APPLIED MEASUREMENT PROFESSIONALS, INC.

Effects from Education Program Type on RRT Candidate Outcomes

A study conducted for the NBRC™

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Introduction

This report describes a study that compared the outcomes of credentialing for two groups of candidates. We defined these groups by the degree awarded to candidates when the program of study in respiratory therapy was completed. One set of candidates had been awarded a Bachelors degree while the other candidates had been awarded an Associates degree.

We studied four outcomes from credentialing examinations for the two program type groups. The first step on the path to achieving the RRT is to pass the NBRC Entry Level CRT Examination. Candidates in 48 states take the NBRC Entry Level CRT Examination so they may be licensed to practice in the state in which they work. Therefore, most graduates take the CRT Examination. We intended to **first** compare percentages of CRT pass outcomes between candidates with Bachelors and Associates degrees. Candidates could choose to take the NBRC Written RRT and Clinical Simulation Examinations after passing the CRT Examination, so comparisons of the percentages of Written RRT and Clinical Simulation pass outcomes for candidates with Bachelors and Associates degrees were the **second** and **third** parts of the study.

Finally, we compared success in becoming an RRT on the first attempt of candidates at the CRT, Written RRT, and Clinical Simulation Examinations as the fourth outcome. Again, we separated candidates with Bachelors and Associates degrees into groups for this comparison. The percentage of the RRT first time success group as a subset of all candidates who took the three examinations in 2008 was compared to the percentage of candidates who had experienced at least one fail outcome among the three examination attempts.

These four comparisons were made in the context of a series of meetings sponsored by the American Association for Respiratory Care (AARC). Titled **RT 2015**, the intent of these meetings has been to anticipate competencies that are likely to be expected of respiratory therapists in the future. Meetings have and will focus on changes that could be anticipated about the way in which respiratory therapists are educated and assessed for licensure or credentialing.

Results of this study should add to the discussion by comparing the rates of success between candidates with Bachelors and Associates degrees. To summarize, passing each examination and passing all three examinations on the first attempt were the outcomes or dependent variables in this study. The independent variable was program type – Bachelors and Associates degree granting respiratory therapy programs.

Hypotheses

We posed the following null hypotheses to direct our study of program types and outcomes from these three credentialing examinations. We chose to develop null rather than directional hypotheses because we were aware of no recent study that had established a difference in examination outcomes that could be linked to program type.

Our four hypotheses were as follows:

Candidates who earned Bachelors degrees in respiratory therapy would succeed at a rate that did not differ significantly from the success rate of candidates who earned Associates degrees in respiratory therapy on their first attempts at the

(H_1) CRT Examination.
(H_2) Written RRT Examination.
(H_3) Clinical Simulation Examination.
(H_4) three examinations required for the RRT credential.

Methods

Data Sources

We exported candidates' records from the NBRC database for each of the three examinations yielding three datasets so we could test the first three hypotheses. Each dataset included the population of candidates who took each examination for the first time in 2008. The CRT dataset included examination outcomes from 6,489 candidates. The Written RRT dataset included examination outcomes from 5,927 candidates. The Clinical Simulation dataset included examination outcomes from 5,463 candidates.

Some of the same people were found in more than one dataset, but we made no effort to limit selection to only those people who took all three examinations for the first time in 2008 when we produced the first three datasets. However, to test the fourth hypothesis, we did match 2,813 candidates across the three datasets to produce a fourth dataset. These candidates took all three examinations for the first time in 2008. These four datasets only contained valid attempts since there were occasions when candidates stop responding before the administration time expired and before they had opened every item on an examination.

Independent Variable Coding

Respiratory therapy programs that awarded the Bachelors degree were identified by Thomas Smalling, PhD, RRT, RPFT, RPSGT, FAARC, Executive Director of the Commission on Accreditation for Respiratory Care (CoARC). These Bachelors degree programs are listed in Appendix A. Each candidate record included a program number. Within each dataset, those candidate records that included a number listed in Appendix A were coded as a Bachelors degree program. All other program numbers were coded as Associates degree programs.

