Development And Evaluation Of An Electronic Health Record Configuration And Customization Laboratory Course For Clinical Informatics Students

Vishnu Mohan MD MBI, William Hersh MD

Oregon Health & Science University - Department of Medical Informatics and Clinical Epidemiology (DMICE)
Portland, Oregon, United States

Background

- The American Recovery and Reinvestment Act of 2009 (ARRA) allocated funds for development of curricula that could be deployed by community college consortia

- This stimulus, administered by the Office of National Coordinator for health IT (ONC) was intended to train entry-level HIT workers

- OHSU was one of five curriculum development centers funded by ONC, and in conjunction with Johns Hopkins University, OHSU developed a version of the Veterans Administration's (VA) open source VistA EHR software for use by students

- We adapted this version of VistA for use in an EHR lab course intended for DMICE students

Building The Course

- We developed the course curriculum by first defining learning objectives

- Subsequently we calibrated the degree of granularity of objectives to a level suitable for its intended audience

- We then created specific course content and mapped individual elements to objectives

- Content was examined to ensure it was complementary to other clinical informatics courses offered at DMICE

- We designed an evaluation protocol to determine course effectiveness
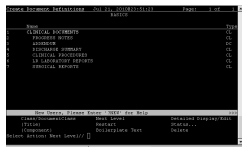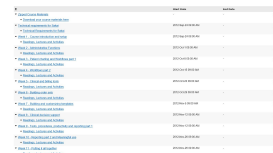
Course Structure

Figure 1: Displays typical student screens for VistA CPRS (*above*) and Terminal (*below*) lab activities

ONC version of VistA available to download from http://www.onc-ntdc.info/

- In order to include a majority of DMICE students, the course was offered online using Sakai, our learning management system (LMS)

- The course was purposively structured in a modular fashion as a series of weekly components to allow ease of modifications

- Students used two EHRs (Vista, and SpringCharts)

- The course utilized a "Forums" model for discussions; in addition to a scripted "question of the week" additional student and instructed-initiated topics were discussed

- Students received extensive technical and content support from the instructor and a teaching assistant

Figure 2: Displays the modular structure of the course in Sakai, with compartmentalized content released to students on a weekly basis

Textbook for the course: Hamilton B, Electronic Health Records, 2nd Edition, McGraw Hill, 2010, ISBN-10: 0077477553

Results: Success Factors

- Success factors that facilitated course deployment included:

- Some students did not have a healthcare background – prior exposure to a healthcare environment before enrolling in the EHR lab course was helpful for these students

- Utilizing more than one EHR in the course allowed students to compare functionalities

- Calibrating the course to be beneficial to both clinicians as well as non-clinicians allowed both categories of students to learn together

- Leveraging the functionality of our online LMS, such as discussion boards and online chat, allowed rich conversations and dialog between students

Results: Challenges

- Challenges associated with course deployment included:

- The complexity of the basic back-end VistA Terminal interface was daunting to some students

- The course was time-intensive for faculty; significant planning and attention to monitoring was required to assist students with technical issues and to ensure adequate depth within online conversation due to their asynchronous nature

Conclusion: Diverse student backgrounds make developing an informatics EHR lab course challenging, but such a course is vitally important in informatics training since it helps students understand EHR functionality, configuration, and customization