

Title: Developing EBM Instructional Materials for Medical Students.

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Purpose: This paper will discuss the questions you need to ask yourself to help you define and tailor your EBM instructional materials for your students and their curriculum. It will also include resources and strategies for developing these materials. Samples of the instructional handouts will be provided to participants.

Participants/Setting/Resources: Approximately 150 first-year and 150 second-year medical students at the University of Miami School of Medicine; the Calder Memorial Library reference faculty plays an active role in teaching EBM components to the students as part of their curriculum's longitudinal theme.

Brief Description: The teaching of evidence-based medicine (EBM) concepts appears on many librarians' online discussion lists. In fact, some lists are devoted solely towards EBM and librarianship. By its very nature, this newest medical trend draws heavily upon library resources and thereby necessitates the involvement of librarians. Reference librarianship has always included a teaching aspect, but now we are finding ourselves drawn into, and becoming an integral part of, the medical school curriculum. Many medical and allied health students are becoming exposed to EBM early in their curriculum. This can help set the foundation for lifelong learning and instill the importance of consulting the best evidence to support their clinical needs. However, teaching students how to find relevant literature and critically appraise it when their medical and allied health background is still minimal can also present challenges. It is an exciting time to be a librarian, as many of us are moving into uncharted seas. However, it is not just MEDLINE anymore, we now must have at least a passing knowledge of systematic searching and filtering, epidemiology, research designs, and other aspects of critical appraisal of the literature. Not only must librarians understand these foreign concepts, but also we must develop instructional materials for students unfamiliar with basic medical concepts early in their curriculum. This paper will discuss the questions you need to ask yourself to help you define and tailor your EBM instructional materials for your students as well as the resources and strategies for developing these materials. Although these methods were initiated with medical students, these concepts can be applied to beginning students of any health field.

Results/Outcome: About 300 pages of instructional materials were developed and made available in Blackboard, an online course software. Additional materials are being created to further explore critical appraisal and other advanced EBM topics as the students move through their second year of medical school.

Evaluation Method: An anonymous evaluation tool is being developed to assess user satisfaction with the instructional materials. The quality and thoroughness of the materials can be inferred as satisfactory and appreciated as evidenced by: unsolicited favorable comments (written, emailed, or in person); a vast improvement in the students' assignments' quality as compared to when students used other (or no) instructional materials; questions on the clarity of the materials and suggestions for improvement were minor and easily modified; students' expressed need for additional instructional materials correlated with materials already developed or in process of being developed; all students passed the EBM portion of the medical school's Clinical Competency exam.

About the author:

Tanya T. Feddern is a Reference and Education Services librarian at the University of Miami School of Medicine Calder Library. She is currently an EBM instructor, along with new colleague John D Jones Jr (MLIS), for about 300 first- and second-year medical students as part of a 2-year EBM theme. She has researched and developed about 300 pages of instructional and support materials for the course. Her first Masters is in Occupational Therapy, but she has been having too much fun in medical librarianship to practice it yet.

Script Outline for the Paper:

Purpose

The core teaching methodologies

- Developmental teaching style
 - Scaffolding: providing the most support initially and gradually withdrawing support as students master the material
- The “just right” challenge
 - Challenging enough to spark interest and stave off boredom; not too challenging that students become overwhelmed or frustrated

Read up on EBM

- What are the core concepts?
 - Concept saturation: read numerous articles and chapters *on the same topic area* to uncover core concepts and themes; you can also use this technique to assign multiple readings on the same topic
- Define your role
 - This will help you decide upon learning tasks and objectives
 - May be defined for you (example from yesterday’s EBM Poolside Chat—the physician informed the librarian that she is not teaching his students Evidence-Based Medicine, she’s teaching Evidence-Based Medicine Resources)

What are you expected to teach?