Statistical Test Plan

Because **program type** (Bachelors, Associates) and **examination result** (pass, fail) information gave us two ordinal level[1] variables to study, we planned to use the Chi Square procedure to test the four hypotheses. Chi Square tests of two-by-two contingency tables are always a special case since the probability of an erroneous rejection of a null hypothesis can be mildly

[1] Data exist at one of four levels – nominal, ordinal, interval, and ratio. If a dependent variable provides interval or ratio level data while the independent variable provides nominal or ordinal level data, then hypothesis testing may rely on parametric statistical procedures like the t-Test and ANOVA. Otherwise, when both variables present nominal or ordinal level data, then non-parametric statistical tests like Chi Square must be applied.

increased in some circumstances. Therefore, we planned to use a procedure described as *Yates' correction for continuity*[2] to adjust each Chi Square result into a smaller value. Doing so made it easier to accept a null hypothesis. Therefore, the correction procedure produced a more conservative test of differences between expected and observed counts within the four cells of each 2 by 2 crosstabulation table.

We established a threshold of .05 to reject a null hypothesis. Therefore, when we could observe that the probability of erroneously rejecting a null hypothesis was no more than 5%, then we were sufficiently confident in doing so. Should we reject a null hypothesis, we planned to produce a measure of effect size so we could gauge the magnitude of the program type effect on examination pass rate results.

We ran a power analysis to confirm that we were likely to reject a null hypothesis when it should be rejected. The smallest sample we would analyze was for H_4. With a sample size of 2,813 and an error probability of .05, the power value was 1.0 for a Chi Square test[3]. Therefore, if a difference really existed, we were effectively certain of finding it. The other three analyses that we planned to run for CRT, Written RRT, and Clinical Simulation Examination outcomes included even larger samples of candidates' results, so the power value also was 1.0 for those statistical tests.

Results

We focused on the passing percentages for candidates with Bachelors and Associates degrees who took each examination to facilitate simple, useful interpretations of study results. We used the Chi Square result to indicate whether each difference in the two passing percentages was significantly different for each of the four hypotheses.

Ultimately, the continuity correction procedure did not influence whether we rejected any hypotheses in this study. In other words, the regular Chi Square value and the corrected Chi Square value were either both significant or both insignificant when evaluating results for each hypothesis we tested. These Chi Square statistical tests directly compared **expected** to **observed counts** within the Crosstabulation tables shown in Appendix B. Expected counts were what we would have seen if program type exerted no effect on examination results.

Interaction of Candidates with the CRT Examination

The first thing we learned from Figure 1 was that 79.9% of candidates who took the CRT Examination for the first time in 2008 had passed. Candidates who had earned a Bachelors degree from their respiratory therapy programs had a pass rate of 86.8% while those with an Associates degree had a pass rate of 79.2%.

[2] Sirkin, RM. 1995. *Statistics for the social sciences*. Sage Publications. Thousand Oaks, CA, pp. 361-364.

[3] G*Power version 3.0.10 (2008). Buchner A, Erdfelder E, Faul F, Lang AG, Kiel University, GERMANY.

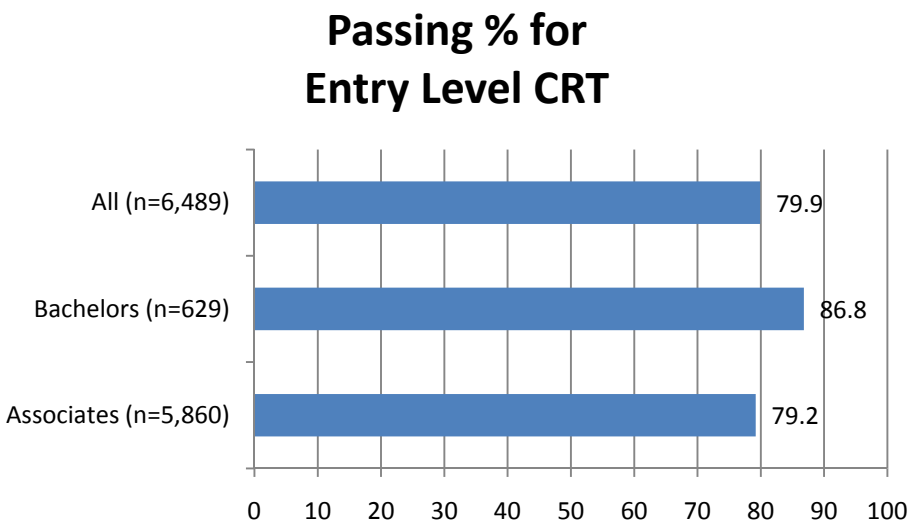

Figure 1. Passing % for Entry Level CRT

Table 1. Chi-Square Tests for CRT

	Value	*df*	*Asymp. Sig. (2-sided)*
Pearson Chi-Square	20.571[a]	1	.000
Continuity Correction[b]	20.099	1	.000
N of Valid Cases	6489		
a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 126.30.			
b. Computed only for a 2x2 table			

