
By the numbers

NREMT passing rates posted soon for each educational program

By Kelly Harrell

Do not put your faith in what statistics say until you have carefully considered what they do not say. – William W. Watt

Sometime this summer, DSHS plans to post on its website National Registry of EMT's passing rates for each EMS education program in Texas for anyone who took the exam between January 1, 2005, and December 31, 2005. While some find that to be great news and others dread it, remember this: Numbers don't lie, but they've been known not to tell the whole story. As important as the actual numbers for each program is the explanation of the numbers – what they could mean, maybe. Or maybe not. It all depends. And that's the problem.

But first, the overall news. Texas did not do well in National Registry passing rates compared to other states in 2005, but there was marked improvement from the 2004 numbers. NREMT thinks that Texas is making progress. Texas appears to have an attrition rate higher than that of other states, meaning Texas has higher numbers of people who drop out of testing after failing. This may indicate that Texas students are dropping out before all three exam attempts. Or it may not, since they have up to two years to complete the three tests and these statistics cover only one year. DSHS staff will be working with EMS educators to try and figure out what is happening with the attrition rate.

What to look for in the numbers

Here's what to look for once the numbers are posted on the website.

Registration rate

The registration rate is the most important number in these results. That's the percentage of individuals who gained NR registration during the study period regardless of the number of examination attempts during that calendar year.

Here's an example:

An EMS education program issued 100 course completion certificates during a year. By the end of the year, 50 individuals had passed the written examination on the first attempt, 16 had passed on their second attempt and four had passed on their third attempt. Therefore $(50+16+4) = 70$ individuals gained national registration. The registration rate would be $70/100 = 70$ percent. The report for the program would appear as follows:

	Attempt			
	#	Pass	Fail	Total
Prog	1	50	50	100
	2	16	24	40
	3	4	10	14
Registration Rate				70 %

You could say that 70 out of 100 in that program gained NR registration and 30 of 100 individuals did not. However, you **couldn't** say the program has a 30 percent fail rate, because there may be candidates who did not attempt the exam again even though they were eligible.

Cumulative Pass Rate

The cumulative pass rate takes into account the total number of individuals who pass the test during the first, second and third attempts.

Here's an example:

An EMS education program issued 100 course completion certificates during a year. By the end of the year, $(50+16+4) = 70$ individuals successfully passed the written examination. Of the 50 people who failed the first attempt, only 40 attempted the exam a second time; of the 24 who failed the second attempt, only 14 made a third attempt. Therefore, a total of 20 $(50-40 = 10$ and $24-14 = 10)$ individuals chose not to take advantage of all three testing opportunities. If we subtract the number of individuals who did not complete the testing opportunities (20) from the total number of individuals who took the examination on the initial attempt $(100-20)$, there are 80 individuals who used all available testing opportunities during the study period. This results in a cumulative pass rate of $70/80 = 87.5$ percent.

	Attempt			Total
	#	Pass	Fail	
Prog	1	50	50	100
	2	16	24	40
	3	4	10	14
Cumulative Pass Rate				87.5%

The report would appear as follows:

That means nearly 9 out of 10 people who exhausted their examination attempts passed the examination. NREMT says that cumulative pass rate indicates how well the students are prepared, as well as individual motivation.

Testing Attrition Rate

This is the percentage of individuals who failed their initial attempt at the examination and did not attempt it a second or third time.

Here's an example:

If we take the same 20 students in the example above who chose not to take advantage of all three testing opportunities in the year, this results in a testing attrition rate of 20/100, or 20 percent. The report would appear as follows:

	Attempt			Total
	#	Pass	Fail	
Prog	1	50	50	100
	2	16	24	40
	3	4	10	14
Testing Attrition Rate				20 %

It is important to understand that the testing attrition rate may not represent the number of individuals who have decided to leave the field of EMS. Per NREMT policy, students have up to two years to exhaust their testing opportunities. This data covers one calendar year, meaning students could have another full year to test.

A couple of things to consider

According to NREMT, 14 percent to 16 percent of initial candidates at each level failed to provide a valid program code for the education program. When NR receives a test without a valid program code, it simply defaults to unknown. This doesn't affect the overall state ratings, but it could affect individual program results.

Also, the size of the program is significant when drawing conclusions. As a general rule, as sample size increases, the estimates of passing percentages and registration, cumulative pass and attrition rates are less affected by an individual's statistics. NREMT says that reports of fewer than 30 students may not provide a good indication of

the program. For instance, on initial attempts, if you had a program with six students and four passed and two failed, the passing rate would be about 67 percent. A program with 40 students that has 16 failures would have a pass rate of 60 percent. Now consider how much one student can make a difference in a small class. In the class with six students, one more passing grade means that the passing rate jumps to about 83 percent. In the larger class, one more student who passes brings up the passing percentage only a couple of points, to around 62 percent. The same thing happens to the other indicators as the number of students increases. NREMT recommends using caution in trying to draw too many conclusions about a program's worth if it has fewer than 30 students.

Coming soon to the web

The NREMT statistics will be mailed soon to each educational program. DSHS plans to let the programs comment on the statistics before we post them on our website at www.tdh.state.tx.us/hcqs/ems.