



Pediatric ER: Learning Online and On-time

Emily Hull and Ann Mary Bacevice, MD



Case Western Reserve University, School of Medicine
Rainbow Babies and Children's Hospital, University Hospitals Case Medical Center

Introduction

While the emergency department is an ideal setting for learning because of the diversity of patients and diseases, there are limitations in effective teaching due to a focus on quick patient throughput, competing demands on faculty time, and a crowded clinical environment.

Our project addresses the need for a consistent and effective means of presenting material to medical students in the pediatric emergency department. In order to do so, we turned to computer-aided instruction (CAI). In the past, CAI has proven to be an effective teaching method in instances where flexibility in time, place, and pace of learning is crucial. It can provide a solution to the currently inconsistent and inefficient lecture-based teaching method in the pediatric emergency department.



Statement of Question

Does completion of two online modules on pediatric emergency medicine topics by fourth year medical students in the Undifferentiated and Emergent Care Advanced Core lead to:

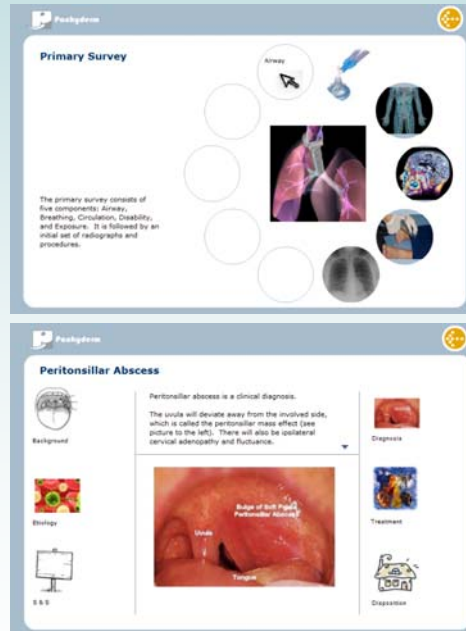
1. Improved performance in the presentation, evaluation, and management of pediatric trauma and respiratory distress patients?
2. Improved satisfaction in the undifferentiated patient care advanced core rotation?

Objectives of Program

In order to fill gaps in knowledge, regardless of clinical exposure, we are working to supplement currently used pediatric emergency medicine lectures with computer-based tutorials on core pediatric topics for fourth year medical students rotating through the emergency department. Our goal is to provide timely and targeted learning in this fast-paced environment.

Description of Program

In order to pilot this idea, we created two online modules for students participating in the Undifferentiated and Emergent Care Advanced Core, one based on pediatric trauma and the other on respiratory distress.



In order to measure knowledge gain, we created a pre-quiz and a post-quiz for each module. The pre-quiz will be taken immediately preceding the module, and the post-quiz will be taken upon completion of the module.

Student satisfaction will be determined using a feedback survey given after completion of the post-quiz for each module.

Findings to Date

As of November 2008, six students have voluntarily looked at and completed some part of the modules. The available data is inconclusive. Out of eight quizzes taken:

Increase of at least 20% in pre- to post-test score	3/8
No change between pre- and post-test score	3/8
Decrease from pre- to post-test score	2/8

Two people completed the feedback surveys for both modules. While the perception and usefulness of the modules seemed to be overall positive, the students strongly disagreed with the idea of replacing lectures with online modules. There was also disagreement on whether they would use modules like these again.

Key Lessons Learned

Build it, and they may not come. One of the biggest obstacles in our study has been getting enough students to complete the modules. For the pilot study, completion of modules is not mandatory, although that may have to change in order to get sufficient data for analysis of the modules. We may also need to encourage teaching physicians in the emergency departments to promote the modules as useful learning tools.

Questions

- Should we make these modules a mandatory part of the Undifferentiated and Emergent Care Advanced Core?
- Students: What would motivate you to complete these modules?
- Faculty: How can we address the challenge of implementing these modules at different hospital sites?