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## Evidence-Based Practice for Medical Students in a Family Medicine Clerkship: Collaborative, Active Learning for Clinical Decision Skills

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# EVIDENCE-BASED PRACTICE FOR MEDICAL STUDENTS IN A FAMILY MEDICINE CLERKSHIP: COLLABORATIVE, ACTIVE LEARNING FOR CLINICAL DECISION SKILLS



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## Objectives

This collaborative, patient-centered experience was designed to enhance the information literacy knowledge and skills of medical students for patient-centered, evidence-based decisions at the point of care. It includes formulating clinical questions using PICO, accessing the highest level of EBM information available in an effective manner, and evaluating the information in relation to a specific patient in an outpatient setting.

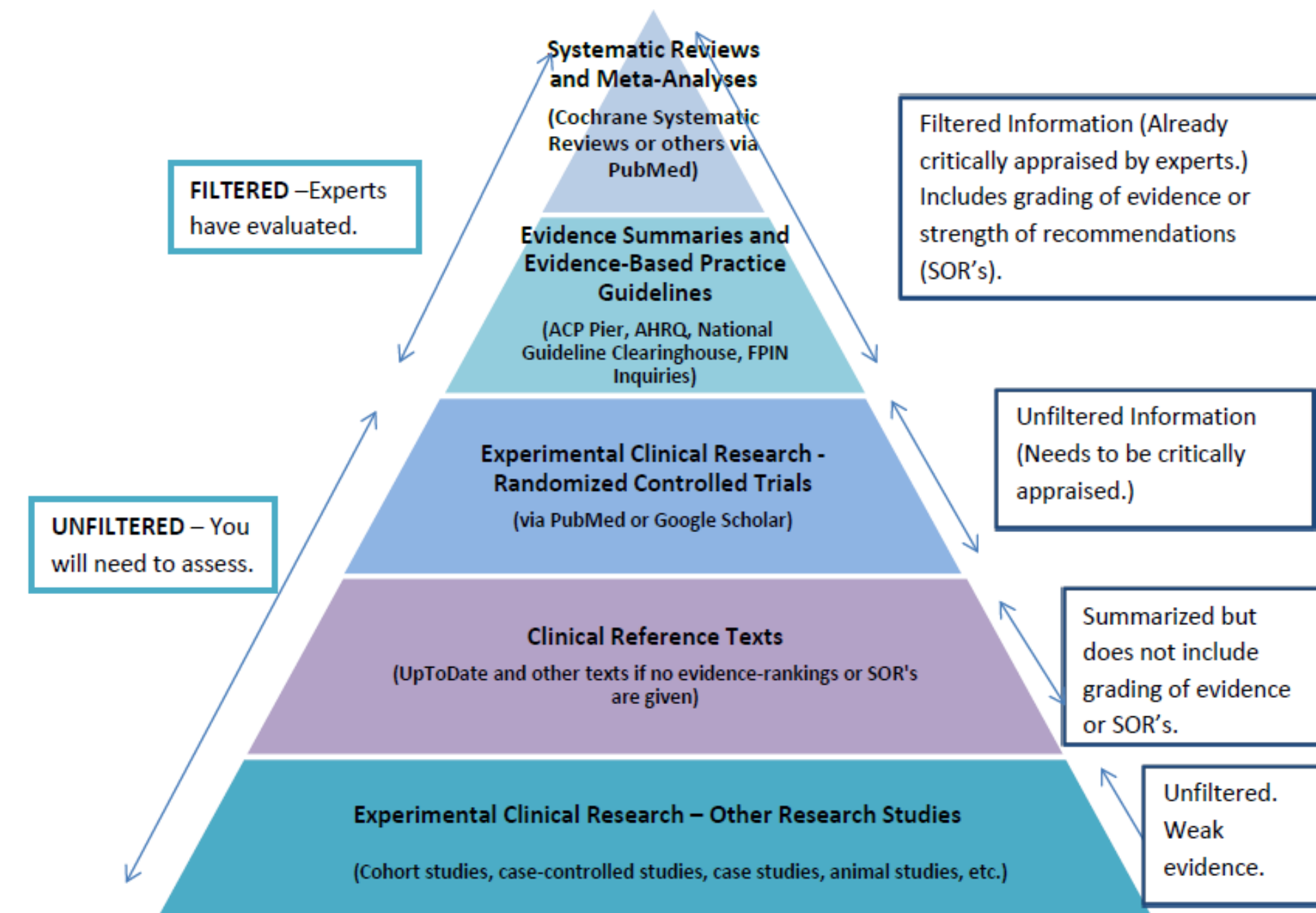
## Methods

All third-year medical students participate in this small-group collaborative, patient-centered learning experience during the required Family Medicine clerkship.

Students complete a pre-test prior to orientation in which they rate usefulness and familiarity with key EBM resources.

At orientation, the clerkship directors provide the students with an overview of the evidence-based process and creating PICO questions.

