

**National Registry of  
Emergency Medical Technicians\***  
THE NATION'S EMS CERTIFICATION

## CBT Implementation Update

2007 NASEMSO Meeting  
October 30, 2007  
Gregg S. Margolis, PhD, NREMT-P

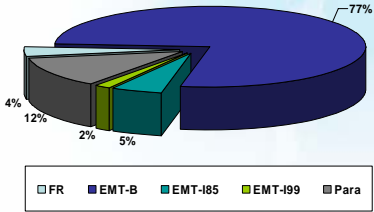



## Goals of Today

- Pass rates
- Reports
- The access picture
- Interesting tidbits
- Lessons learned
- Get YOUR feedback on how to improve

## Jan-Aug 2007

- 102,329 EdNet accounts
- 100,140 completed applications
- 65,474 exams delivered



Level	Percentage
FR	4%
EMT-B	77%
EMT-185	5%
EMT-199	2%
Para	12%

National Registry of  
Emergency Medical Technicians\*

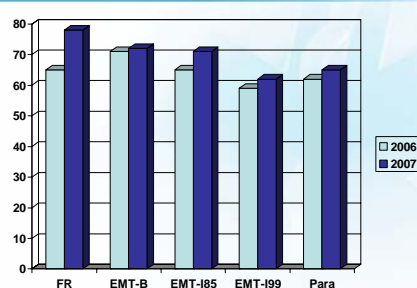
## First Attempt Pass Rates

	Paper and Pencil Pass Rate <sup>1</sup>	National CBT Pass Rate <sup>2</sup>
EMT-Basic	71%	72%
Paramedic	62%	65%

<sup>1</sup> 2006 Annual Report  
<sup>2</sup> National Data: Jan1-Aug 31, 2007

National Registry of  
Emergency Medical Technicians\*

## Pass Rates



Level	2006	2007
FR	~65%	~78%
EMT-B	~71%	~72%
EMT-185	~65%	~72%
EMT-199	~60%	~63%
Para	~62%	~65%

National Registry of  
Emergency Medical Technicians\*

## What do we mean by First Time Pass Rate?

	First NREMT attempt	First CAT attempt	First CAT attempt with NREMT history
First Responder	78%	77%	64%
EMT-Basic	72%	70%	63%
EMT-85	71%	68%	48%
Paramedic	65%	58%	33%

Note:  
Column 1 = Average from samples represented in column 2 and 3  
Column 1, 2 and 3 are not equal sample sizes

## Have we over-emphasized First Attempt Pass rate?

- What outcome variable is the best indicator of educational program effectiveness?
- What outcome variable is the best reflection of the effect of national certification effect on workforce supply?

## New Reports/New Terms

Term	Definition
Attempt rate	% of those qualified that attempt the exam
First attempt pass rate	% who pass on attempt 1
Cumulative pass rate within 3 attempts	% who pass on attempt 1, 2 or 3
Cumulative pass rate within 6 attempts	% who pass on attempt 1, 2, 3, 4, 5, or 6
Fail	Those who fail attempt 6
Incomplete	Those who fail attempt 1 but remain eligible for retest (less than 6 attempts, <2 years from course completion)
Attrition rate	Those who fail attempt 1 and are no longer eligible for retest (>2 years from course completion)

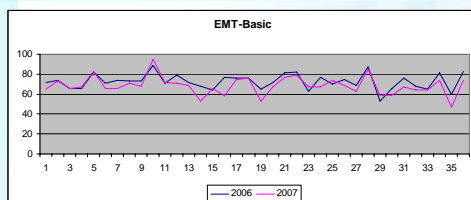
## Example:

### EMT-Basic program has a 71% first time pass rate

- 50 EMT-Basic graduates
- 45 take the test
- 32 pass on first attempt
- 8 pass on attempt 2 or 3
- 1 passes on 5
- 1 fails attempt 6
- 3 remain eligible for retest for 2 years, then convert to "did not complete"

