A New Day in EMS Education
Challenges and Opportunities

The Progress Continues

by

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&

Rob Wagoner, Associate Director, NREMT

Why is Dan Manz from VT standing here talking to us about a new approach to EMS education?

An excellent question

- I am not an educational expert
- I have been involved in:
  - Development of the original *EMS Agenda for the Future*
  - Development of the *National EMS Scope of Practice Model*
- My career has afforded me the opportunity to see many EMS systems
- I am a volunteer EMT-Intermediate

Objectives

- Review the structural components of the EMS Education Agenda for the Future: A Systems Approach
- Describe the timeline of implementation steps achieved to date and the timeline for remaining work to be done.
- Describe the resources available to educators, employers, medical directors and other stakeholders to facilitate implementation of the Education Agenda for the Future

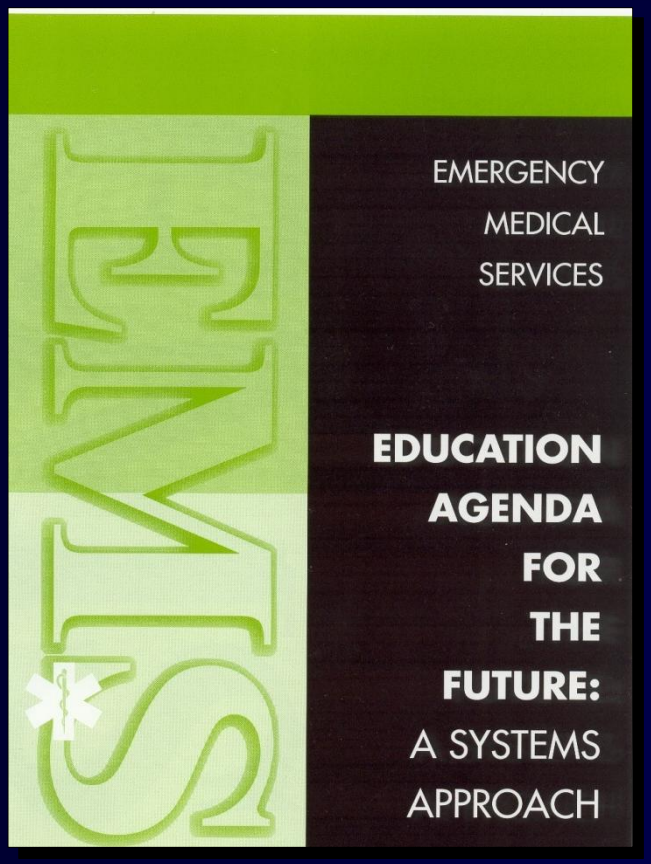
What is the Problem?

- We have no national “system” of EMS education
- Nomenclature is variable
- Quality of education is widely variable
- EMS personnel mobility is sometimes difficult
- The public really does not know what to expect

Is EMS education really broken?

- Quick answer- Yes
- Today, EMS practice is driven by the National Standard Curriculum
- In every other allied health profession
  - Practice is defined as the first step
  - Education is designed to prepare people to be competent in the practice
  - Candidates graduate from accredited programs and demonstrate competency through national certification

What is the solution?



- An approach that parallels other allied health disciplines
- A “single, nationally recognized accreditation agency” for EMS educational programs
- National consistency in preparing EMS professionals
- EMS is the only licensed health care profession that does not require graduation from a nationally accredited educational program.

Education Agenda Goals

- Promote quality and consistency among all EMS education programs
- Establish common entry level requirements for the licensure of various levels of EMS providers
- An established national EMS education system would align EMS with other health professions
- Enhance the professional credibility and mobility of EMS practitioners

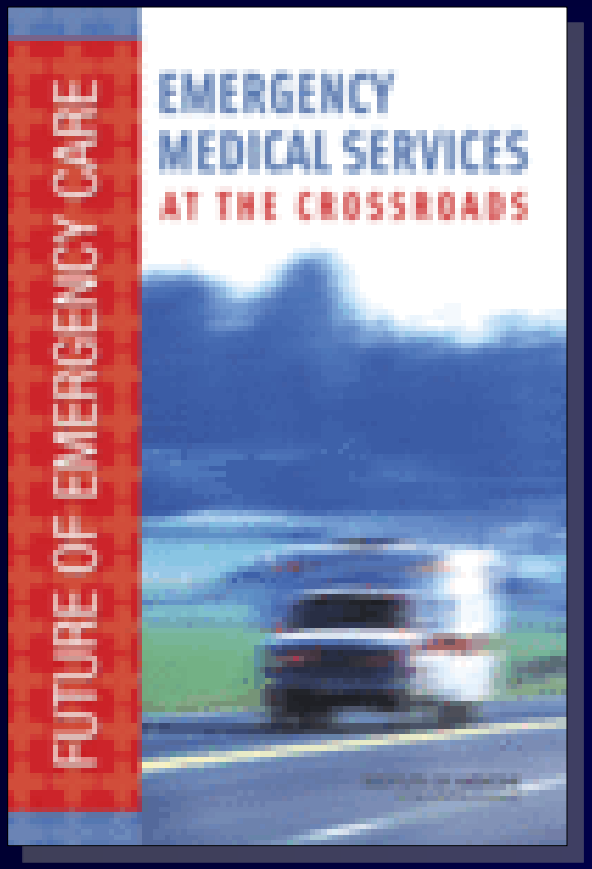
Where did this *Education Agenda* originate?