Effect size, r = .056, r^2 = .003

Table 1 indicated that this difference was statistically significant, which meant that we were confident that the difference really existed and would likely generalize to examination results in other years. The effect size calculation indicated that program type exerted a small effect that explained three-tenths of one percent of examination result variability. Therefore, we concluded that Bachelors degree programs were linked to a significant, but small increase in the CRT Examination passing percentage.

Interaction of Candidates with the Written RRT Examination

The first thing we learned from Figure 2 was that 68.5% of candidates who took the Written RRT Examination for the first time in 2008 had passed. Candidates who had earned a Bachelors degree from their respiratory therapy programs had a pass rate of 72.9% while those with an Associates degree had a pass rate of 68.0%.

Table 2 indicated that this difference was statistically significant, which means that we can be confident that the difference really existed and would likely generalize to examination results in other years. The effect size calculation indicated that program type exerted a small effect that explained one-tenth of one percent of examination result variability. Therefore, we concluded that Bachelors degree programs were linked to a significant, but small increase in the Written RRT Examination passing percentage.

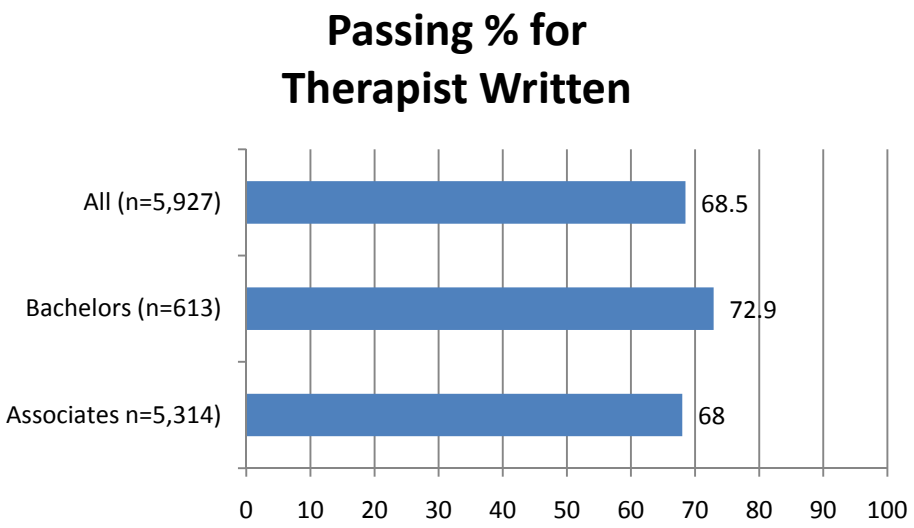

Figure 2. Passing % for Therapist Written

Table 2. Chi-Square Tests for Written RRT

	Value	***df***	***Asymp. Sig. (2-sided)***
Pearson Chi-Square	6.282[a]	1	.012
Continuity Correction[b]	6.054	1	.014
N of Valid Cases	5927		
a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 193.30. b. Computed only for a 2x2 table			

Effect size, r = .033, r^2 = .001

Interaction of Candidates with the Clinical Simulation Examination

The first thing we learned from Figure 3 was that 56.7% of candidates who took the Clinical Simulation Examination for the first time in 2008 had passed. Candidates who had earned a Bachelors degree from their respiratory therapy programs had a pass rate of 63.1% while those with an Associates degree had a pass rate of 55.9%.

Table 3 indicated that this difference was statistically significant, which means that we can be confident that the difference really existed and would likely generalize to examination results in other years. The effect size calculation indicated that program type exerted a small effect that explained two-tenths of one percent of examination result variability. Therefore, we concluded that Bachelors degree programs were linked to a significant, but small increase in the Clinical Simulation Examination passing percentage.

