

5-18-2008

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Recommended Citation

O'Malley, Donna, "A Medline Station in the Clerkship Clinical Skills Exam" (2008). *University Libraries Faculty and Staff Publications*. Paper 26.

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A Medline station in the clerkship clinical skills exam

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Objective

The UVM College of Medicine's clerkship curriculum includes hundreds of learning objectives divided into several themes and topics. Although the curriculum has no explicit evidence-based thread, two objectives in the areas of communication and clinical decision-making encompass the classic EBM skills:

- PERFORM database searches for patient or disease specific information.
- DIFFERENTIATE between practices that are based upon different strengths of evidence for effectiveness.

What are the benefits and drawbacks of using a clinical skills exam workstation to evaluate student mastery of these two objectives?

Methods

Development of the Medline Station of the Clinical Skills Exam workstation began in 2001, early in the College's use of the clinical performance exam format for skill evaluation (then referred to as Objective Structured Clinical Examinations or OSCEs).¹ Clerkship and library faculty realized that database search and article evaluation skills could be more objectively assessed using the same format.²

Librarians and clinicians worked together to create a paper case scenario for students to use in generating a clinical question, performing a search to address the question, and retrieving an article to evaluate in pursuit of an answer to the question. An assessment rubric was also developed.

Each student had 20 minutes to complete the station. During the following ten minutes a librarian reviewed with the student his or her clinical question, search strategy, and evaluation of sources used, and completed the assessment rubric.

Results

2001, 2002

- Thought process required by the paper case was too advanced.
- Couldn't differentiate between patient's question and their own questions.
- Good clinical questions were not always the one in the rubric.
- Searches didn't address clinical questions: students didn't understand *why* they were formulating a question.
- Limits were not used. But students complained that librarian-led instruction earlier in the clerkship was unnecessary.
- Both PubMed and Ovid were used.
- Full text rarely accessed (perhaps because it usually was not available).
- Articles rarely cited with enough information to locate them again.
- Ran out of time before evaluating the quality of an article.



2005

Changes to the case:

- More straightforward than the old case.
- Case topic could only be addressed by the most up to date literature, i.e. Medline.

Changes in instruction:

- Lecture by an MD on why and how to ask a clinical question added to the clerkship.
- Librarian-led instruction in searching moved from clerkship to an earlier point in the curriculum.

Changes in the rubric:

- More leeway in the content of the clinical question.
- Assess on either PubMed or Ovid search skills.
- Require citing of articles.
- Assess on knowledge beyond Type and Go in PubMed. In Ovid assess on searching one concept at a time, combining with Boolean operators.

Grading Rubric Summary - 2001, 2002

	2001		2002	
	n=59	%	n=54	%
Question included Protein C Deficiency and DVT	30	51%	27	50%
Limited search to English and Human	25	42%	24	44%
Could obtain the full text	5	8%	6	11%
Cited article	25	42%	12	22%
Evaluated quality of the article	15	25%	12	22%

Grading Rubric Summary 2005, 2007

	2005		2007	
	n=31	%	n=41	%
Asked a specific question relevant to student's information need	31	100%	41	100%
Used advanced features of the database	7	23%	9	22%
Could obtain the full text	29	94%	40	98%
Cited article	30	97%	36	88%
Evaluated quality of the article	28	90%	37	90%

2007

- Asking the Clinical Question lecture worked!
- Able to access full text.
- Limited knowledge of how to do anything more than Type and Go.
- Had time to evaluate the article, but rarely used methodology to evaluate.

2008

- Continue the Asking the Clinical Question lecture.
- In lecture, refer students to in-house PubMed tutorial and state expectation to use limits.
- Remove article evaluation prompts from student instruction sheet, to better assess literature evaluation skills taught earlier in the curriculum.

Assessment Drives Curriculum

Clinical Skills Exam Assessment	Curriculum	
	Format	When
Asked a specific question relevant to student's information need	Lecture: Asking the Clinical Question	First week of clerkship
Used advanced features of the database	Online Tutorial: PubMed	Available first week of medical school and Reinforced first week of clerkship
Could obtain the full text	Online Tutorial: PubMed	Available first week of medical school and Reinforced first week of clerkship
Cited article	Lecture: High Quality Medical Information and Lecture: Asking the Clinical Question	First week of medical school and First week of clerkship
Evaluated quality of the article	Small Group Sessions	First two weeks of medical school

Discussion

Currently, the Medline Station cannot be used for summative assessment of individual students. Though we have some evidence of interrater reliability, based on similar results obtained in Maine and with both raters in Vermont, we have not formally assessed interrater reliability or validity.³

The Medline Station is a powerful tool for evaluating and remediation of the curriculum itself. Since the grading rubric was developed with the Director of the Clerkship Program, when students fail as a group at any of the competencies, she is motivated to improve their skills. This collaboration has resulted in an improved curriculum in Evidence-Based Medicine.

However, reviewing the grading rubric with other Clerkship faculty has revealed a disconnect in our curriculum. Faculty who teach in the pre-clinical years believe that students should be able to evaluate the primary literature, and that the two-week class at the beginning of medical school covers that skill. Clerkship faculty believe that medical students are not yet ready to use the primary literature in the clerkship, concluding that perhaps EBM is a fourth-year skill. The curriculum does not yet have an EBM component in the fourth year.

In addition to its importance in assessing the curriculum, the Medline station allows every student to meet individually with a librarian during the clerkship year. The experience has allowed librarians to provide individualized instruction and develop a deeper relationship with each student.

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Acknowledgments

Thank you to Maryanne Lamont and Janet Cowen at Maine Medical Center for feedback on student performance in Maine, and to Frances Delwiche for suggestions for improving the grading rubric.

For further information

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May 2008