Immediately following, librarians provide a 1.5 hour hands-on instruction session covering evidence-based resources and search strategies for finding point-of-care EBM information using the following hierarchy:



## Methods (continued)

In week 2 or 3, students select a clinical question from a patient encounter in their outpatient clinics. Each student submits the EBM Worksheet providing the PICO question, resources consulted, search strategy, selected bibliographic references, and clinical recommendations.

Librarians provide a graded, written assessment and suggestions for improvement relative to the students' search strategies and resource selections.

Students present the patient's clinical question, research process, search results, and recommendations to the student group and clinical faculty via telemedicine.

Students complete post-test and evaluations.

Sample student worksheet:

**Form Submission Options:**

- Print, complete by hand & submit MC-library [copy clerkship coordinator]
- Complete PDF or Word & submit to MC-library [copy clerkship coordinator]

Copy to [alevy@mail.uky.edu](mailto:alevy@mail.uky.edu) is necessary for keeping it with your student records for MD834

### EBM Worksheet for Family Medicine

Name: Super M3 Student  
 Group/Block: A1  
 Presentation Date: 10/4/2012

### Fillable Word version - just start typing and boxes will expand to fit your typed text.

- Give a brief patient history.  
 3 year old male with a 1 day history of sore throat. Pain does not radiate, has no alleviating or aggravating factors; patient's pain rated at around a 6/10. There was an associated fever of 101 F last night but today patient is afebrile at 97.8 F. Pt. has a PMHx of recurrent GAS infections.  
 On exam: pt. has mild cervical LAD, inflamed pharyngeal mucosa without exudate. Rapid Strep Screen is negative. Pt. was diagnosed with acute viral pharyngitis and given a 1 time course of dexamethasone.
- Articulate your clinical question (PICO format).  
 In patients with viral pharyngitis, are oral steroids of benefit compared to other symptomatic treatment (analgesics, NSAIDS) for decreasing pain, morbidity and recovery time from acute illness?
- What search terms or methods did you use?  
 PubMed Clinical Queries: pharyngitis AND corticosteroids; Stat ref: pharyngitis; PubMed search for FPIN: "clinical inquiries" AND pharyngitis
- What sources did you find?  
 1. Hayward G, Thompson MJ, Perera R, Glasziou PP, Del Mar CB, Heneghan CJ. Corticosteroids as standalone or add-on treatment for sore throat. Cochrane Database Syst Rev. 2012 Oct 17;10:CD008268. doi: 10.1002/14651858.CD008268.pub2. Review. PubMed PMID: 23076943. 2. Frye R, Bailey J, Blevins AE. Clinical inquiries: Which treatments provide the most relief for pharyngitis pain? J Fam Pract. 2011 May; 60(5):293-4. Review. 3. ACP PIER, Journal Club & AHSF D18 Essentials™. Philadelphia, PA. American College of Physicians. STATref Online Electronic Medical Library [http://online.statref.com/document.aspx?Eid=186&docid=1641\\_41/2012\\_2:10:24 PM CDT \(UTC -05:00\)](http://online.statref.com/document.aspx?Eid=186&docid=1641_41/2012_2:10:24 PM CDT (UTC -05:00))
- How did you test the validity and relevance?  
 In the ACP PIER review, the use of steroids the recommendation has an A grade. This means that most of the studies upon which the recommendation was based were level 1 studies. This makes it a very strong recommendation. Likewise, the information in the FPIN review included SOR's at the "A" level. The Cochrane Review which provided information from eight well-conducted trials involving 743 participants (both children and adults) concluded that pain was reduced by the use of corticosteroids.
- What are your conclusions?  
 There is convincing evidence to show that the use of corticosteroids significantly decreases the length of symptoms in acute pharyngitis. Care has to be taken to evaluate the general health of the patient and applicable risk factors in deciding if corticosteroids are a safe treatment. However, for most cases, the risks in a one-time dose are minimal and there is significant benefit in this treatment approach.
- Did your findings have an impact on your approach to your patient?  
 Yes, I will be more likely to treat the patient population with corticosteroids in the future.
- Did your use of EBM enhance a patient-centered approach to care? How?  
 The use of EBM in this instance gives me more options to help palliate the patient's symptomatology and reduce the amount of morbidity associated with a very common condition.

## Results

Between August 2012 and February 2013, 60 students completed the course. Below is the rubric librarians use for evaluating their portion of the assignment and the breakdown of the students' cumulative ratings by the librarians.

### SECTIONS FOR Librarian USE ONLY (Rubric for evaluation of EBM worksheet; Final, 2012-13 AY)

This is a condensed version of the FINAL EBM RUBRIC that shows only the sections that are completed by MC-Librarians when evaluating students EBM worksheets. Course faculty have additional skill areas in which they use to evaluate other aspects of the students EBM worksheet/presentations.