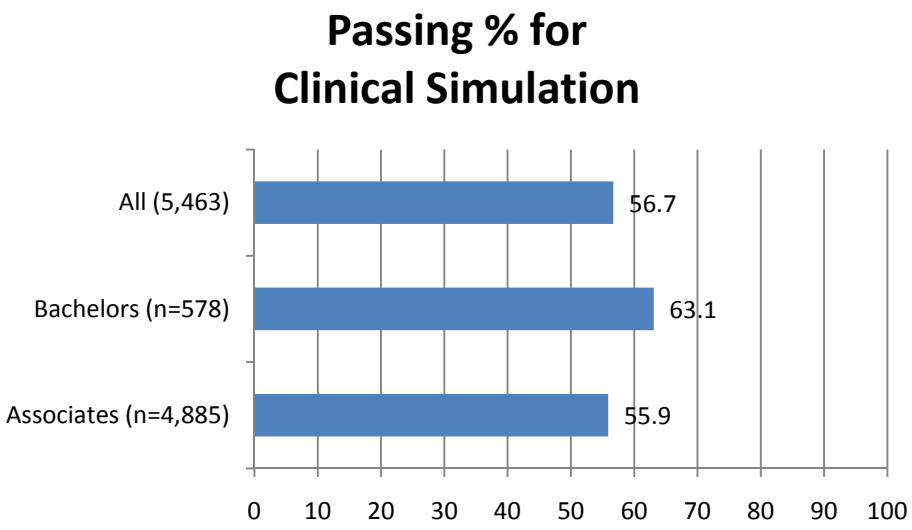

Figure 3. Passing % for Clinical Simulation

Table 3. Chi-Square Tests for Clinical Simulation

	Value	***df***	***Asymp. Sig. (2-sided)***
Pearson Chi-Square	11.042[a]	1	.001
Continuity Correction[b]	10.749	1	.001
N of Valid Cases	5463		
a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 250.43.			
b. Computed only for a 2x2 table			

Effect size, r = .045, r^2 = .002

Interaction of Candidates with RRT First Time Success

This fourth set of results differed from the other three because RRT First Time Success expressed a composite across outcomes from all three examinations described thus far. Only the candidates who had attempted all three examinations for the first time in 2008 were included in this part of the study, so the number of examination results we studied was smaller than the numbers we studied for the first three. Still, the power analysis had indicated that if the null hypothesis should be rejected it was practically certain that we would.

The first thing we learned from Figure 4 was that 54.8% of candidates had passed all three examinations on their first attempts in 2008. Composite success rates of candidates who had earned Bachelors and Associates degrees were respectively 58.3% and 54.4%.

Table 4 indicated that this difference was insignificant. Therefore, we concluded that program type exerted no statistically significant effect on composite success among candidates who took all three examinations for the first time while attempting to earn the RRT credential.

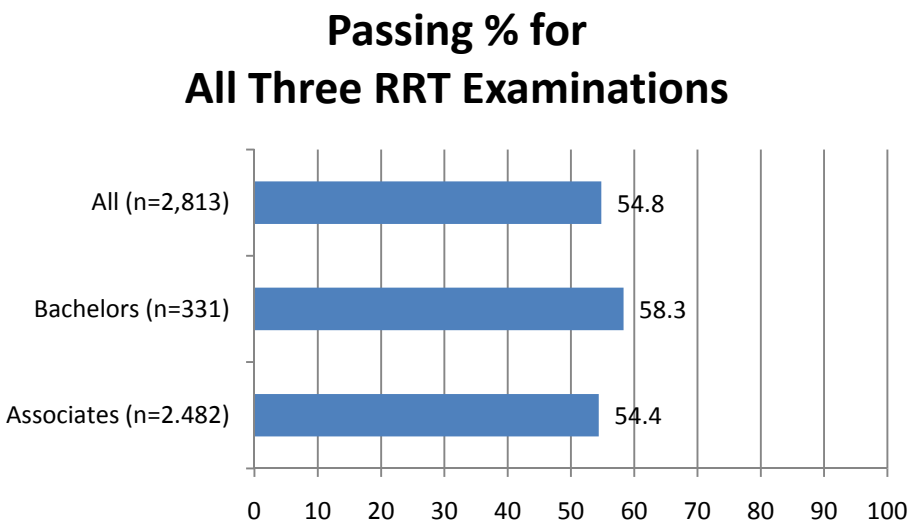

Figure 4. Passing % for All Three RRT Examinations

Table 4. Chi-Square Tests for RRT First Time Success

	Value	***df***	***Asymp. Sig. (2-sided)***
Pearson Chi-Square	1.846[a]	1	.174
Continuity Correction[b]	1.690	1	.194
N of Valid Cases	2813		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 149.56.
b. Computed only for a 2x2 table

No effect size was calculated since the difference was insignificant.

