

# Multicenter Evaluation of [www.picucourse.org](http://www.picucourse.org), a Web-Based Core Curriculum and End-of-PICU Rotation Resident Examination

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## INTRODUCTION

Recent changes in pediatric residency training include restriction of the maximum allowable time spent by residents in the PICU, and the limitation of resident duty hours. There are concerns that these constraints may further limit the time spent by ICU residents on learning the core concepts of pediatric critical care medicine. With this in mind, the Resident Education Committee ("Committee"), a subcommittee of the Pediatric Section of the Society of Critical Care Medicine, developed [www.picucourse.org](http://www.picucourse.org). The picucourse is a web-based repository of PowerPoint presentations on core topics in pediatric critical care. The presentations were authored by and reviewed by Committee members prior to acceptance. The presentations were designed for use as templates for didactic sessions to be conducted by faculty at individual programs. The format allows the introduction of site-specific demographics and management philosophy.

In July 2002, the committee created an online, multiple choice examination comprised of 50 questions: 11 demographic questions, and 39 content questions. The questions on content were authored by Committee members and included clinical vignettes (stem) and four possible choices, one of which was the correct answer. The demographic questions were not included in test scoring. The content questions (#12 through 50) were scored based on the number of questions answered correctly. At the completion of the examination, residents were provided feedback by way of annotated answers.

The examination has been available to United States training programs since July 2002. Each site has a designated Site Administrator who can enroll residents to participate in the examination upon completion of their PICU rotation. The examination score is used by several US training programs as an objective measure of residents' knowledge in pediatric critical care. More importantly, the picucourse can be used for competency-based evaluation as mandated by the ACGME. In addition, competency-testing is one of the requirements of the ACGME's Outcome Project for training programs.

## HYPOTHESES

There will be a direct correlation between higher scores on the examination and:

1. A higher level of postgraduate training
2. A greater number of completed PICU rotations
3. A greater utilization of the online presentations for teaching during the PICU rotation

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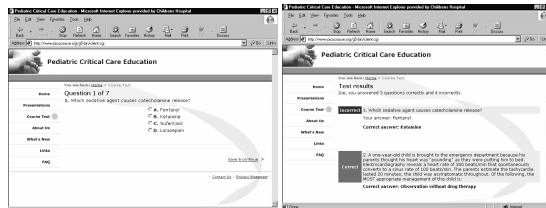
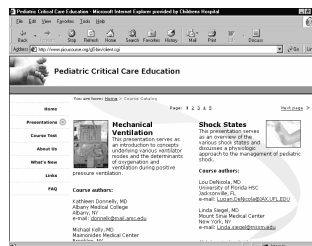
## METHODS

1. Demographic and test result data from 272 residents were utilized:

- 30 PGY-1
- 132 PGY-2
- 110 PGY-3

\*Several participating programs do not offer a PICU rotation during the PGY-1 (Internship) year, which accounts for the lower number of PGY-1 respondents.

2. Data were downloaded from the Website to an Excel spreadsheet and individual identifiers (names) were removed prior to data analysis.
3. The data represent results from 21 US training programs that administered the examination between July 2002 and June 2003.
4. Statistical analysis was performed using ANOVA with a  $p < 0.05$  considered as significant

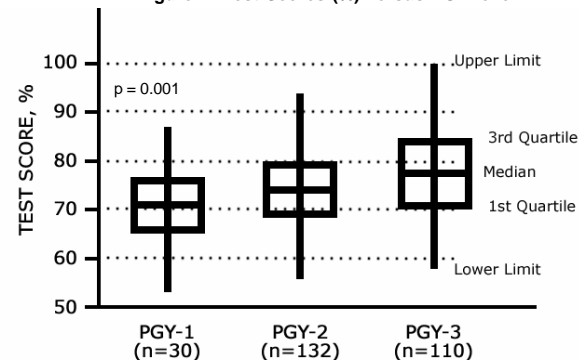


## RESULTS

The test scores correlated with the level of training ( $p < 0.001$ ). Residents at a higher PGY level performed better on the examination (see Figure 1). The only other factor influencing test scores was the resident's program affiliation ( $p < 0.001$ ). No significant effect was found in the number of PICU rotations completed or the number of online presentations used.

	DF	Seq SS	Adj SS	Adj MS	F	P
Hospital	20	3063.96	2551.36	127.57	2.47	0.001
Training (PGY level)	2	1222.62	752.28	376.14	7.27	0.001
Peds or Med/Peds	3	358.76	257.87	85.96	1.66	NS
Prior Rotations (0 to >3)	3	14.49	13.55	4.52	0.09	NS
Fellows (Yes/No)	1	45.82	74.38	74.38	1.44	NS
Nights (Fellow/Attending Coverage)	2	48.57	45.04	22.52	0.44	NS
Stress (Mild to Severe)	3	138.46	128.96	42.99	0.83	NS
PICU Orientation (Fair to Excellent)	3	56.57	96.12	32.04	0.62	NS
# on-line Presentations Used	3	243.52	243.52	81.17	1.57	NS

Figure 1: Test Scores (%) versus PGY level



## CONCLUSIONS

This study demonstrates a correlation between a resident's level of training and performance on an end-of-rotation examination. PGY-1 (interns) have a limited exposure to critical illness prior to their PICU rotation and therefore it is not surprising that their average scores are lower than that of the more senior residents. Despite the lack of any significant correlation to the number of PICU rotations completed and higher test scores, we are unable to determine the effect of other rotations that might impart similar core principles of recognition and management of critical illness or injury. Rotations in specialties such as Anesthesiology, Emergency Medicine and Neonatal Intensive Care may also contribute in some measure to enhancing the knowledge base in critical care medicine. This may account for the improvement in test performance as the residents progress through higher levels of training.

[www.picucourse.org](http://www.picucourse.org) represents a novel, multi-centered, Web-based approach to Pediatric Critical Care Medicine education. The associated examination can assist programs in meeting the letter and spirit of ACGME requirements regarding competencies. Such innovative and collaborative efforts may help reduce the collective burden of the new ACGME imperatives.