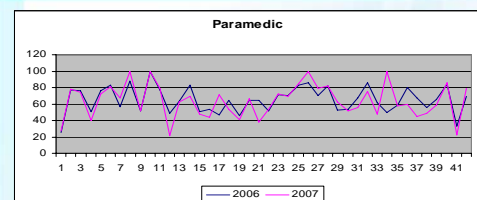
Attempted the exam	90% (45/50)
First attempt pass	71% (32/45)
Cumulative pass within 3 attempts	89% (40/45)
Cumulative pass within 6 attempts	91% (41/45)
Fail	2% (1/45)
Eligible for retest	7% (3/45)
Did not complete	0% (0/45)

## 2006-07 Correlation by State



- Data from States requiring NREMT at EMT-Basic level only
- Correlation coefficient=.78

## 2006-07 Correlation by State



- Data from States requiring NREMT at Paramedic level (zeros removed)
- CAUTION: Small #'s!!!
- Correlation coefficient=.76

## Results Delivery

- Exam results have been available to >99% of candidates within 2 business days since mid Jan.
- Credentials are sent to passes
- Failure letter provides detailed feedback to assist in preparation for retesting



## Dilemma...

Percent of items  
correct is no  
longer a  
meaningful  
number.

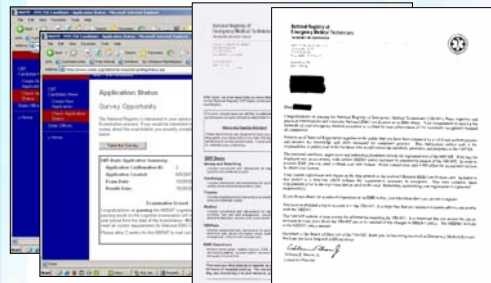


## Reports

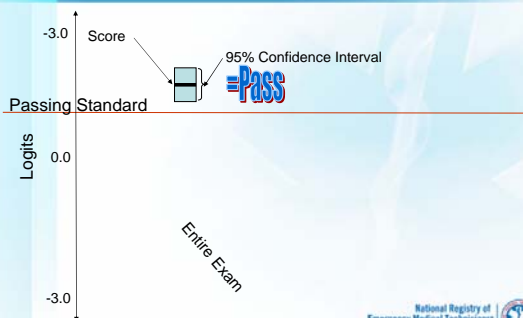
- We are required (by NCCA) to providing *meaningful* data to failing individuals so they can *improve* performance
- We are committed to providing data to programs and the community to improve the quality of EMS education nationwide



## Results

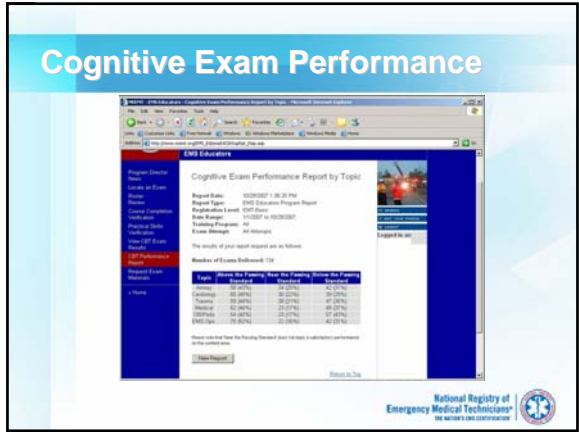
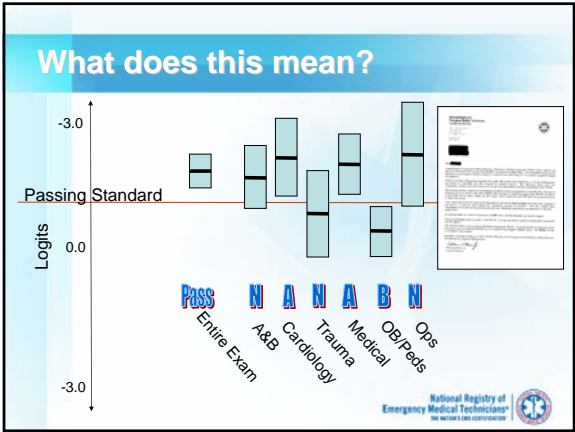
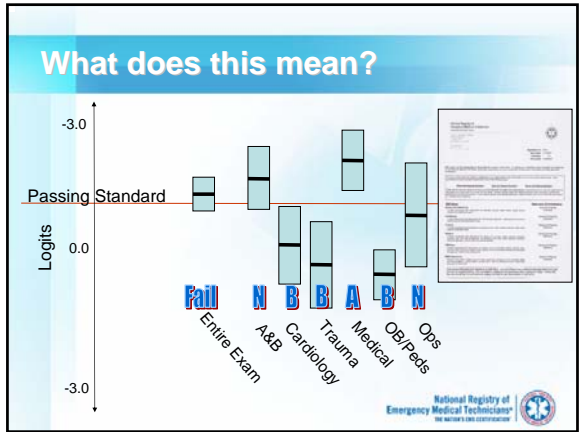
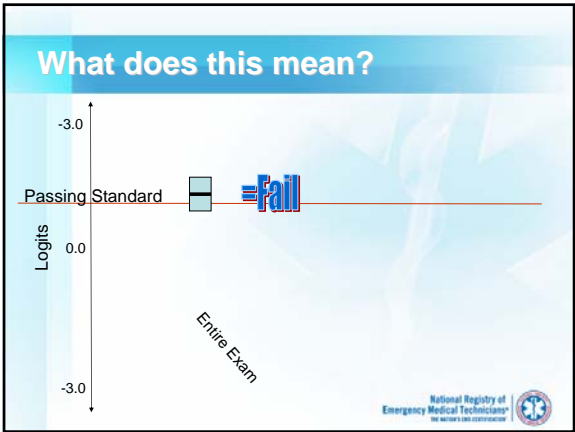