Summary

Table 5 displays the rank order of passing percentage differences and effects observed in this study. Bachelors degree programs exerted the greatest positive effect on the passing percentage of candidates who took the CRT Examination. The positive difference in passing percentages was nearly as strong for the Clinical Simulation Examination when comparing types of programs.

The Written RRT examination showed a significant difference in passing percentages between Bachelors and Associates program candidates, but it was smaller than observed for the other two examinations. Finally, although candidates with Bachelors degrees did show a higher rate of composite first time success while attempting to achieve the RRT by taking all three examinations, the difference was too small to be statistically significant.

Table 5. Rank Order of Program Type Effects on Passing Percentage Differences

Rank	Examination Outcome	Difference Between Bachelors and Associates Programs	Outcome of Statistical Testing	Effect Size (r^2)
1	CRT	+ 7.6	significant	.003
2	Clinical Simulation	+ 7.2	significant	.002
3	Written RRT	+ 4.9	significant	.001
4	Composite RRT	+ 3.9	insignificant	—

Figures 5, 6, and 7 give a visual indication of the magnitude of pass rate effects that could be explained by the program type factor.

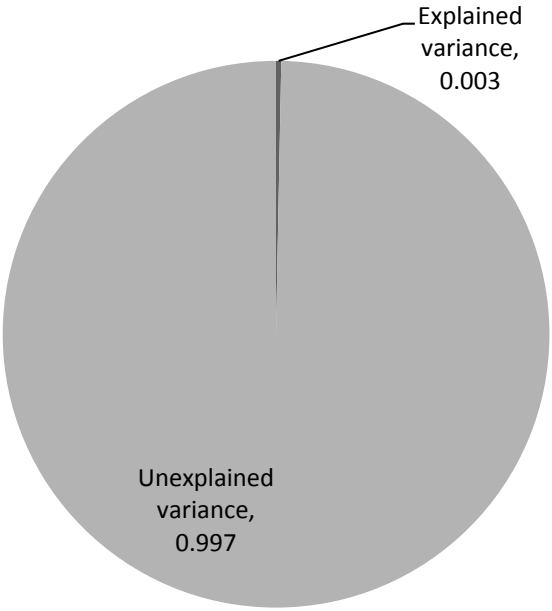

Figure 5. Magnitude of Program Type Effect on CRT Pass Rate

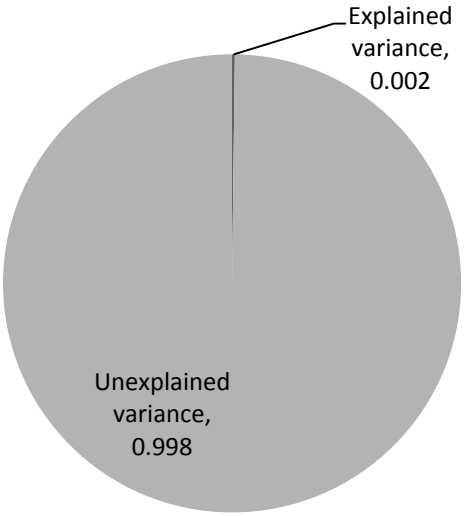

Figure 6. Magnitude of Program Type Effect on CSE Pass Rate

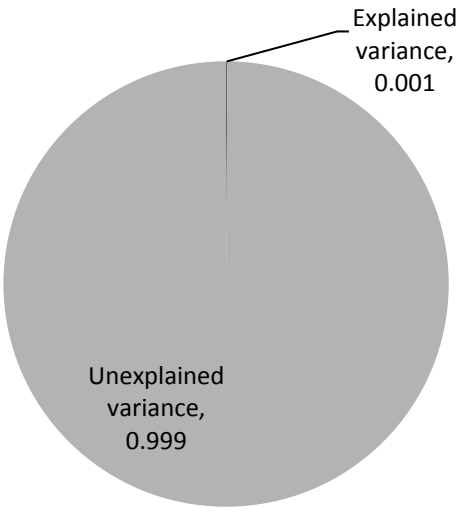

Figure 7. Magnitude of Program Type Effect on WRRT Pass Rate

Discussion

To put this study in context, the AARC has sponsored a series of meetings to establish what likely will be expected from respiratory therapists in the future. Experts have brainstormed ideas about competencies associated with the practice of respiratory therapy in the future. Included in the discussion will be deliberation about the nature of the formal education of therapists in the future and the manner in which they will be credentialed.