- It was requested by NASEMSO based on observations that our current approach to EMS education is not a system
  - Curricula currently drives practice
  - Updates to the curricula are tedious
  - Practice is not evidence-based
  - Inconsistent approaches to assuring the competency of persons entering EMS
  - Training has not established EMS as a “profession”

The non-federal partners who are helping to implement the EMS Education Agenda for the Future

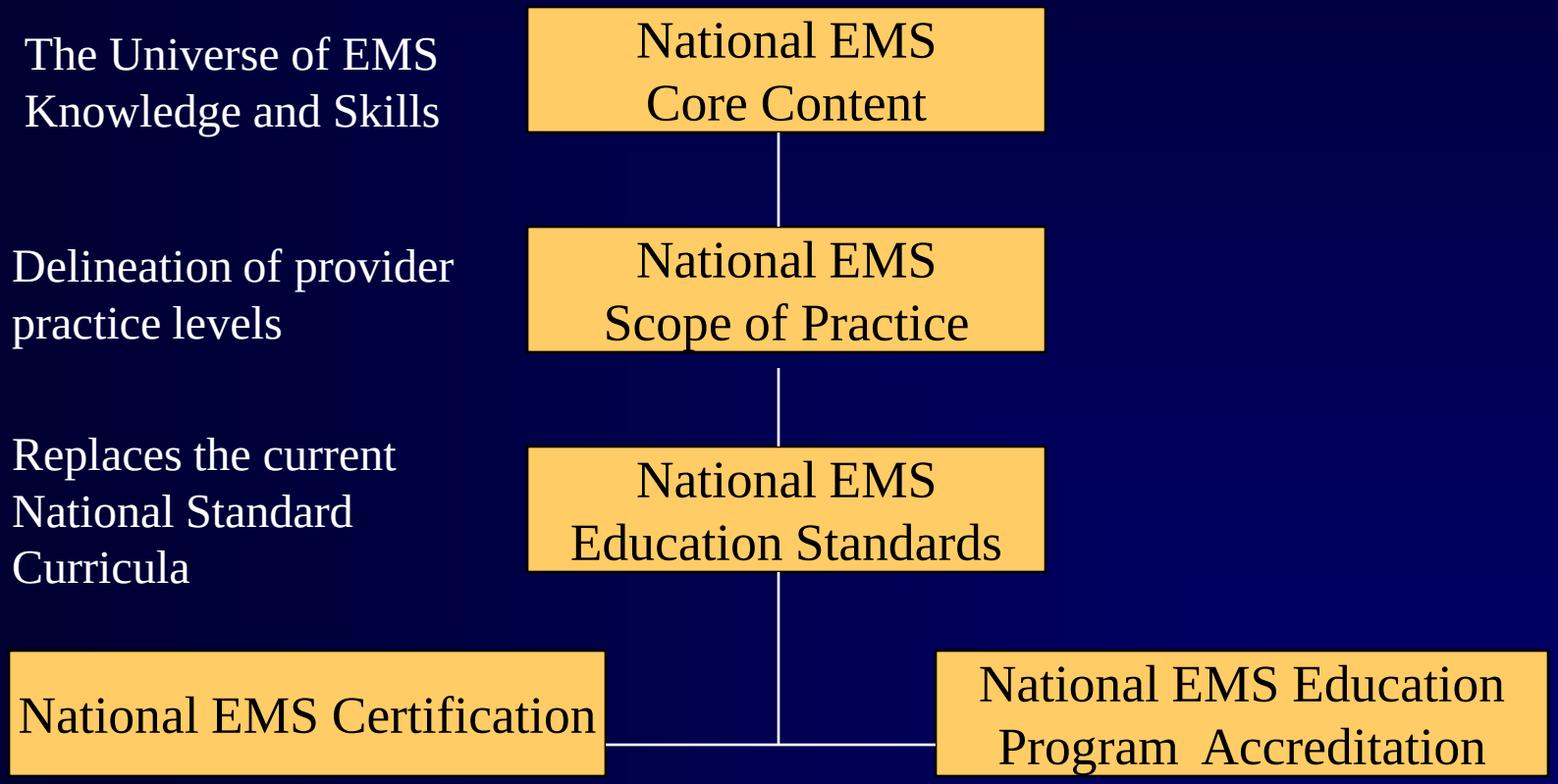
- AAA
- AAP
- AAEM
- AAMS
- ACEP
- CoAEMSP
- ENA
- EMS Publishers
- IAFC
- IAFF
- IAFP
- NAEMSE
- NAEMT
- NAEMSP
- NREMT
- NVFC

Recommendations



- 4.1: State governments should adopt a common scope of practice for EMS personnel
- 4.2: States should require national accreditation for paramedic education programs
- 4.3: States should accept national certification as a prerequisite for state licensure and local credentialing of EMS providers.

The EMS Education Agenda for the Future: A Systems Approach

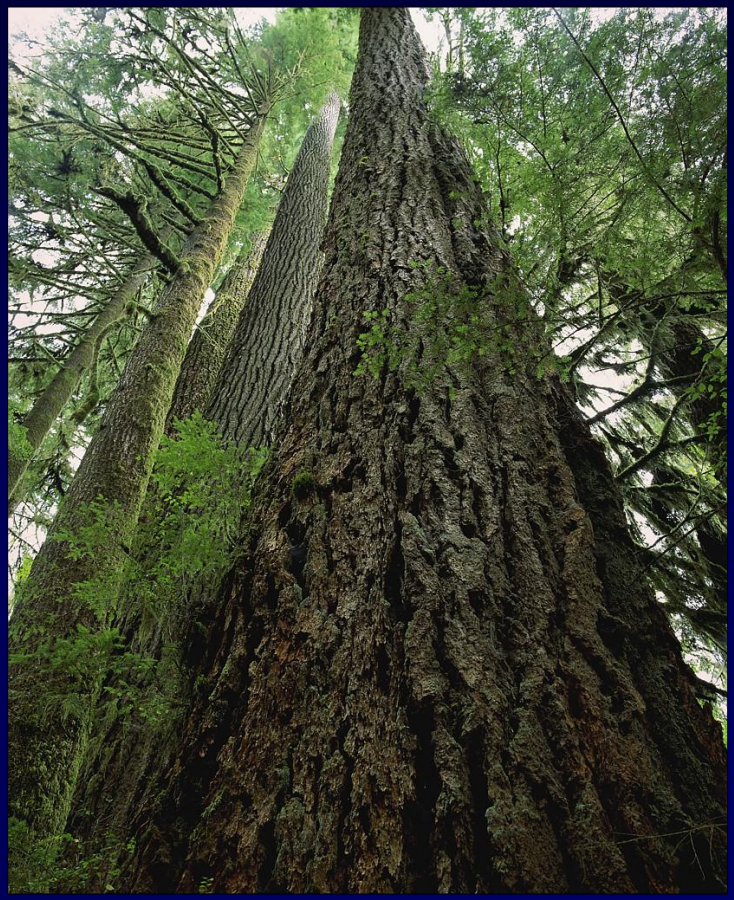


National EMS Core Content

- Defines the “domain” of EMS
- Addresses knowledge content globally
- Medically directed
- Completed by NAEMSP in 2004

