participation (including confirmation that candidates' education and skills meet current National EMS Scope of Practice Model).
- Approval of participation by the NREMT Board of Directors, upon recommendation of the Continued Competency Committee; follow the National Continued Competency Program.
- State of Alaska needs to provide data file with Alaska EMS provider information to NREMT to finalize Mark King Initiatives
- NREMT staff will assist State EMS Unit with outreach regarding the MKI to licensed EMS providers

Specific Comments from Providers

- Brent M. called on 1/14/2016. Brent had lived in Alaska and practiced as an EMT- 3 for ten years. He relocated to Washington and was only able to receive Reciprocity as a State Certified EMT Basic.

- Dan M. Moved to Texas on 9/1/2015. Dan was starting a paramedic program and had to go take the NREMT without any prep time to get his NREMT certificate to practice as a paramedic student.

- In 2015 11 Alaskan Paramedic students moved to various clinical sites and several states demanded that they certify as NREMT's to become eligible for legal protections under that states laws. Paul Perry and the University lawyers worked with COAMSP to solve the issues but it cost the students several weeks of clinical time that the students were paying the costs for themselves. Ultimately it was solved but Alaska's non-standard certification process did not translate well in other states.

- 7 military providers with NRP have called the EMS Unit manager to ask how to become MICP's since they had a job offer. The EMS Unit provided significant advice on how to help them get the license. We offered the EMT-3 as a workaround but the jobs they were applying for required a MICP license. 5 of the 7 left the state of Alaska due to the long wait times for MICP.

Frequently Asked Questions:

How will this affect Rural EMS?

- The initial certification is a one-time test. Many rural EMS providers already travel to take the classes in larger areas that have testing and training facilities.

Why adopt NREMT testing now?

- Alaska has adopted National Standards and Alaska has collaborated with the GED and Pearson Vue to provide enhanced services and locations. This allows for better availability and confidence in the competence of our health care providers.

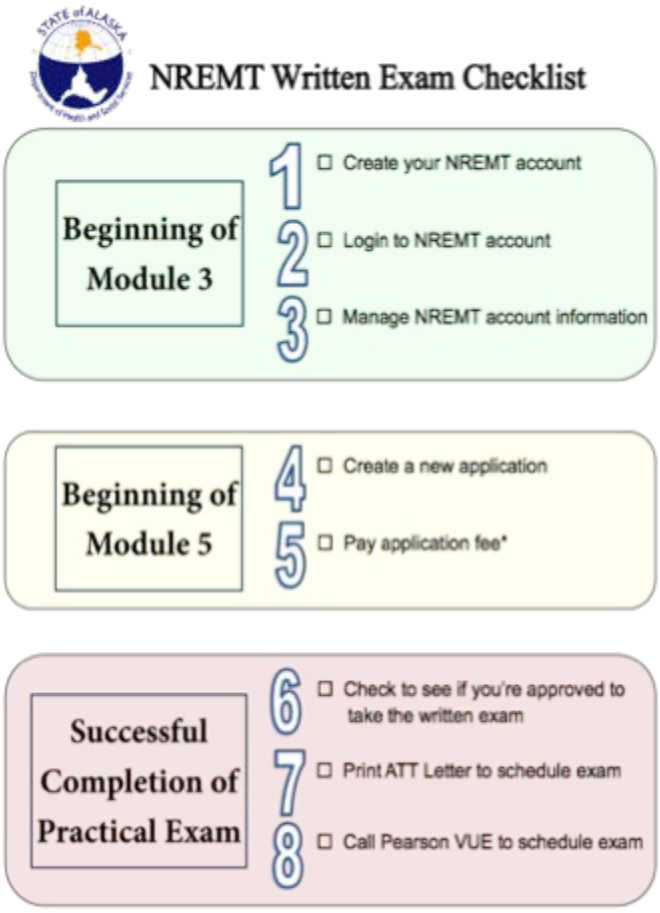
Funding issues for regions?