Summary of Conclusions

Our original four hypotheses were as follows:

Candidates who earned Bachelors degrees in respiratory therapy would succeed at a rate that did not differ significantly from the success rate of candidates who earned Associates degrees in respiratory therapy on their first attempts at the

- **(H_1) CRT Examination.**
- **(H_2) Written RRT Examination.**
- **(H_3) Clinical Simulation Examination.**
- **(H_4) three examinations required for the RRT credential.**

Study results caused us to reject the first three hypotheses in favor of the following conclusions:

Candidates who earned Bachelors degrees in respiratory therapy succeeded at a significantly higher rate than candidates who earned Associates degrees in respiratory therapy on their first attempts at the

- **(C1) CRT Examination.**
- **(C2) Written RRT Examination.**
- **(C3) Clinical Simulation Examination.**

Study results also caused us to accept hypothesis *H_4* as our fourth conclusion.

RRT First Time Success

We will first discuss the premise that every therapist should function, or strive to function, as well as someone with the RRT credential in the future. Our fourth conclusion suggests that replacing Associates with Bachelors programs CANNOT be expected to significantly increase composite first time success as candidates attempt to earn the RRT by taking the three examinations that are required.

Had we observed a large pass rate difference, say 39% instead of 3.9%, then a strategy of replacing Associates degree with Bachelors degree programs would have looked compelling to us. Instead, the prospect of replacing Associates with Bachelors degree programs appears to be problematic since the profession would pay a heavy price in program and workforce disruptions for an insignificant increase in first time success among RRT candidates.

Comparing Effect Sizes

Candidates who graduated from Bachelors programs did pass the CRT, Written RRT, and Clinical Simulation Examinations at significantly higher rates when studied as three independent events when compared to candidates who graduated from Associates degree programs. Again, Table 5 summarizes these details.

If one thinks that Bachelors degree programs are the standard to emulate in the future, then these results showed that the strongest effect was exerted on CRT Examination passing percentages. One cannot have CRT Examination outcomes without a CRT Examination, so these results indicate that candidates' interactions with this examination are critical to future evaluations of whether Bachelors programs are satisfying part of their missions.

There are those who could choose to argue that some competencies that will be expected of therapists in the future do not appear on the current CRT Examination as a strategy to disconnect these results from future outcomes. This statement is true, but it is also true that as new competencies become widespread among the practice of therapists, then job analysis studies that will be conducted by the NBRC will eventually reveal them as viable CRT Examination content. Therefore, we do not expect the importance of CRT Examination outcomes to diminish in the future.

Referencing Figures 5, 6, and 7, it was clear to us that program type explained very little about the variances of pass rates for CRT, Written RRT, and Clinical Simulation Examinations. Factors associated with unexplained variances might be attributed to **individual candidates** (e.g., capacity to learn, pre-professional education experiences, examination preparation techniques; motivation to do one's best, manage anxiety, and focus on critical item content while testing) and **programs** (e.g., criteria for program admission, content and duration of the professional curriculum, instructional methods, quality of classroom instruction, variety of clinical experiences, quality of clinical supervision). However, these factors and others that might explain something about pass rates were not a part of this study.

Significant but Small

It might sound contradictory to state that there were statistically significant, but small increases in passing percentages for CRT, Written RRT, and Clinical Simulation Examinations for the group of candidates with Bachelors degrees. To state that a pass rate difference was statistically significant meant that it was highly likely that the difference we saw in our sample of 2008 candidates would be found in other years. The term "significant" should not be interpreted

to have meant “large” or “substantial”; this is what the effect size was intended to measure. It is not our intent to confuse the reader, we just want to be accurate. Hopefully, two questions and answers plus an analogy will help readers interpret these results.

First, if someone asked whether we expected that the Bachelors group will continue to pass each of these examinations at higher rates than the Associates group, then the answer would be **yes**. **Second**, if someone asked whether we expected that the Bachelors group will pass each of these examinations at **much** higher rates than the Associates group, then the answer would be **no**.