- What does the Association of American Medical Colleges (AAMC) require?
 - <http://www.aamc.org/data/aib/cime/vol2no3.pdf>
 - AAMC’s Medical School Objectives Project (II.A. Role of Life-Long Learner)
<http://www.aamc.org/meded/msop/msop2.pdf>
 - Liaison Committee on Medical Education’s Educational Objectives for the M.D. degree:
ED-6 “The curriculum must incorporate the fundamental principles of medicine and its underlying scientific concepts; allow students to acquire skills of critical judgment based on evidence and experience; and develop students’ ability to use principles and skills wisely in solving problems of health and disease.”
<http://www.lcme.org/functions2003july.pdf>
- What are other librarians and EBM faculty teaching?
 - Consult with your institution’s EBM faculty and epidemiology instructors
 - Look at their syllabi and assigned readings
 - Note what they consider core concepts
 - Are there core concepts they didn’t cover (and therefore you must)?
 - Are there core concepts they want you to re-emphasize?
 - Explore listservs, the literature (books and articles), online instructional materials (syllabi, PowerPoints, quizzes, EBM skills grading criteria, evaluations of EBM efficacy)
 - Again, note the core concepts and the roles of the different instructors (librarians versus medical faculty)
 - Our forte: locating the right information quickly and efficiently
 - Review of basic concepts of EBM, exercises on PICO question formulation, database instruction, searching *strategies* as opposed to mere rudimentary techniques (e.g., strategies to increase/reduce article hits versus merely how to look up a citation or an

author), anatomy of a MEDLINE article citation, evaluating the quality of electronic resources, additional options for getting books & articles (ILL), etc.

- What are your students' needs?
 - Gauge your students' knowledge
 - Informal assessment
 - As you grade assignments
 - Untrained may be better
 - No bad habits
 - No false sense of ability

Anticipate needs and problems

- What you don't know or have questions about, they may not know either
- Prepare instructional materials for everything covered in your classes and what you anticipate they may need later
- Find out what are common student difficulties in learning EBM
- Be able to adequately answer faculty and students' challenges to the need for EBM in medicine and/or the need for librarian involvement (again, know your role)

What do you feel comfortable teaching?

- What can you delegate?
 - Strengths of your colleagues
 - What they're willing to do
 - What they realistically have time to do
- Know who you can refer your students to if they have deeper questions than you can adequately answer

How much time do you have for EBM?

- Face-to-face instruction
- Student curriculum time allocated to your course
 - UM has blocks of Independent Study time set aside during the certain days so students can work on specific EBM assignments
- Work time set aside
 - to prepare for the course
 - to maintain the course

What resources do you have to help you while developing the instructional materials?

- Colleagues at work
- Discussion lists <http://www.ebmny.org/lists.html> and <http://www.shef.ac.uk/~scharr/ir/email.html>
 - MLA's Evidence-Based Health Care in Action
 - EBHCLIB-L Evidence Based Health Care and Clinical Librarianship
 - EVIDENCE-BASED-LIBRARIES
 - EVIDENCE-BASED HEALTH
 - General medical librarian listservs, especially those in other countries <http://www.chu-rouen.fr/documed/lis.html#medlist> and <http://www.umslg.ac.uk/links.html>
 - Evidence-Based Medicine Resource Center (**ceased**)
- EBM mentors
- Your institution's faculty (medical, epidemiology, public health)
- Your students!
 - Keep in contact with the student curriculum representative; sh/e may provide additional feedback and information on how the class regards the course and materials

- Encourage them to show you helpful resources
- Encourage them to give you feedback and suggestions for improvement
- Anonymous evaluations
- University courses in Public Health and/or Epidemiology
 - Certificate in Epidemiology, Masters in Public Health, etc.
- Websites
 - Online syllabi, tutorials, etc.
 - Search Google for “evidence-based” syllabus, competencies, evaluation, grading, quiz, test
 - Supercourse: Epidemiology, the Internet, and Global Health
<http://www.pitt.edu/~super1/>
- Books and articles
 - In books, look at the table of contents, chapter objectives, and chapter questions
 - Sign up for Amazon.com Alerts for books on the subject, “Evidence-based medicine”
 - Sign up for Auto Alerts (SDIs) in Ovid for CINAHL and MEDLINE
 - See what you need in advance; get these materials ordered through ILL and Acquisitions

Further Reading

- Show the Griffith’s 5 Minute Clinical Consult book (14 in the series)

Sample Instructional Handouts

- The PowerPoint, script, and structured abstract will be available from the Southern Chapter of the MLA website shortly <http://www.mc.vanderbilt.edu/biolib/scmla/>
- Don’t forget to give me your name and email so I can send you copies of the handouts.
- If using them, please credit me so others know who to contact for additional information and questions

Questions, Suggestions?