Student Name	Date of Evaluation	Group/Block	AY: 2012/13
Evaluator Name: Frank Davis or Tag Heister			
<b>SKILL EVALUATED</b>	<b>NOVICE/EMERGING (0)</b>	<b>ADVANCED BEGINNER (1)</b>	<b>COMPETENT (2)</b>
<b>Information Resources Selection:</b> - Use of evidence-based resources that include SOR's or other evidence-level ratings. - Number, authority and timeliness of resources consulted	Utilizes resources with no SOR's or other evidence-level ratings; uses only one resource. Ability to determine if information found has been superseded by newer information.	Utilizes PubMed and at least one high level resource that documents SOR's or other evidence-level ratings.	Utilizes PubMed and a minimum of two other authoritative resources that document SOR's or other evidence-level ratings such as Cochrane, Practice Guidelines or ACP PIER. Has included appropriate resources such as PubMed to determine if information found is the latest available.
<b>Comments:</b>	8 students (13%)	23 students (38%)	29 students (48%)
<b>Search Strategy and Literature Selection (formerly Search Process):</b> - Logical derivation from patient history and PICO - Use of search terms appropriate to resource to obtain relevant search results - Use of standard citation format such as AMA or APA style to cite literature used to answer the clinical question.	Uses too few, not relevant or too many key words to find relevant information to answer the clinical question. Limited or no use of MeSH or limits in PubMed to enhance retrieval; uses a strategy inappropriate for a particular resource; chosen keywords not sufficient to answer the clinical question; uses search strategy and keywords that do not address the clinical question; selected material not accessible via UK Medical Center Library or the internet; does not provide adequate citation information to identify literature selected for answering clinical question.	Search includes key concepts of PICO that are relevant to the clinical question. Identifies relevant provider current information published within the last three years; of applicable search includes use of limits for systematic process or meta-analysis or practice guidelines or other strategies for obtaining optimum results in a particular resource; selected material accessible via UK Medical Center Library or the internet; correctly provides enough information to search the source although it may not all be in standard format.	Search includes all key concepts of PICO that are relevant to the clinical question. Uses MeSH terms and limits for searching PubMed and, when appropriate, utilizes Boolean logic connectors such as "OR" and "AND" to increase relevant results. PubMed search includes use of "clinical queries" or "clinical inquiries," "related studies," or search limits to increase relevant results; selected material accessible via UK Medical Center Library or the internet; correctly uses standard format to cite literature used to answer the clinical question (author, title, date, year).
<b>Comments:</b>	8 students (13%)	28 students (47%)	24 students (40%)

Students completed a pre-test ranking of potential information resources from a set list of materials available at the UK Medical Center Library. Post-tests were completed after the 1.5 hour library instructional session and the completion of the EBM assignment by the students.

### Third-Year Medical Students' Ranking of Usefulness of Resources for Obtaining Information for Clinical Decision-Making (Most Useful to Least) N=60 2012/2013

Rank	Pre-Test Results	Post-Test Results
1	UpToDate	PubMed
2	PubMed	UpToDate
3	Epocrates	Cochrane Review
4	Google	Epocrates
5	Wikipedia	Practice Guidelines
6	Print Textbooks	Google
7	Micromedex	Wikipedia
8	Practice Guidelines	Micromedex
9	Cochrane Review	Print Textbooks
10	FPIN(Family Physicians Inquiry Network)	ACP PIER
11	ACP PIER	FPIN(Family Physicians Inquiry Network)
12	TRIP	TRIP

## EBM Student Feedback

### MD-834-2012/13 AY-EBM Student Feedback Report (Date of Report 03/12/2013) Blocks 01-07 only; N=62

Category Question	Aver	Min	Max	St Dev
Scale: 1=Strongly Disagree; 2 = Disagree; 3=Neutral; 4=Agree; 5=Strongly Agree; 6=Unable to Rate				
I understand the concept of evidence-based medicine.	4.7	4.0	5.0	0.5
I feel comfortable using EBM principles in day-to-day patient care responsibilities.	4.5	3.0	5.0	0.6
I believe critical appraisal skills have a value to me as a third year student.	4.5	2.0	5.0	0.6
I am more likely to use the literature to support my clinical decision-making.	4.3	2.0	5.0	0.6
I am more likely to critically appraise the articles I read.	4.1	2.0	5.0	0.9
The Family Medicine Clerkship is an appropriate time to learn the concepts of evidence-based medicine.	3.8	1.0	5.0	1.2
I felt that my clinical understanding was enhanced through identification and appraisal of the literature.	3.8	1.5	5.0	1.1
My EBM search benefited patient care in some way.	3.9	1.5	5.0	1.0

## Sample of Student Comments

*I really enjoyed this experience and felt that it was a very low pressure way for students to learn the importance of finding evidence-based sources of information to improve patient care.*

*Do more than one! We should be asking questions like this and seeking out answers every day.*

*I think this exercise is one that is well worth the time and effort. I now have a better understanding of resources that are considered reliable and where to look for these resources. Great activity!*

*The EBM experience was a fantastic opportunity to learn more about searching and analyzing the quality, validity, and relevance of resources available to health care professionals.*

## Conclusion

Providing a patient-centered learning experience with collaboration between clinical medical faculty and medical librarians has been successful in improving third-year medical students' knowledge and skills in medical information literacy for clinical decision-making.