

COMPARISON OF DIDACTIC BASED TO SIMULATION/MODEL BASED TEACHING OF A PERIOPERATIVE ULTRASOUND EXAMINATION TO ANESTHESIOLOGY RESIDENTS

Davinder Ramsingh, MD, W. Williams, MD, KV Le, D. Thuraisingham, MD, M. Cannesson, MD

UCI Medical Center, Orange, CA

Introduction: Recent advances in ultrasonography has allowed the general anesthesiologists to explore point-of-care assessment of: cardiopulmonary function, volume status, and evaluate for severe thoracic/abdominal injuries. The focus of this study was two-fold: 1) to introduce the concept of a perioperative ultrasound exam that focuses on the concepts listed above 2) to evaluate if a simulation/live-model based lecture would be a more effective method of teaching this topic to anesthesiology residents than a traditional didactic lecture.

Methods: The subjects consisted of current anesthesiology residents at UCI medical center. Residents received either a ninety-minute one-on-one didactic lecture or a ninety-minute lecture at the simulation center during which they were able to practice on a live model and a simulation module (SimMan) throughout the lecture. Data points included a pre-lecture multiple choice test, post-lecture multiple choice test, and post-lecture live-model based examination. Post-lecture tests were performed within three weeks of the lecture. The model based examination was graded by an experienced sonographer who was blinded to the education modality.

Results: A total of 20 residents completed the study. Nonparametric Wilcoxon Tests (Table 1/Figure 2) showed statistically significant higher scores for the simulation group on both the post-lecture multiple choice written ($p=0.038$) and post-lecture model ($p=0.041$) examinations. There were no differences between the two groups on pre-lecture test scores ($p=0.97$) (Figure2).

Conclusions: This study introduces the concept of a perioperative ultrasound examination that focuses on basic interpretation of cardiopulmonary function, volume status, and evaluation for severe thoracic/abdominal injuries and suggests that a model/simulation based lecture series may be more significantly more effective in teaching these concepts to anesthesiology residents than traditional didactic lectures.

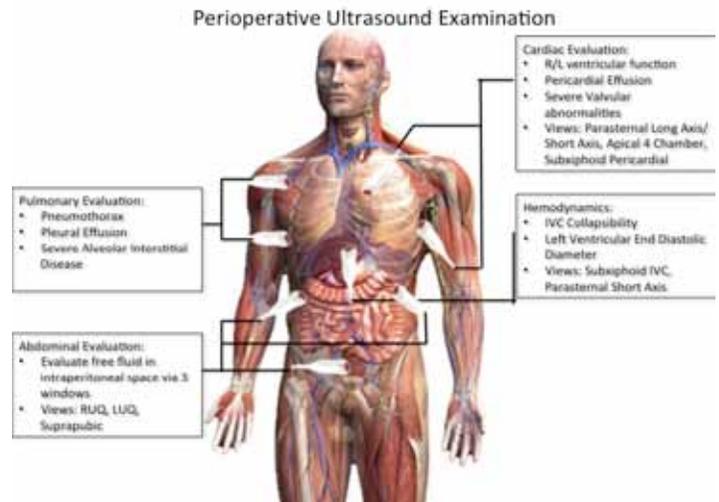


Figure 1: Perioperative Ultrasound Examination

	Total # Residents	CA-1s	CA-2s	CA-3s
Didactic Group	10	3	4	3
Model/Simulation Group	10	3	3	4
Pre-Instructional Written Examination Scores (max=18)				
	Median	Mean	Percentage Correct	
Didactic Group	7 + 0.82	7.1 + 2.6	39.4 + 14.5	
Model/Simulation Group	6.5 + 0.99	7.2 + 3.12	40 + 17.3	
Nonparametric analysis	$p=0.97$			
Post-Instructional Written Examination Scores (max=28)				
	Median	Mean	Percentage Correct	
Didactic Group	15.5 + 1.32	16.1 + 4.18	57.5 + 14.9	
Model/Simulation Group	19.5 + 1.32	20.1 + 4.2	71.8 + 14.9	
Nonparametric analysis	$p=0.038$			
Post-Instructional Model Examination Scores (max=33)				
	Median	Mean	Percentage Correct	
Didactic Group	11.5 + 1.75	12.3 + 5.54	37.3 + 16.8	
Model/Simulation Group	18 + 1.84	17.8 + 5.81	53.9 + 17.6	
Nonparametric analysis	$p=0.041$			

Table 1: Didactic vs. Model/Simulation Test Score Comparison

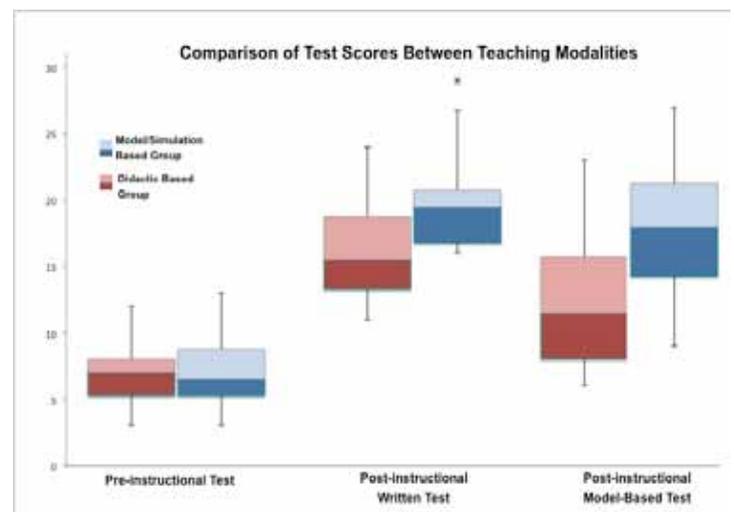


Figure 2: Comparison of Test Scores Between Teaching Modalities