## What does this mean?



## What does this mean?

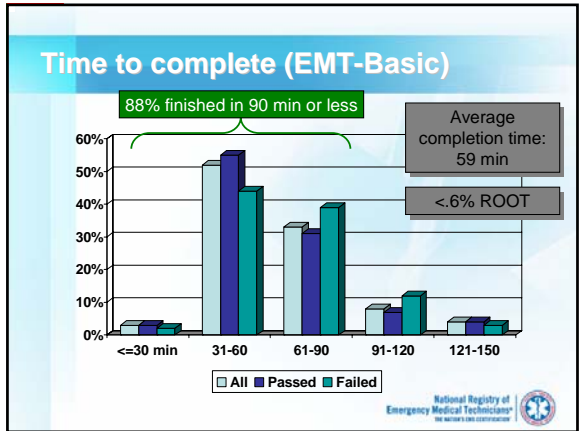




### Trouble Spots

Level	Area (% Below the passing standard)
EMT-Basic	Trauma (27.4%) OB/Gyn & Peds (26.3%)
Paramedic	OB/Gyn & Peds (36.3%) Airway (35.5%) Cardiology (35.1%)

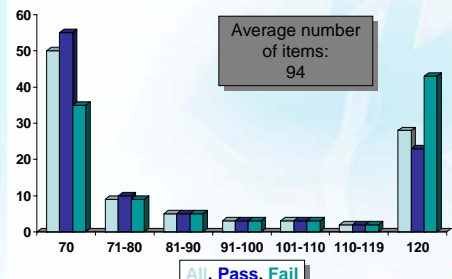
National Registry of  
Emergency Medical Technicians®  
www.nremt.org



- “Just how many questions do I have to answer?”



## Number of Items Taken (EMT-Basic)



All, Pass, Fail

## Candidate Satisfaction-Application

% who rated the on-line application as easy or very easy	91%
% able to complete the application in <20 min	89%
% who understood the directions for completing the application	93%
% who rated the application as good or excellent	83%
% who rated the ATT as good or excellent	81%



## Verifying student graduation



## Candidate Satisfaction-Scheduling

% who rated the phone service as good or excellent	90%
% who rated the process of scheduling the exam as easy or very easy	82%
% satisfied with the date of their appointment	95%



## Candidate Satisfaction-Access

% able to test on their preferred day	55%
% able to test within 2 weeks of their preferred day	89%
% able to test at their preferred testing center	94%
% able to test on their preferred day of the week	90%
% able to test at their preferred time of day	90%



## Candidate Satisfaction-Access

% who drove 25 miles or less to test	48%
% who drove more than 100 miles to test	5%

## Candidate Satisfaction-Exam Experience

% that rated the verification of identity as good or excellent	94%
% that rated the knowledge of staff as good or excellent	91%
% that rated the professionalism of staff/proctors as good or excellent	94%
% that rated the testing environment as good or excellent	91%