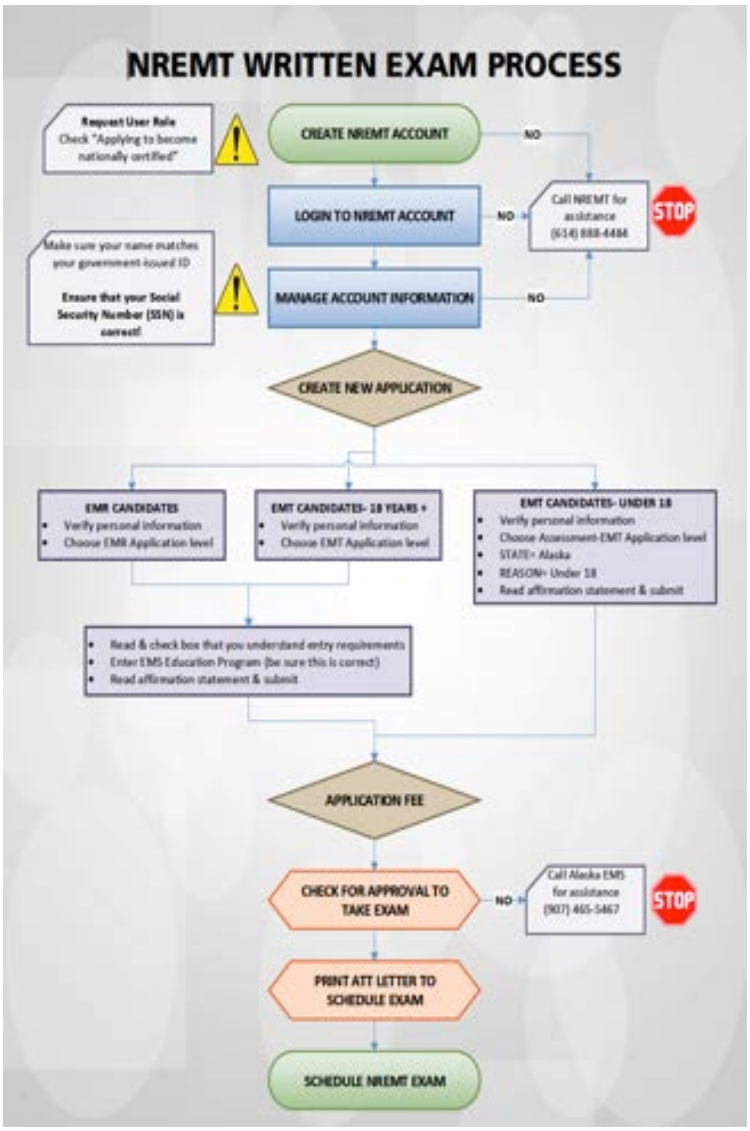
- Pearson Vue is a business model that helps provide testing services. The Regional offices will need to evaluate the services they provide to the community and to EMS providers based on the systems requirements. Regions may find increased funding with this new model but each region will have to evaluate.

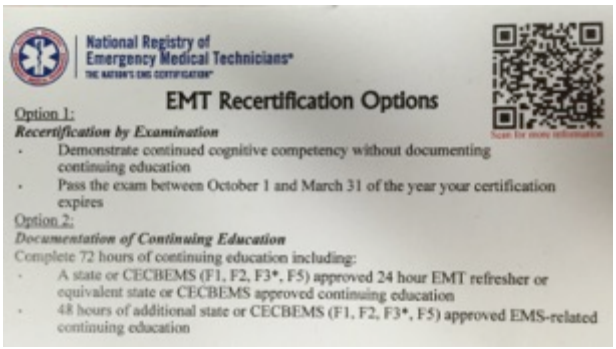
How will REPLICA affect Alaska?