National EMS Scope of Practice

- Defines the national licensure levels of EMS personnel
- Is a model for states to follow in defining what EMS professionals can do
- Developed by the NASEMSO
- Released in 2007



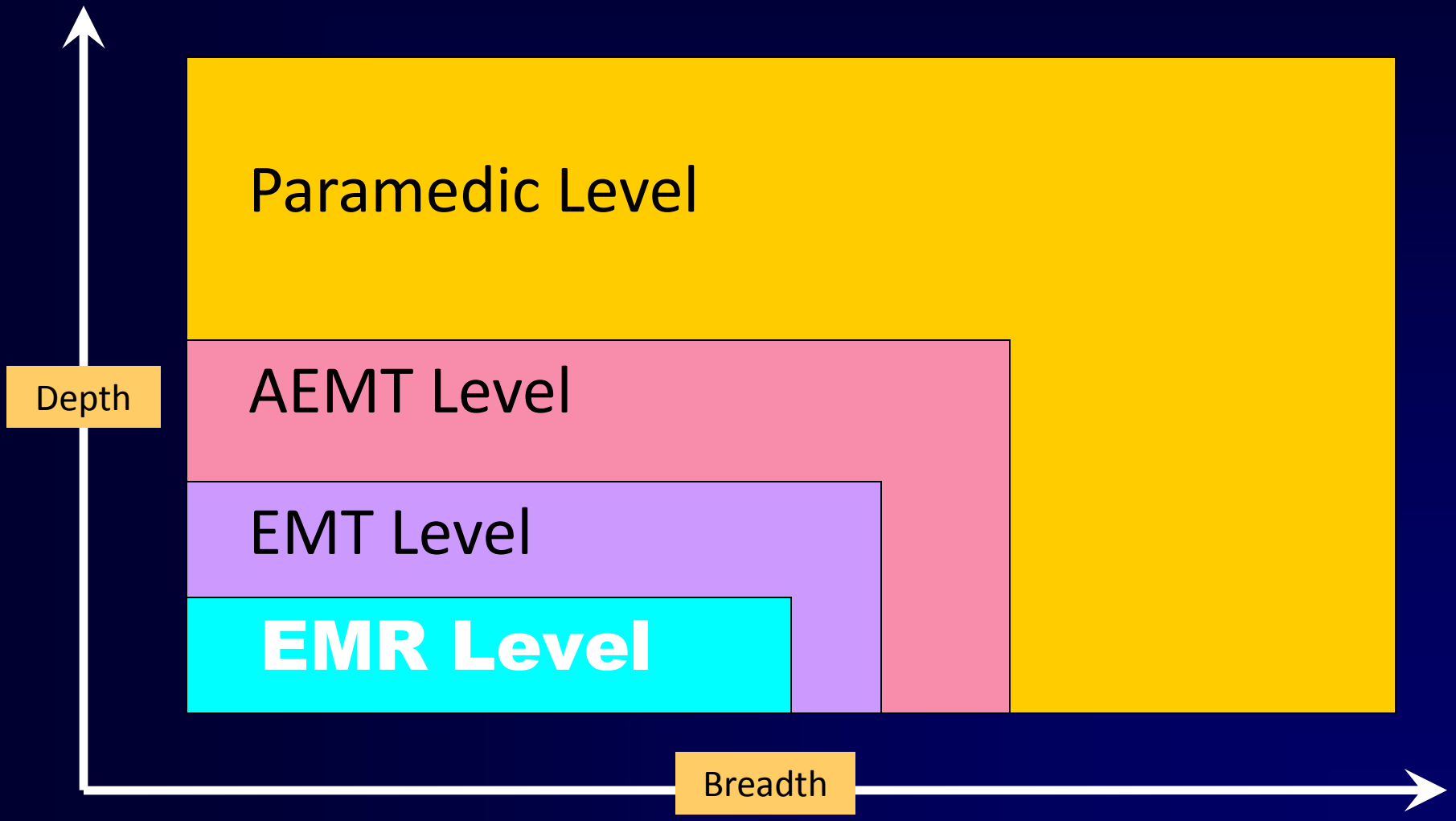
National EMS Education Standards

- Defines the content and context of educational programs leading to EMS credentialing
- Development led by NAEMSE. Completed in Jan 2009

What Is the Difference Between Education Standards and Curriculum?

- **Standards-** minimal terminal objectives for each provider level
- **Curriculum-** units of instruction and individual lesson plans

Increasing Depth and Breadth



National EMS Education Standards

- Breadth- refers to the number of topics a student needs to know about a particular topic
- Depth- is the amount of detail a student needs to know about a particular topic
  - Simple-fundamental-complex
  - Simple-foundational-comprehensive

Four National Levels of EMS Personnel:

- Emergency Medical Responder (EMR)
- Emergency Medical Technician (EMT)
- Advanced EMT (AEMT)
- Paramedic

Emergency Medical Responder

- Similar to today's First Responder
- Focus: immediate lifesaving care to critical patients who access the emergency medical system, while awaiting additional EMS response
- Skills: Oxygen, BVM, suction, oral airways, AED.

Emergency Medical Technician

- Similar to today's EMT-Basic
- Focus: basic emergency medical care and transportation for critical and emergent patients who access EMS.
- Skills: pulse ox, assisted meds, oral glucose, ASA.