## Access

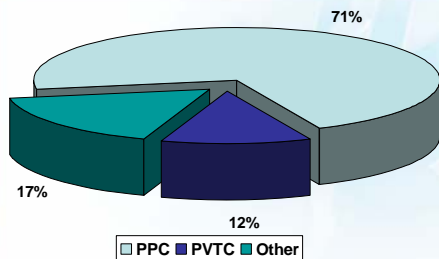
- The Pearson VUE Network
  - Pearson Professional Centers (PPCs)
    - Pearson owned and operated
    - Will be approved for all levels of NREMT exams
  - Pearson VUE Testing Centers (PVTs)
    - Contractual relationship with Pearson VUE
    - Intended as a supplement to the provide access in rural areas.

## Testing Locations

- 325 Testing Locations Nationwide
  - 198 Pearson Professional Centers
  - 116 Pearson VUE Testing Centers
    - 24 “new” sites
    - 29 leads in progress



## Exam Locations



## Other issues

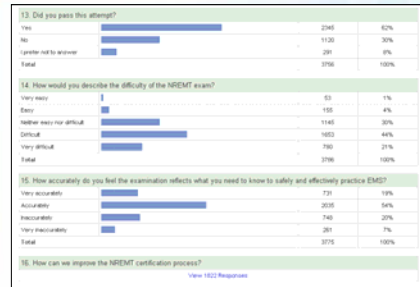
**PPCs**  
**VS.**  
**PVTs**



- 15% of the civilian volume tests at PPCs
- 85% of our complaints come from people who test in PVTcs
  - PPC and PVTcs are *not* the same
  - PVTcs are used to increase access, especially in non-urban areas
  - What do we do if a PVTc is not performing
    - Work with them
    - Close them



## Candidate Satisfaction Survey



## Candidate Satisfaction Survey

How would you describe the difficulty of the NREMT exam?	Total	What level NREMT Exam did you take?				Did you pass this attempt?			
		First Response	EMT- Basic	EMT- Intermediate 1st	EMT- Intermediate 2nd	Pass/Fail	Yes	No	Gender not to answer
Very easy	81	2	45	2	0	4	48	1	1
Easy	180	4	134	2	1	17	143	0	2
Neither easy nor difficult	1145	52	893	38	8	124	849	30	30
Difficult	1652	44	1420	21	6	762	1436	482	156
Very difficult	790	21	421	40	11	268	251	422	60
	3756	18.7%	15.5%	20.5%	20.5%	38.1%	38.1%	17.7%	24.7%

How accurately do you feel the examination reflects what you need to know to safely and effectively practice EMT?	Total	What level NREMT Exam did you take?				Did you pass this attempt?			
		First Response	EMT- Basic	EMT- Intermediate 1st	EMT- Intermediate 2nd	Pass/Fail	Yes	No	Gender not to answer
Very accurately	731	12	691	22	7	16	709	40	44
Accurately	2015	78	1541	80	22	312	1474	493	740
Inaccurately	740	14	472	36	14	281	394	76	19
Very inaccurately	261	3	126	18	5	111	91	176	35
	3756	4.9%	2.4%	4.9%	19.2%	10.4%	19.2%	2.2%	18.2%

## Continuous Improvement

- Two focus group meetings held in August
  - One educator group
  - One State Official group
- Generated a list of over 40 prioritized recommendations
- Our IT Department is working on them
- NREMT Web redesign scheduled over the next few years

## Lessons Learned

- Examination irregularities rates are < 0.01%
- This is *no more than* occurred with paper and pencil exams
- We expect our incident rate will decrease with experience

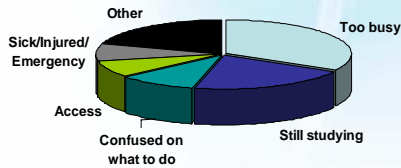


## Stuff Happens



## Why don't people test?

- In Sept, 2,098 people who were issued an ATT more than 6 months ago
- 92% still intend to test



## No Show Rate

- 1.9% (1,283/65,474)
- We receive about 10-20 calls per week
- About 1/3 appeal
- About 40% are able to document extenuating circumstances and refunds are granted



## Lessons Learned

- During the first week of launch, a few questions with "old CPR standards terminology" were in the live pool
  - Items were immediately identified and 'masked'
  - Our psychometric team performed a detailed analysis
    - No passing candidate failed
    - Three candidates who were informed they failed were offered no-cost retests since removal of those questions resulted in insufficient data to definitively determine competency.



