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18 Resident Teaching of Cardiac Ultrasonography: Assessment of a PC-based Educational Tool

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Objectives: Ultrasound is a required component of emergency medicine (EM) training. The goal of this study was to determine if a PC based multimedia(MM) tutorial is as effective as traditional didactic lectures for (1) teaching EM residents point-of-care echocardiography, (2) improve a resident’s identification of normal and abnormal cardiac anatomy.

Methods: This was a prospective cohort study at an urban, academic, tertiary center with a 30 PGY 1-3 EM residents. Half of each class was randomized to 2 groups: (1) traditional lecture given by RDMS EM faculty or (2) case based MM educational activity developed onsite. Educational content was similar for both. Students were given a 20 questions pre-test, post-test and a 6- and 12-month post-test.

Results: None of residents had prior formal instruction on emergency cardiac ultrasound. The test means are delineated in Table 1 (below).

The differences between the pretest scores of the lecture and MM groups, stratified by PGY level and as groups, did not achieve significance. After instruction, all groups increased their mean test scores. In the lecture group, the difference in test score for the PGY-1 residents was significant, $p=0.026$, but not for PGY-2/3 residents. For the MM group, the difference in test score for the PGY-1/3 residents achieved significance, $p=0.023$ and $p=0.008$, respectively. The post instructional scores for the lecture and MM groups, as a whole and stratified by PGY level, was not significant. With the six-month and one-year follow up scores, the difference in test scores for the lecture and MM groups, as a whole and stratified according to PGY level, was not significant. In the lecture and MM group, as a whole and stratified according to PGY level, the test scores for the entire one year period did not achieve significance.

Conclusion: A multimedia tutorial is similar to traditional didactic lectures in teaching residents basic emergency echocardiography

Table 1. The resident testing results demonstrated as mean scores and standard deviations.

		Test Scores +/- SD		
		PGY-1	PGY-2	PGY-3
Lecture (Group 1)	Pretest	60 +/- 13.3	56 +/- 15.2	77 +/- 13.1
	Post Instruction	84 +/- 10.7	70 +/- 11.4	86 +/- 8.6
	6 Month Post	83 +/- 13.1	73 +/- 12.5	87 +/- 7.9
	1 year Post	82.4 +/- 6.0	76.6 +/- 19.3	88.8 +/-12.6
Multi-Media (Group 2)	Pretest	60 +/- 7.9	59.2 +/- 10.2	65.2 +/- 11.4
	Post Instruction	81.4 +/- 13.3	74.6 +/- 17	92 +/- 4.9
	6 Month Post	76.6 +/- 9.1	79 +/- 11.2	87 +/- 7.4
	1 year Post	64.2 +/- 17.6	83.4 +/- 8.0	89.8 +/- 6.1