The level *between* EMT and Paramedic

- An EMT plus not a Paramedic minus
- Includes skills between the I 85 and I 99
- Intended to use high benefit / low risk interventions
- High value for a modest additional investment in time and cost beyond the EMT level
- NOT intended to replace paramedics

Advanced EMT

- Focus: basic and *limited* advanced care and transportation for critical and emergent patients who access EMS
- Skills: Supraglottic airways, IV/IO, NTG, Epi 1:1000, glucagon, D50, β_2 agonists, naloxone, N_2O

Paramedic

- Similar to today's EMT-Paramedic
- Focus: advanced emergency medical care and transportation for critical and emergent patients who access EMS.
- Skills: BiPAP/CPAP, Capnography, 12 Lead interpretation, etc.

What *The Education Agenda* says about National Certification

- *"National EMS Certification will be conducted by a single independent national agency under the leadership of a board of directors with multi-disciplinary representation."*

National EMS Certification

- NREMT meets the definition
- Verifying competency at a predetermined level of proficiency
- Serves as the basis for state EMS licensure.

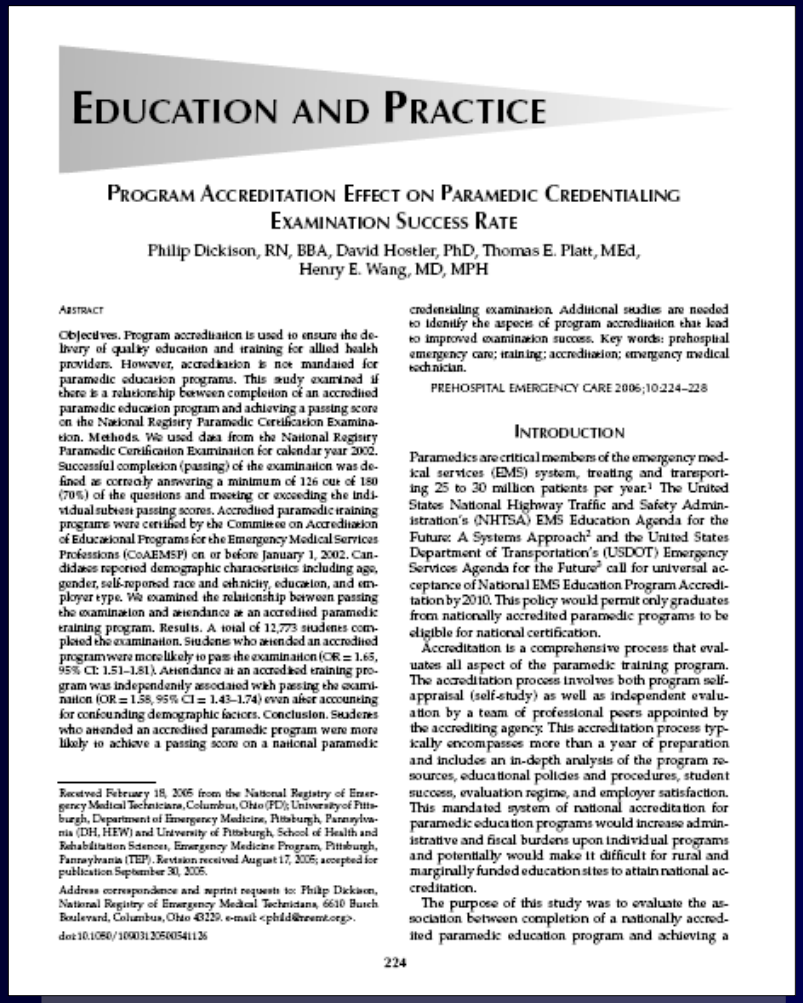
What *The Education Agenda* says about National EMS Education Program Accreditation

- **Where we want to be in 2010-** *"A single, nationally recognized accreditation agency will be created and will establish standards and guidelines for each level of EMS education."*
- **How to get there-** *"A single national accreditation agency will be identified and accepted by state regulatory offices. This accrediting agency will have a board of directors with representation from a broad range of EMS organizations."*

National EMS Education Program Accreditation

- Single, national, independent agency.
- A non-governmental collegial process of self and peer assessment
- Defines standards and evaluates programs relative to those standards

Where's the evidence for program accreditation?



EDUCATION AND PRACTICE

PROGRAM ACCREDITATION EFFECT ON PARAMEDIC CREDENTIALING EXAMINATION SUCCESS RATE

Philip Dickison, RN, BBA, David Hostler, PhD, Thomas E. Platt, MEd, Henry E. Wang, MD, MPH

ABSTRACT

Objectives. Program accreditation is used to ensure the delivery of quality education and training for allied health providers. However, accreditation is not mandated for paramedic education programs. This study examined if there is a relationship between completion of an accredited paramedic education program and achieving a passing score on the National Registry Paramedic Certification Examination. Methods. We used data from the National Registry Paramedic Certification Examination for calendar year 2002. Successful completion (passing) of the examination was defined as correctly answering a minimum of 126 out of 180 (70%) of the questions and meeting or exceeding the individual subsets passing scores. Accredited paramedic training programs were certified by the Commission on Accreditation of Educational Programs for the Emergency Medical Services Professions (CoAEMSP) on or before January 1, 2002. Candidates reported demographic characteristics including age, gender, self-reported race and ethnicity, education, and employer type. We examined the relationship between passing the examination and attendance at an accredited paramedic training program. Results. A total of 12,773 students completed the examination. Students who attended an accredited program were more likely to pass the examination (OR = 1.65, 95% CI: 1.51–1.81). Attendance at an accredited training program was independently associated with passing the examination (OR = 1.58, 95% CI = 1.43–1.74) even after accounting for confounding demographic factors. Conclusion. Students who attended an accredited paramedic program were more likely to achieve a passing score on a national paramedic credentialing examination. Additional studies are needed to identify the aspects of program accreditation that lead to improved examination success. Key words: prehospital emergency care; training; accreditation; emergency medical technician.