## Candidate Identification

- Candidate's ID and account name must match *exactly*
- We caught a set of twins cheating!
- Three cases of misidentification occurred with military candidates
  - Two in March-A procedural solution implemented, no recurrence
  - One in Oct-Site suspended, case pending



## Lessons Learned

- Candidates recollection of the details of their exam is horrible
  - Number of questions
  - Duplicate questions



## Lessons Learned

- Some people just don't trust computers
- Two options
  - CBT Score Verification Report (\$30 processing and handling fee)
  - Item by item review (\$70 processing and handling fee)
- Fee is returned if an error is found.

Item	Score	Weight	Total Score
Item 1	1	1	1
Item 2	1	1	1
Item 3	1	1	1
Item 4	1	1	1
Item 5	1	1	1
Item 6	1	1	1
Item 7	1	1	1
Item 8	1	1	1
Item 9	1	1	1
Item 10	1	1	1
Item 11	1	1	1
Item 12	1	1	1
Item 13	1	1	1
Item 14	1	1	1
Item 15	1	1	1
Item 16	1	1	1
Item 17	1	1	1
Item 18	1	1	1
Item 19	1	1	1
Item 20	1	1	1
Item 21	1	1	1
Item 22	1	1	1
Item 23	1	1	1
Item 24	1	1	1
Item 25	1	1	1
Item 26	1	1	1
Item 27	1	1	1
Item 28	1	1	1
Item 29	1	1	1
Item 30	1	1	1
Item 31	1	1	1
Item 32	1	1	1
Item 33	1	1	1
Item 34	1	1	1
Item 35	1	1	1
Item 36	1	1	1
Item 37	1	1	1
Item 38	1	1	1
Item 39	1	1	1
Item 40	1	1	1
Item 41	1	1	1
Item 42	1	1	1
Item 43	1	1	1
Item 44	1	1	1
Item 45	1	1	1
Item 46	1	1	1
Item 47	1	1	1
Item 48	1	1	1
Item 49	1	1	1
Item 50	1	1	1
Item 51	1	1	1
Item 52	1	1	1
Item 53	1	1	1
Item 54	1	1	1
Item 55	1	1	1
Item 56	1	1	1
Item 57	1	1	1
Item 58	1	1	1
Item 59	1	1	1
Item 60	1	1	1
Item 61	1	1	1
Item 62	1	1	1
Item 63	1	1	1
Item 64	1	1	1
Item 65	1	1	1
Item 66	1	1	1
Item 67	1	1	1
Item 68	1	1	1
Item 69	1	1	1
Item 70	1	1	1
Item 71	1	1	1
Item 72	1	1	1
Item 73	1	1	1
Item 74	1	1	1
Item 75	1	1	1
Item 76	1	1	1
Item 77	1	1	1
Item 78	1	1	1
Item 79	1	1	1
Item 80	1	1	1
Item 81	1	1	1
Item 82	1	1	1
Item 83	1	1	1
Item 84	1	1	1
Item 85	1	1	1
Item 86	1	1	1
Item 87	1	1	1
Item 88	1	1	1
Item 89	1	1	1
Item 90	1	1	1
Item 91	1	1	1
Item 92	1	1	1
Item 93	1	1	1
Item 94	1	1	1
Item 95	1	1	1
Item 96	1	1	1
Item 97	1	1	1
Item 98	1	1	1
Item 99	1	1	1
Item 100	1	1	1

## Future Projects

- Information Technology – support CAT, Web page enhancements
- Research Program
- Community Relations Program
- ADA Accommodations
- Simulation practical
- Re-Registration Requirements



## The future of testing in EMS

**This is an  
exciting time  
to be in EMS!**

- Communication
- Research
- More data to the community!
- Expandability
- Future testing methodologies

**Thank you for all you did to  
make this transition a success!!!**



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

Franklin D. Roosevelt

