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E-learning in the Emergency Medicine Clerkship: Implementation of iPads and the Impact on Student Learning

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14 Does Utilizing the New Innovations Mobile Application Shortcut Increase Compliance?

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Background: Logging procedures is an integral part of resident training and evaluation but it can be burdensome. Providing residents with a quick and easy way of logging their procedures may improve overall compliance.

Objectives: We hypothesized that providing residents with a mandatory training session on the use of a shortcut for logging procedures on their smartphones would increase compliance with logging procedures.

Methods: We evaluated the procedure logging trends of residents enrolled in a three year residency program (total number of residents = 25). Weekly procedure logging was evaluated the last week of each month for three months. The first interval was a "baseline" week prior to any interventions, the second interval was a week following a "reminder email" from the chief residents about the importance of logging procedures, and the third interval was after a mandatory "training session" on the smartphone shortcut. The training session was a 10-minute demonstration held during our mandatory weekly conference during which all residents were asked to install the New Innovations shortcut on their smartphones. The total number of procedures logged by residents and the percent of residents who logged procedures during each time interval was calculated, as were differences and 95% confidence intervals (CI).

Results: During the "baseline" week, 81 procedures were logged by 47% (CI: 27, 67) of the residents. During the "reminder email" week, 137 procedures were logged by 76% (CI: 59, 96) of the residents. During the "training session" week, 115 procedures were logged by 76% (CI: 59, 93) of the residents. See Figures 1-2. While the "reminder email" significantly increased the percent of residents logging procedures, the mandatory training session did not appear to have an impact on the logging compliance.

Conclusions: Despite its' seeming attractiveness, we found no additional benefit in procedure logging compliance with the New Innovations mobile shortcut.

Percent of Residents Logging Procedures

Weekly Procedures Logged
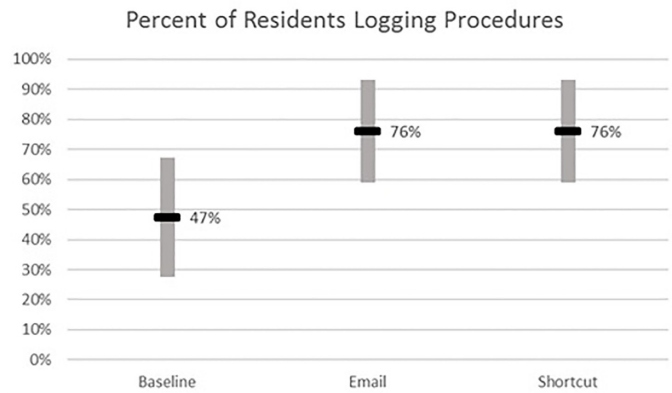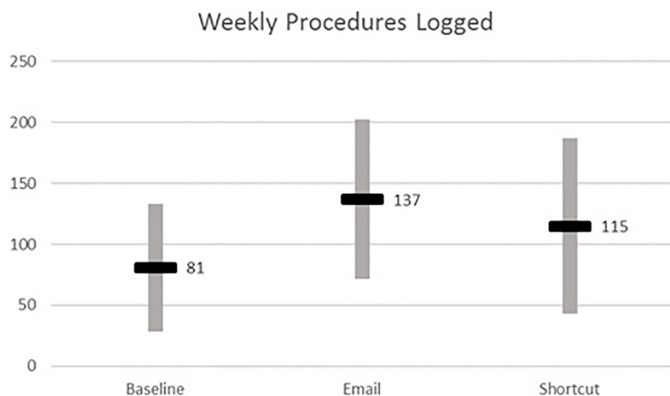
15 E-learning in the Emergency Medicine Clerkship: Implementation of iPads and the Impact on Student Learning

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Background: Learning outcomes rather than processes of education are emphasized in competency-based curricula. This allows for flexibility when implementing new methods of teaching, in particular, e-learning, which encompasses the use of personal tablet devices. Available literature, although limited, indicates that e-learning is as effective as traditional teaching methods, with the potential benefit of improving learner satisfaction and learning effectiveness. Given the established benefits of e-learning combined with the problems of reduced faculty time for teaching and below-average National Board of Medical Examiners Emergency Medicine Advanced Clinical Exam (NBME EM ACE) scores, our EM clerkship transitioned to a paperless clerkship utilizing the iPad tablet device.

Objectives: The primary purpose of this study was to determine whether the use of iPads as an e-learning platform increased medical student knowledge gains as measured by NBME EM ACE performance. The secondary purpose was to assess student satisfaction. We hypothesized that, having access to the iPad would enable students to be more efficient and effective learners, thus increasing medical knowledge and satisfaction.

Methods: 102 EM clerkship students were assigned an iPad for the duration of their rotation. Clerkship iPads were customized with an internally-created iTunes University (iTunesU) course and other relevant medical applications, textbooks and bookmarks. All iPads were identical in appearance, set-up, and available resources. Frequency of iPad use was tracked using the free application, Moment. Following the rotation, students completed a survey regarding their iPad usage. Students' NBME exam performance and frequency of iPad usage were linked to survey responses.

