Teaching Medical Informatics Skills During a Clinical Clerkship
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Abstract
Medical students use many forms of medical electronic resources (MER) during clinical clerkships. Such resources may be inaccurate, irrelevant or inappropriate, yet most medical students do not receive guidance on the use of MER. During the earliest clinical clerkship we gave a series of seminars and assignments on the use of MER. These were well accepted and were followed by increased knowledge in the use of MER.

Description of the problem
During clinical rotations, medical students are frequently required to research new topics. Students are faced with a large variety of resources to choose from, including standard textbooks, local MER such as electronic texts and databases, and online MER including numerous web sites, databases such as Medline, and many Continuing Medical Education (CME) sites. Students have an increasing tendency to use MER instead of text-based sources. In using web sites, students must be able to evaluate the completeness, accuracy and relevance of medical information. Using databases requires knowledge of database availability and search methods specific to each database.

The American Association of Medical Colleges objectives for medical informatics include “demonstrating the ability to retrieve, manage and utilize biomedical information for solving problems…”3. Our goal was to achieve this objective during a clinical clerkship.

Methods
During the first clinical rotation, in internal medicine, we implemented an intervention to provide a methodological framework for use of MER. Students received hands-on seminars in small groups on the evaluation of medical web sites and on Medline search skills. We provided two patient simulation systems – the American College of Physicians Clinical Problem Solving Cases and Diagnostic Reasoning-DxR with suggestions for simulations that would complement other clerkship activities. A courseware web site was developed to accompany the clerkship. Students were required to electronically submit information about patient admissions.

Required assignments included exercises on searching Medline and performing a critique of a general medical web site. Evaluation of the skills and knowledge gained by the students was incorporated into the formal course evaluation. This included questions on the written exam, and a hands-on station during the Objective Structured Clinical Examination (OSCE) in which students performed and submitted a Medline search pertaining to the standardized patient. MER related scores were compared with overall test and OSCE scores.

Results
Sixty-two students participated. Student acceptance of the seminar series was excellent; on a scale of 1-5, student evaluation of the seminars was 4.2, and of the computer-based simulations 4.1. Ninety-five percent of the students completed the assigned computer based simulations. Only 10% reported completing any of the non-obligatory cases. The courseware site was accessed, on average, 1.2 times a day by each student.

Students scored very well on both the theoretical questions (mean score 84%) and on the OSCE station (mean±STD 88.1±14.9). Pearson’s Correlation between the OSCE station and overall test score was 0.515 (p<0.001).

Discussion and Conclusion
The first clinical clerkship is a key point in the development of medical students’ data gathering and clinical reasoning skills. An intervention aimed at education about the proper evaluation and use of MER, in addition to being well accepted by medical students and widely used, effectively improved the students’ knowledge. Using the OSCE for assessment is feasible, time and cost-effective and is well accepted by students.

References