We could only expect about a 7 percentage-point difference on CRT and Clinical Simulation Examination passing percentages and less than a 5 percentage-point difference in Written RRT or composite RRT passing percentages. These are all small (we could even say tiny) effects (again review Figures 5, 6, and 7). We can count on the perpetuation of these differences because they were statistically significant, but we also expect differences to remain small as long as program type characteristics do not change. We make this last point because it is possible that program characteristics (e.g., duration, credits required to earn a degree) could change in the future while Associates and Bachelors degrees continue to be awarded. In such a circumstance, these study results should not be generalized to those programs.

Using an analogy to reinforce why it is critical to assess effect size after observing a significant difference, we could imagine a clinical research study in which two drugs were compared. Let us assume that Drug 1 costs twice as much as Drug 2 (so it must be twice as good, right?). Results could show that Drug 1 produces a statistically significant increase in a desirable effect when compared to Drug 2. However, the magnitude of the difference could be so small as to make it impossible to recommend exclusive use of Drug 1. In this analogy, Drug 1 is equal to the Bachelors programs and Drug 2 is equal to the Associates programs.

It is because of the potential to be misled by statistical significance testing that researchers who choose to be thorough will assess effect size. In other words, only looking for statistically significant results could encourage giving too much weight to a difference. Had we been less thorough with results of this study and skipped the effect size measurements, then some might have tried to build an education reform strategy around what were actually very small differences.

Finally, we will offer a hypothesis for why program type only exerted small effects on success with the stepping stones toward achieving the RRT. Although distinctions between requirements for Bachelors and Associates degrees are substantial among higher education institutions, we understand that the time students typically spend directly interacting with respiratory therapy curriculum is similar (about two years) between both types of programs.

Recommendations for Other Studies

Should someone want to extend this line of study in the future, we advise focusing on potential linkages between the following factors and success in achieving the RRT credential:

Candidate factors

1. capacity to learn
2. pre-professional education experiences
3. examination preparation techniques

4. while taking an NBRC test to earn the RRT, one's
    a. motivation to do one's best
    b. ability to manage anxiety
    c. ability to focus on critical item content

Program factors

1. criteria for program admission
2. content of the curriculum
3. duration of the respiratory therapy curriculum
4. instructional methods
5. quality of classroom instruction
6. variety of clinical experiences
7. quality of clinical supervision

Studies of these and other factors might shed light on some elements that influence success in achieving the RRT credential with enough strength that strategies for education program change could be built around them. We will warn that a more detailed data collection method would be required to study factors like these in any detail, which means that substantial resources would be needed to conduct such studies.

We finally want to point out that passing examinations to earn the RRT credential are not the only outcomes of a respiratory therapy education program that are worth studying. In addition to trying to explain variability in examination pass rates, a researcher could choose to measure other dependent variables like employer satisfaction with recent graduates. One could hypothesize that employers are more satisfied with graduates of Bachelors programs while theorizing that a broader education positively affects employee maturation, adaptability, or problem-solving.

However, results of this study should encourage testing of these hypotheses rather than assuming them to be true. For example, because Associates degree programs attract many adult students who are starting another career, it could be that the maturity of Associates degree graduates equals or exceeds that of Bachelors degree graduates. The life experiences of 30-, 40-, and 50-year-old graduates might make them better problem-solvers than those in their early 20s. Were it us studying other program outcomes, we would propose that no difference existed in employer satisfaction between graduates of Associates and Bachelors programs. We would then observe whether study results could tell us that our hypothesis was false, just as we did in this study.