Results: 43 of 102 students completed the survey. While frequency of iPad use did not correlate with NBME exam performance (p=.974), clerkship satisfaction and perceived effectiveness improved (Fig. 1,2). Students preferred electronic resources for course delivery as compared to print media (p=.025).

Conclusions: Successfully incorporating e-learning into an existing curriculum requires significant time and planning. While the benefit to medical knowledge gains cannot be assumed, iPad introduction was positively received with encouraging usage and effectiveness.
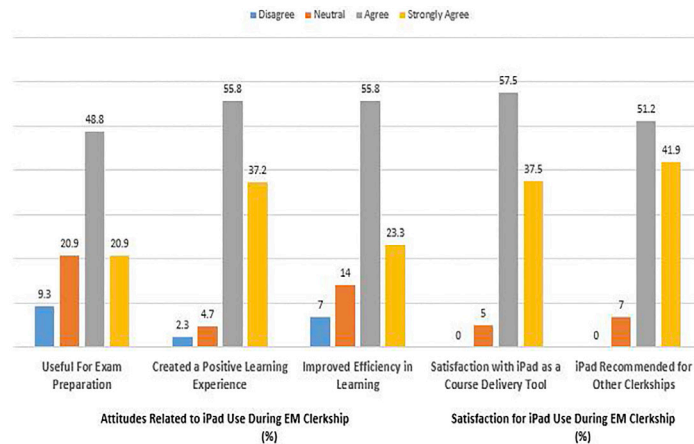

Figure 1. Attitudes and Satisfaction With iPad Usage During EM Clerkship.
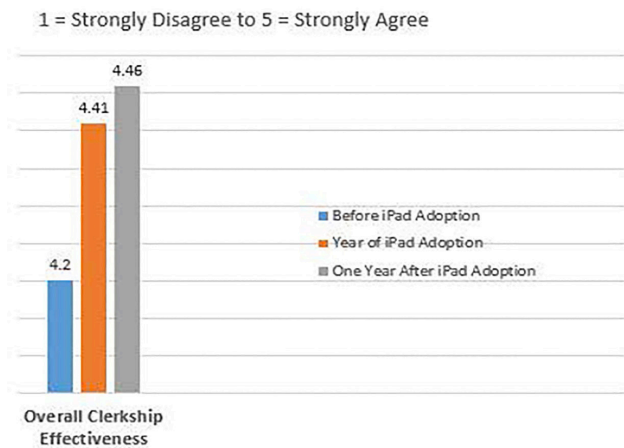

Figure 2. Overall Clerkship Effectiveness.

16 **Emergency Medicine Milestones Self-assessments Evaluations are Considerably Different from the Clinical Competency Committee Scores**

Biggs D, Esposito A, Walsh B, Fiesseler F, Gohsler S, / Morristown Medical Center, Morristown, New Jersey

Background: Emergency medicine residents are evaluated by core faculty on 23 milestones. Resident self-assessment of the milestones may aid in the learning process and discrepancies between a resident's self-assessment and the core faculty's assessment may emphasize additional areas of concern.

Objectives: We sought to determine how residents at each level of training would rate themselves on each of the 23 milestones compared to the CCC and established guidelines.

Methods: All residents in a three-year residency were evaluated by the core faculty in the usual fashion at the twice-annual clinical competency committee meeting (CCC). The core faculty were provided with guidelines of ACGME definitions for each evaluation score. Blinded to the CCC evaluation scores, all residents were asked to evaluate themselves on the same 23 milestones, given the same ACGME guidelines, and also give themselves an "overall" score. Core faculty assessment scores were compared to individual resident's self assessment on each milestone. We then calculated average differences and 95% confidence intervals (CI) for each of the 23 milestones by training levels.

Results: All 25 residents in the program were evaluated by the CCC and completed self-assessments for the 23 milestones. There were statistically significant differences between core faculty and resident self-assessment on 14 of the 23 milestones (see Figure 1). Additionally, there were significant differences between the average scores by the core faculty and the overall self-assessment score for the residents each of the three years of training (see Figure 2). Interestingly, third year residents rated themselves significantly below the core faculty's assessment (3.9 vs 4.2, difference 0.3 (CI: 0.1, 0.5), while first and second year residents rated themselves significantly above the assessment (1st years: 2.9 vs 1.6, difference 1.3 (CI:1.2, 1.4); 2nd years: 3.5 vs. 3.0, difference 0.5 (CI: 0.3, 0.7).

Conclusions: There were significant differences between the CCC assessments and resident self-assessment on 14 out of 23 milestones. In general, residents tend to rate themselves higher than the core faculty, and the discrepancies decrease over the course of their training. This information might enhance the learning process and help guide faculty in resident education.