Teaching with Technology Institute 2009 Winner

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Project Title: *Practical Applications of Bedside Ultrasound for the Practicing Clinician*

A Combined Web-Based and Hands-On Ultrasound Course: Successfully Designed and Integrated into Surgery Bootcamp

Background: Ultrasound (US) can be an important extension of the physical exam. Classroom time is limited during the clinical years of medical school. We hypothesized that students enrolled in a "Surgery Bootcamp" would significantly increase their knowledge of US principles and find a web-based US course beneficial in preparation for residency.

Methods: Ten students participated in a senior "Surgery Bootcamp" elective. A web-based US course was created and included eight modules, accompanying reading material, videos, and practice cases for interpretation followed by a practical session utilizing patients and low-tech simulation models. Pre- and post-course assessments were administered.

Results: All learners strongly agreed that US education should be an integral part of their coursework, is an important skill to have entering residency, and that web-based didactic modules were preferable to classroom sessions. Only two students were aware of opportunities for US training in their chosen residencies and three desired additional practical sessions. Although all students had performed some varying number of US examinations prior to the course, they answered only 22% of basic US questions correctly on pre-testing. 92% of questions were answered correctly at the conclusion of the course (P=0.002).

Conclusions: Despite having previous experience with US, senior medical students have a knowledge deficit regarding basic but important US principles. US can be successfully taught to medical students using web-based materials for didactic instruction followed by hands-on practical sessions. Specialty and rotation specific coursework could be extended to residents and medical students at all levels of training using a similar approach.