PREHOSPITAL EMERGENCY CARE 2006;10:224–228

INTRODUCTION

Paramedics are critical members of the emergency medical services (EMS) system, treating and transporting 25 to 30 million patients per year.[1] The United States National Highway Traffic and Safety Administration's (NHTSA) EMS Education Agenda for the Future: A Systems Approach[2] and the United States Department of Transportation's (USDOT) Emergency Services Agenda for the Future[3] call for universal acceptance of National EMS Education Program Accreditation by 2010. This policy would permit only graduates from nationally accredited paramedic programs to be eligible for national certification.

Accreditation is a comprehensive process that evaluates all aspect of the paramedic training program. The accreditation process involves both program self-appraisal (self-study) as well as independent evaluation by a team of professional peers appointed by the accrediting agency. This accreditation process typically encompasses more than a year of preparation and includes an in-depth analysis of the program resources, educational policies and procedures, student success, evaluation regime, and employer satisfaction. This mandated system of national accreditation for paramedic education programs would increase administrative and fiscal burdens upon individual programs and potentially would make it difficult for rural and marginally funded education sites to attain national accreditation.

The purpose of this study was to evaluate the association between completion of a nationally accredited paramedic education program and achieving a

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doi:10.1080/10903120500541126

"Students who completed an accredited paramedic program were more likely to pass the national paramedic examination. National accreditation should be required for all EMT-Paramedic education programs."

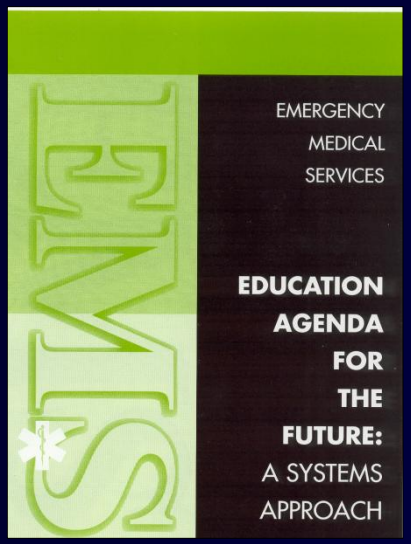
Prehospital Emergency Care; 2006:224-228

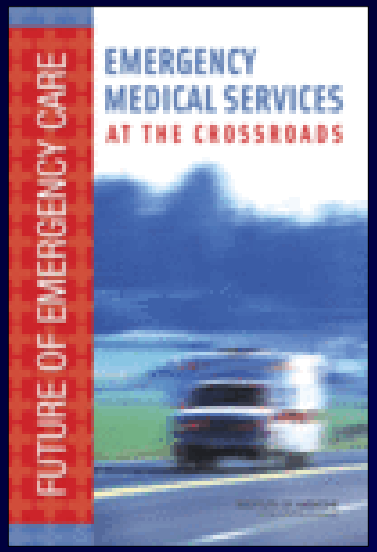
Further supported by……

"The significant model parameters, in descending order of significance, included; Institutional accreditation, student's high schools class rank, students highest level of education, instructor credentials, students gender, and race."

Oral presentation at 2007 NAEMSE Annual Symposium

Published in March 2008 Academic Emergency Medicine.





In November 2007, the NREMT Board of Directors voted to require that paramedic applicants graduate from a nationally accredited paramedic program effective January 1, 2013.

Upcoming Dates to Consider

- Today- All structural components of the Education Agenda for the Future are finalized
- Sometime in 2010- AHA Guidelines Update
- Between now and 2011- New text and education support materials become available
- 2011-2013- Proposed dates that NREMT exams begin to cover the SOP and Practice Analysis
- 2013- Proposed date for required graduation from an accredited Paramedic program for NREMT certification

While no final decisions have been made-

- It is proposed that the transition for existing personnel will occur by 2018.
- There will be a transition for each level
  - States determine their “gap” content
  - Educators have to be oriented to the new Education Standards
  - NREMT will strive to incorporate transition within in the context of the already required continuing education.
  - Transition decision will depend on the size of the gap and the risk of the new interventions.
  - “Tool boxes” have been developed by NASEMSO.

	When do updated exams start?	Last update course based on NSC could finish	Transition completed by	Last NREMT exam given
FR		Determined by state	September 30, 2016	December 31, 2011
EMR	January 1, 2012			
EMT-Basic		Determined by state	March 31, 2016	December 31, 2011
EMT	January 1, 2012			
AEMT	June 1, 2011			
I/85		Determined by state	March 31, 2015 -Must include transition course and pass the AEMT cognitive (and practical exam(s)?	March 31, 2013
I/99		Determined by state	March 31, 2018 -Must include transition course and pass the Paramedic cognitive exam	December 31, 2013
EMT-Paramedic		Determined by state	March 31, 2017	December 31, 2012
Paramedic	January 1, 2013			

NREMT Considerations

- By Rob Wagoner, Associate Director
- National Registry of EMTs

Is the NREMT just going to flip a switch and completely change all exams overnight?

What it takes to run a high stakes CAT certification exam:

- NCCA-accredited process
- Contemporary Practice Analysis
- Gap analysis to identify item pool content:
  - 1200 calibrated items
  - 400 pilot items
- Calibrated, stable Scale of Difficulty
- Appropriately prepared candidates
- Approved Test Plan
- Approved Passing Standard
- Secure, accessible, cost-effective delivery mechanism

In accordance with APA/AERA standards for certification examinations, NREMT exams are based on

Practice

not solely on a curriculum, education standards or instructional guidelines.