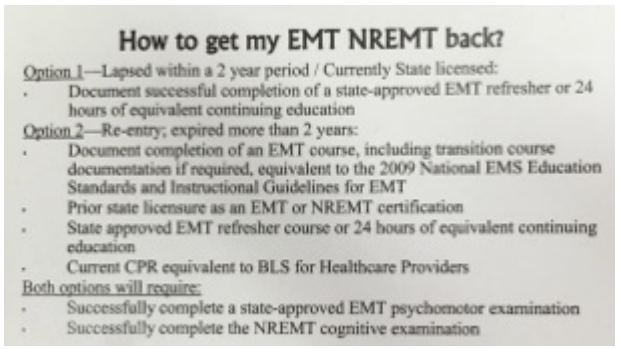
- The Recognition of Emergency Medical Services Personnel Licensure Interstate Compact (REPLICA) is an agreement between states requesting EMS Mutual Aid with distinct requirements. The increased wildfire responses due to dry weather conditions and the increased need for additional staffing by Mutual Aid Providers (particularly Bureau of Land Management and Wildland Firefighters. The EMS Unit sees that REPLICA will require new state providers to be background checked and use the NREMT certification process including testing and realizes that this initiative is ready for implementation once 10 State legislatures adopt it. Progress on this has been swift and steady with legislation in more than 10 states pending. Alaska's communities are at great risk if steps to be prepared are not adopted.