Appendix A

Bachelors Programs as Designated by CoARC

Program Number	Institution	City	State
200014	Millersville University	Millersville	PA
200033	University of Missouri-Columbia	Columbia	MO
200039	Clarian Health and Affiliated University	Indianapolis	IN
200051	Shenandoah University	Winchester	VA
200056	University of Central Florida	Orlando	FL
200066	SUNY Upstate Medical University	Syracuse	NY
200078	Indiana University of Pennsylvania/ The	Pittsburg	PA
200080	University of Kansas Medical Center	Kansas City	KS
200097	College of St. Catherine	Minneapolis	MN
200106	Our Lady of Holy Cross College/Ochsner	New Orleans	LA
200133	St. Alexius Medical Center/University of	Bismarck	ND
200134	Stony Brook University	Stony Brook	NY
200161	Loma Linda University	Loma Linda	CA
200162	Georgia State University	Atlanta	GA
200167	The Ohio State University	Columbus	OH
200172	University of Minnesota Rochester	Rochester	MN
200176	University of Arkansas for Medical Sciences	Little Rock	AR
200178	University of Toledo	Toledo	OH
200181	University of Alabama at Birmingham	Birmingham	AL
200197	Texas State University-San Marcos	San Marcos	TX
200205	Long Island University	Brooklyn	NY
200208	Texas Southern University	Houston	TX
200224	Medical College of Georgia	Augusta	GA
200233	The University of Akron	Akron	OH
200247	Youngstown State University	Youngstown	OH
200251	Louisiana State University Health Sciences	New Orleans	LA
200264	Wheeling Jesuit University	Wheeling	WV
200267	University of South Alabama	Mobile	AL
200277	Armstrong Atlantic State University	Savannah	GA
200281	Bellarmine University	Louisville	KY
200305	University of Hartford	West Hartford	CT
200313	West Chester University/Bryn Mawr Hospital	Bryn Mawr	PA
200321	Florida A & M University	Tallahassee	FL
200322	Salisbury University	Salisbury	MD
200342	Tennessee State University	Nashville	TN
200347	UMDNJ- School of Health Related Profess	Newark	NJ
200394	Midwestern State University	Wichita Falls	TX
200398	East Tennessee State University	Elizabethton	TN
200401	University of Arkansas for Medical Sciences	Texarkana	AR
200413	University of Texas Medical Branch at Galveston	Galveston	TX
200422	The University of Texas Health Science Center	San Antonio	TX
200448	Baptist College of Health Sciences	Memphis	TN

Program Number	Institution	City	State
200493	Louisiana State University Health Sciences	Shreveport	LA
200506 A	St. Mary's Medical Center/Marshall University	Huntington	WV
300006	St. John's Mercy Medical Center	Columbia	MO
300011	Salisbury University	Salisbury	MD
300020	University of Arkansas - Batesville	Batesville	AR
300161	Loma Linda University	Riyadh	SA

Appendix B

Crosstabulation Tables

Crosstabulation of Program Type and CRT Examination Result

			Examination Result		
			Fail	Pass	Total
Program Type	Associates	Count	1220	4640	5860
		Expected Count	1176.7	4683.3	5860.0
		% within Program Type	20.8%	**79.2%**	100.0%
	Bachelors	Count	83	546	629
		Expected Count	126.3	502.7	629.0
		% within Program Type	13.2%	**86.8%**	100.0%
Total		Count	1303	5186	6489
		Expected Count	1303.0	5186.0	6489.0
		% within Program Type	20.1%	**79.9%**	100.0%

Crosstabulation of Program Type and Written RRT Examination Result

			Examination Result		
			Fail	Pass	Total
Program Type	Associates	Count	1703	3611	5314
		Expected Count	1675.7	3638.3	5314.0
		% within Program Type	32.0%	**68.0%**	100.0%
	Bachelors	Count	166	447	613
		Expected Count	193.3	419.7	613.0
		% within Program Type	27.1%	**72.9%**	100.0%
Total		Count	1869	4058	5927
		Expected Count	1869.0	4058.0	5927.0
		% within Program Type	31.5%	**68.5%**	100.0%

Crosstabulation of Program Type and Clinical Simulation Examination Result

			Examination Result		
			Fail	Pass	Total
Program Type	Associates	Count	2154	2731	4885
		Expected Count	2116.6	2768.4	4885.0
		% within Program Type	44.1%	**55.9%**	100.0%
	Bachelors	Count	213	365	578
		Expected Count	250.4	327.6	578.0
		% within Program Type	36.9%	**63.1%**	100.0%
Total		Count	2367	3096	5463
		Expected Count	2367.0	3096.0	5463.0
		% within Program Type	43.3%	**56.7%**	100.0%

Crosstabulation of Program Type and RRT First Time Success

			RRT First Time Success		
			Failed at least one examination	Passed all three examinations	Total
Program Type	**Associates**	Count	1133	1349	2482
		Expected Count	1121.4	1360.6	2482.0
		% within Program Type	45.6%	**54.4%**	100.0%
	Bachelors	Count	138	193	331
		Expected Count	149.6	181.4	331.0
		% within Program Type	41.7%	**58.3%**	100.0%
Total		Count	1271	1542	2813
		Expected Count	1271.0	1542.0	2813.0
		% within Program Type	45.2%	**54.8%**	100.0%