NREMT exams reflect practice

- Practice Analysis completed every 5 years to develop a clear and accurate picture of the current job
- Practicing EMS professionals rate various tasks they are required to peform
  - Frequency (1/3)
  - Potential of Harm (2/3)
- Just published 2009 analysis test plans

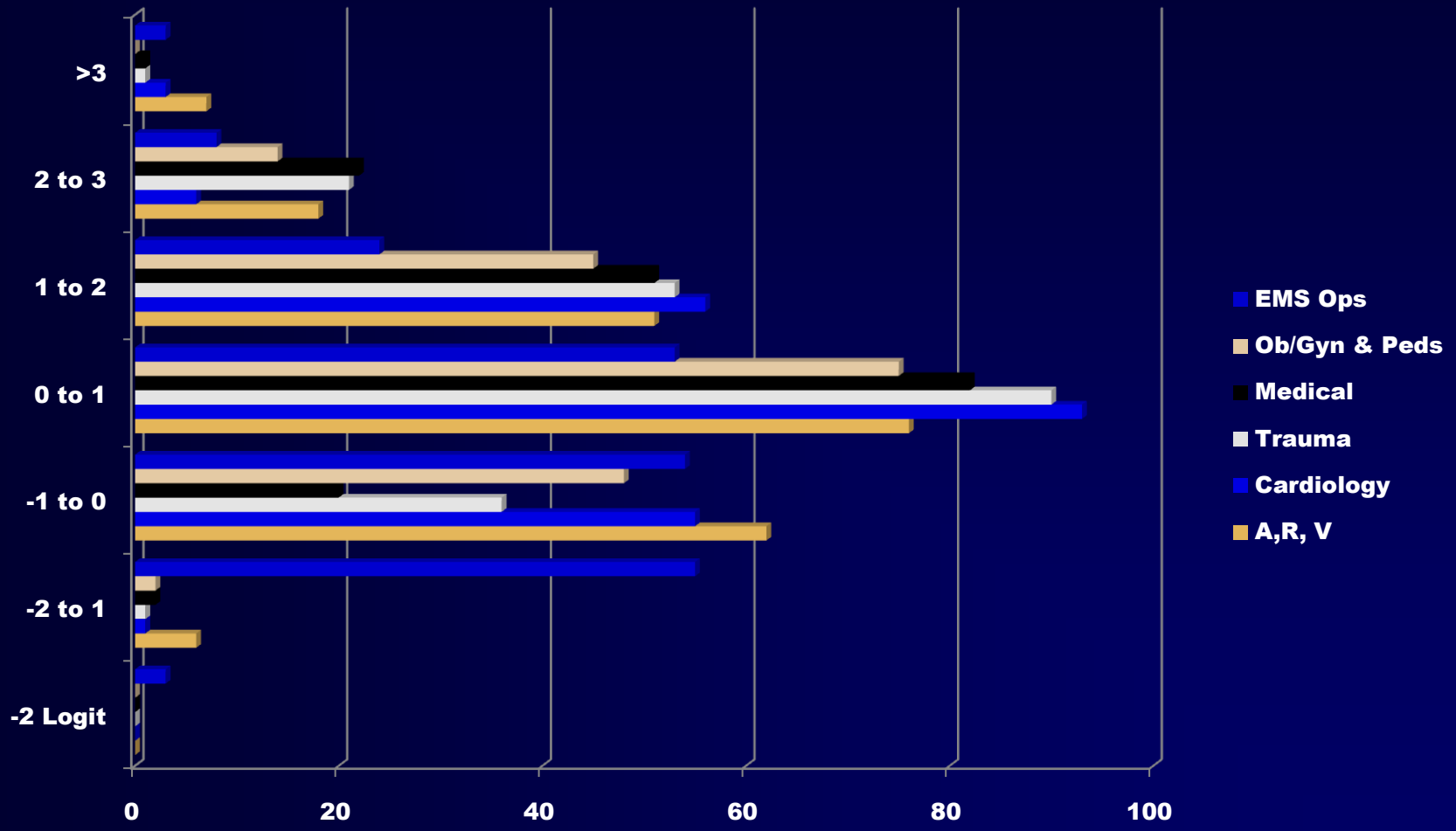
Where do you get those $#*&! questions?

Practice Analysis

- National Standard Curricula/Ed. Stds./Inst. Guid.
- AHA Guidelines
- Textbooks
- Recent Literature
- Etc.

Exam Content

Pool Sculpting



Rasch Model

$$P(Y_{pi} = 0) = 1 - P(Y_{pi} = 1)$$

$$= 1 - \frac{e^{(T_p - D_i)}}{1 + e^{(T_p - D_i)}}$$

$$= \frac{1 + e^{(T_p - D_i)}}{1 + e^{(T_p - D_i)}} - \frac{e^{(T_p - D_i)}}{1 + e^{(T_p - D_i)}}$$