References

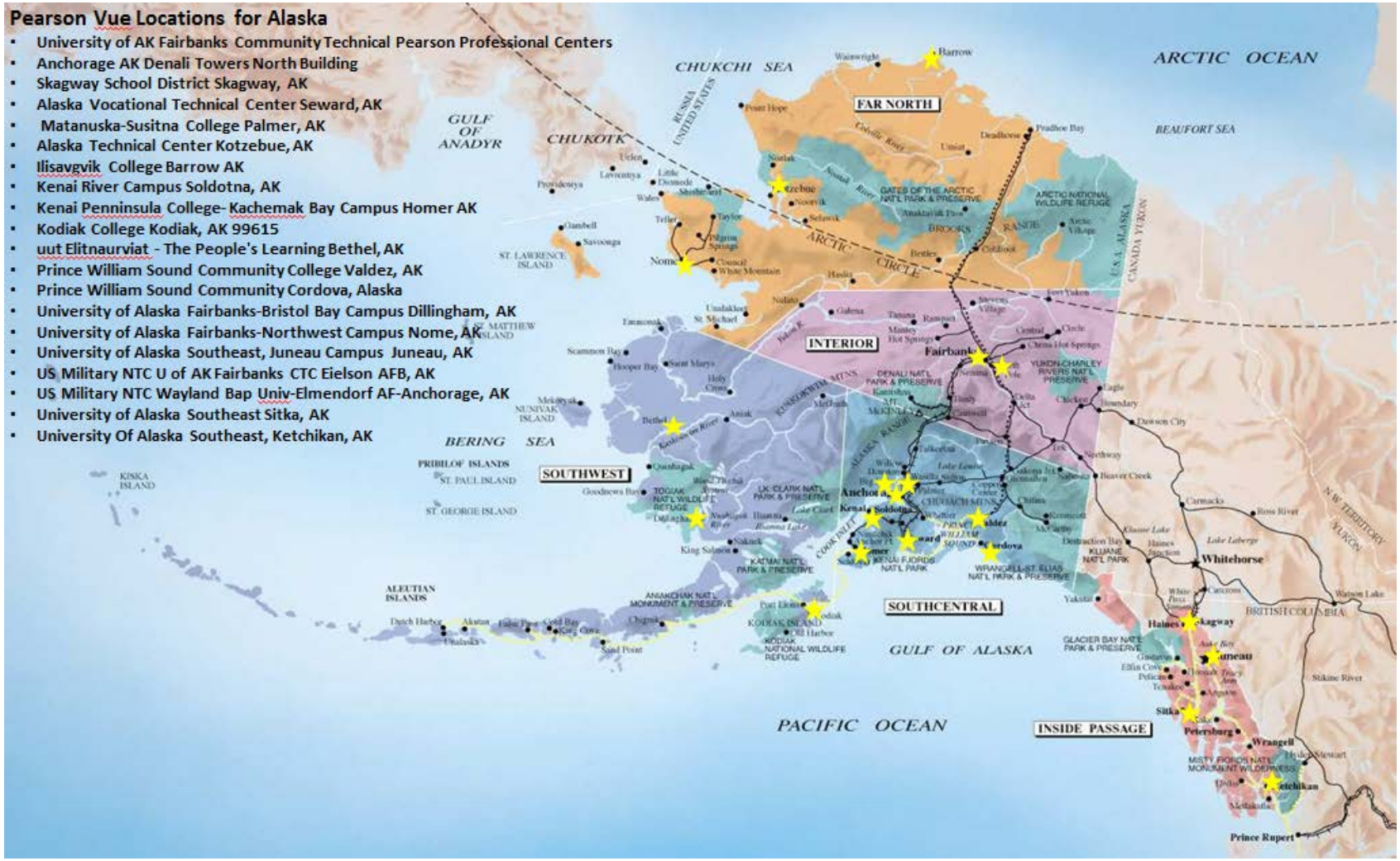

NREMT Written Exam Checklist
Beginning of Module 3
1 Create your NREMT account
2 Login to NREMT account
3 Manage NREMT account information
Beginning of Module 5
4 Create a new application
5 Pay application fee*
Successful Completion of Practical Exam
6 Check to see if you're approved to take the written exam
7 Print ATT Letter to schedule exam
8 Call Pearson VUE to schedule exam


NREMT WRITTEN EXAM PROCESS
Request User Role
Check "Applying to become nationally certified"
CREATE NREMT ACCOUNT
NO
LOGIN TO NREMT ACCOUNT
NO
Call NREMT for assistance (614) 888-4484
STOP
Make sure your name matches your government-issued ID
Ensure that your Social Security Number (SSN) is correct!
MANAGE ACCOUNT INFORMATION
NO
CREATE NEW APPLICATION
EMR CANDIDATES
Verify personal information
Choose EMR Application level
EMT CANDIDATES- 18 YEARS +
Verify personal information
Choose EMT Application level
EMT CANDIDATES- UNDER 18
Verify personal information
Choose Assessment-EMT Application level
STATE= Alaska
REASON= Under 18
Read affirmation statement & submit
Read & check box that you understand entry requirements
Enter EMS Education Program (be sure this is correct)
Read affirmation statement & submit
APPLICATION FEE
CHECK FOR APPROVAL TO TAKE EXAM
NO
Call Alaska EMS for assistance (907) 465-5467
STOP
PRINT ATT LETTER TO SCHEDULE EXAM
SCHEDULE NREMT EXAM


National Registry of Emergency Medical Technicians
EMT Recertification Options
Option 1:
Recertification by Examination
Demonstrate continued cognitive competency without documenting continuing education
Pass the exam between October 1 and March 31 of the year your certification expires
Option 2:
Documentation of Continuing Education
Complete 72 hours of continuing education including:
A state or CECBEMS (F1, F2, F3*, F5) approved 24 hour EMT refresher or equivalent state or CECBEMS approved continuing education
48 hours of additional state or CECBEMS (F1, F2, F3*, F5) approved EMS-related continuing education


How to get my EMT NREMT back?
Option 1—Lapsed within a 2 year period / Currently State licensed:
Document successful completion of a state-approved EMT refresher or 24 hours of equivalent continuing education
Option 2—Re-entry; expired more than 2 years:
Document completion of an EMT course, including transition course documentation if required, equivalent to the 2009 National EMS Education Standards and Instructional Guidelines for EMT
Prior state licensure as an EMT or NREMT certification
State approved EMT refresher course or 24 hours of equivalent continuing education
Current CPR equivalent to BLS for Healthcare Providers
Both options will require:
Successfully complete a state-approved EMT psychomotor examination
Successfully complete the NREMT cognitive examination

Pearson Vue Locations for Alaska



**List is not all-inclusive. Some locations are already doing NREMT testing and have the module available. At last count, over37 Pearson Vue Test sites exist in Alaska. Additional resources for Pearson Vue testing are in Port Alexander, Petersburg, Pelican, Talkeetna, Thorne Bay, Wranglell, Yakutat, Haines, Gustavus, Glenallen, Delta Junction and Coffman Cove