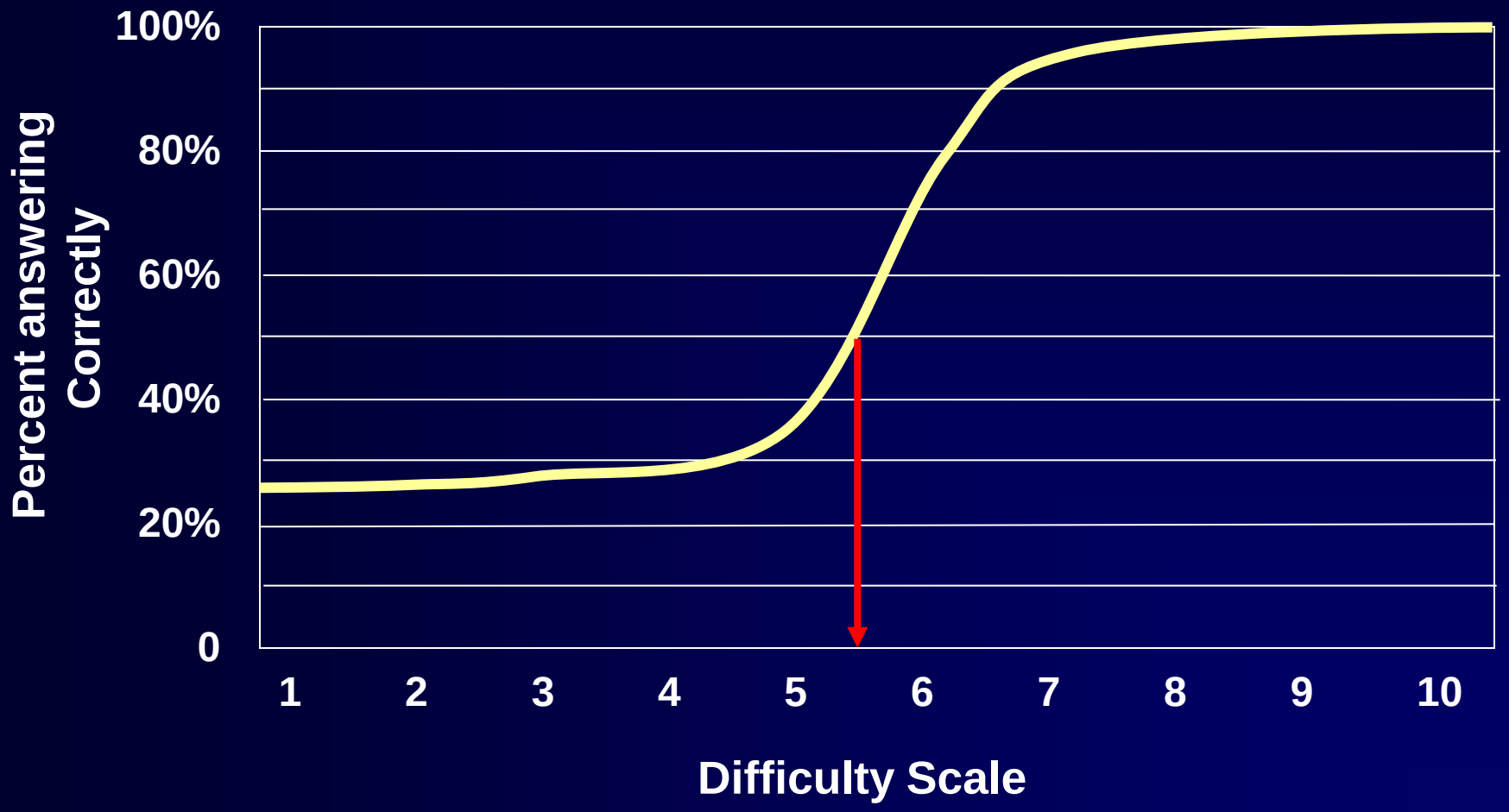
$$= \frac{1}{1 + e^{(T_p - D_i)}}$$

Where T_p is the ability of the person and D_i is the difficulty of the item.

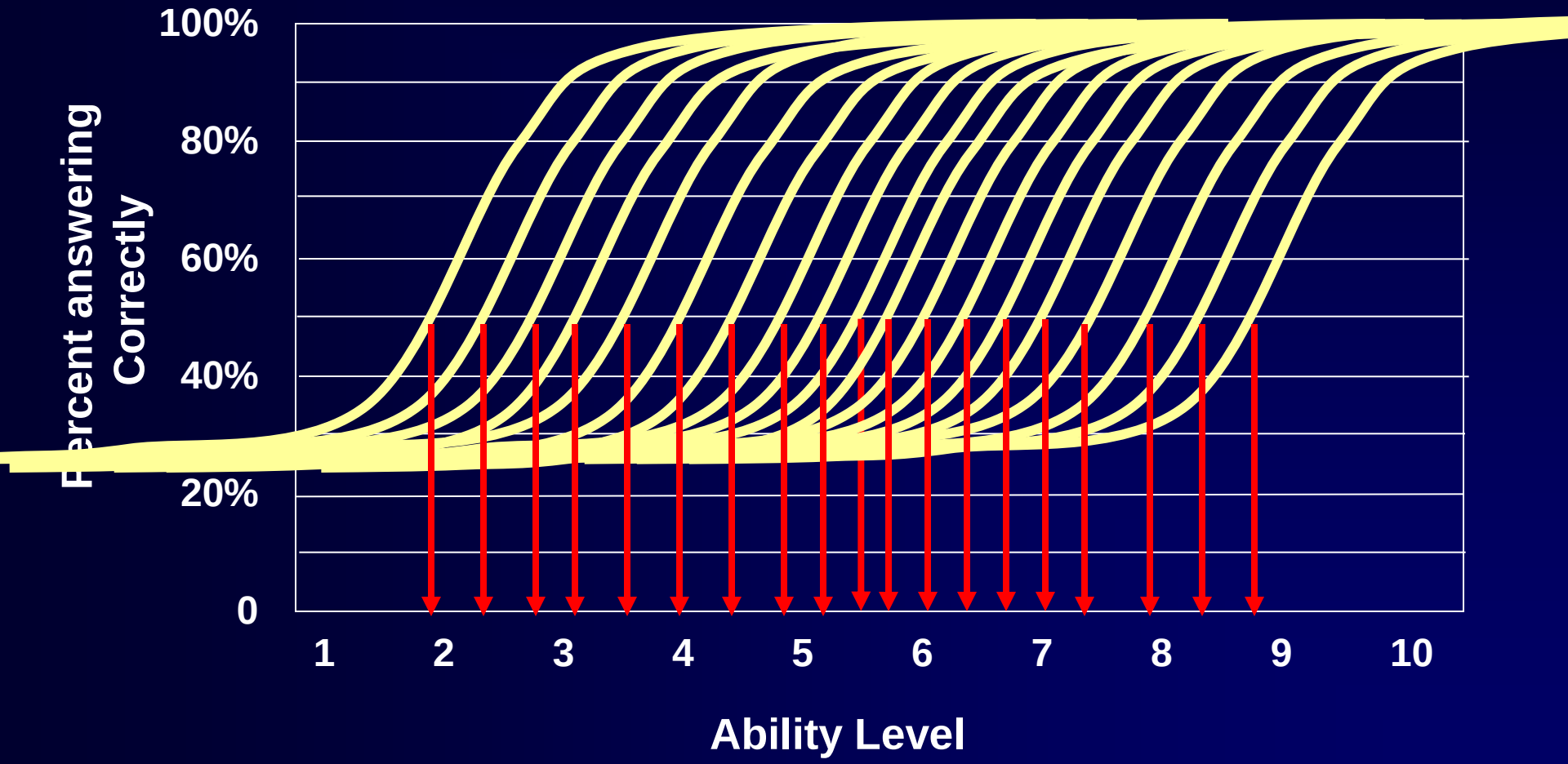
Rasch Model

- The probability of a correct response is modeled as a logistic function of the difference between the person and the item parameter (difficulty). - George Rasch, Danish statistician, 1960
  - The higher a person's ability relative to the difficulty of an item, the higher the probability of a correct response on that item.
  - When a person's location on the latent trait (ability) is equal to the difficulty of the item, there is by definition a 0.5 probability of a correct response in the Rasch model.

Rasch Model


100%
80%
60%
40%
20%
0
Percent answering Correctly
1
2
3
4
5
6
7
8
9
10
Difficulty Scale

Rasch Model


100%
80%
60%
40%
20%
0
Percent answering Correctly
1
2
3
4
5
6
7
8
9
10
Ability Level

2010 NREMT Test Plans

Content Area	Section Make-up	% of Exam
ARV	85% adult & 15% peds	17 – 21%
Cardio & Resusc	85% adult & 15% peds	16 – 21%
Trauma	85% adult & 15% peds	18 – 23%
Medical/OB/Gyn	85% adult & 15% peds	26 – 31%
EMS Ops	- - -	11 – 16%

Transition from FR to EMR?

- How much content is transferrable?
  - Almost all
- How much content is new?
  - Oxygen administration (nasal cannula, non-rebreather mask, BVM)
  - Nasopharyngeal airway
  - Manual BP
  - AED
  - Autoinjectors for self or peer rescue
  - Hemorrhage control (direct pressure)
  - Eye irrigation

Transition from FR to EMR?

- When will the “new” stuff be reflected in the day-to-day practice?
  - ?
- When will we have enough appropriately trained EMRs to pilot test their “new” knowledge?
  - ?

Transition from EMT-Basic to EMT?

- How much content is transferrable?
  - Almost all
- How much content is new?
  - Pulse oximetry
  - ATV
  - Humidified oxygen
  - Partial rebreather mask, simple face mask, Venturi mask, tracheostomy mask
  - Mechanical CPR device
  - Hemorrhage control (direct pressure & tourniquet)
  - Oral aspirin
  - Assisting patients in taking their own prescribed medications
    - What meds does this include???

Transition from EMT-Basic to EMT?

- When will the “new” stuff be reflected in the day-to-day practice?
  - ?
- When will we have enough appropriately trained EMTs to pilot test their “new” knowledge?
  - ?

Transition from I/85 to AEMT

- How much content is transferrable?
  - Some (some outdated content)

Transition from I/85 to AEMT

- How much content is new?
  - Extraglottic airways – not intended for insertion into the trachea
  - Humidified oxygen
  - Partial rebreather mask, simple face mask, Venturi mask, tracheostomy mask
  - Tracheobronchial suctioning of an already intubated patient
  - ATV
  - Mechanical CPR device
  - Mechanical patient restraint
  - Blood glucose monitoring
  - IO access in peds
  - Aspirin
  - NTG
  - Epinephrine for anaphylaxis (SC, IM)
  - Glucagon
  - Dextrose 50%
  - Autoinjector for self or peer care
  - Inhaled beta agonists for wheezing
  - Naloxone
  - Nitrous oxide (self-administered for pain)
  - Pharmacology
  - Still only AED

Transition from I/85 to AEMT

- When will the “new” stuff be reflected in the day-to-day practice?
  - ?
- When will we have enough appropriately trained AEMTs to pilot test their “new” knowledge?
  - ?

Transition from I/99 to AEMT?

- How much content is transferrable?
  - Almost all
- How much content is new?
  - AEMT has fewer meds and no ECG
- When will the “new” stuff be reflected in the day-to-day practice?
  - ?

Transition from I/99 to AEMT?

- When will we have enough appropriately trained AEMTs to pilot test their “new” knowledge?
  - ?

Transition from I/99 to Paramedic?

- How much content is transferrable?
  - Almost all

Transition from I/99 to Paramedic?

- How much content is new?
  - ECG interpretation, including 12-lead ECG
  - BiPAP, CPAP, PEEP
  - Chest tube monitoring
  - $ETCO_2$ monitoring
  - NG/OG tube
  - Access indwelling catheters and implanted central IV ports
  - Morgan lens
  - Administer physician-approved meds
    - What meds does this include???

Transition from I/99 to Paramedic?

- When will the “new” stuff be reflected in the day-to-day practice?
  - ?
- When will we have enough appropriately trained EMRs to pilot test their “new” knowledge?
  - ?

Transition from EMT-Paramedic to Paramedic?

- How much content is transferrable?
  - Almost all

Transition from EMT-Paramedic to Paramedic?

- How much content is new?
  - BiPAP, CPAP, PEEP
  - Chest tube monitoring
  - $ETCO_2$ monitoring
  - NG/OG tube
  - Access indwelling catheters and implanted central IV ports
  - Morgan lens
  - Administer physician-approved meds
    - What meds does this include???

Transition from EMT-Paramedic to Paramedic?

- When will the “new” stuff be reflected in the day-to-day practice?
  - ?
- When will we have enough appropriately trained EMRs to pilot test their “new” knowledge?
  - ?

Where do I get more information?

- www.nasemso.org
- www.naemse.org
- www.coaemsp.org
- www.nremt.org
- www.ems.gov

"There are many ways of going forward, but only one way of standing still."

Franklin D. Roosevelt

Questions/Answers
Conclusion