

An Introduction to Evidence-Based Medicine

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USC FAMILY MEDICINE
EVIDENCE-BASED MEDICINE INDEPENDENT EBM PROJECT DESCRIPTION

Purpose and description of the project:

EBM is a five-step process that is designed to decrease the time between discovery and implementation of effective medical treatments; to sustain high standards of practice in practicing physicians; and to drastically reduce the time required for a physician to stay informed on recent developments in medicine.

With its potential for bridging the gap between research and practice, for preventing decline in clinical skills, and for saving the busy practicing physician time, EBM is being integrated into medical school curricula across the US, Canada and Western Europe. As part of your clerkship experience, you are required to complete this EBM self-study workbook in collaboration with your preceptor. By doing this, you will become familiar with the basic principals of EBM and your preceptor will receive answers to questions of clinical interest and earn CME credit. This project is a pilot and a collaboration between USC Keck School of Medicine Curriculum and CME offices and Department of Family Medicine, and the American Academy of Family Physicians to increase student skills in EBM and to bring CME training into practicing clinician's offices. If successful, this program will serve as a national model for a new type of EBM and CME training.

Requirements for the project:

1. Attend orientation lecture on EBM Self-Study Project
2. Complete workbook
3. Involve preceptor in construction of focused clinical question and feedback session and obtain signatures and feedback on worksheets #1 and #4
4. Attach copies of the article you review for your project and your User's Guide Worksheet appraising the article
5. Hand-in project on final day of Family Medicine clerkship

Performance Evaluation: The project will count for 2 points (2%) of your grade.

Who to Contact For Help: Call Dr. Lyndee Knox at 626-457-4220 or e-mail her at: knox@hsc.usc.edu with any questions you have. DO NOT wait until the last week to start the project. It is recommended that you start the project AT LEAST two weeks before the end of the clerkship.

Average time to complete: Average time for most students to complete the project is 6 to 8 hours --- IF you follow the directions carefully. It can take much longer if you fail to follow the directions (especially the Step-by-Step instructions for the search, and the directions for accessing the JAMA User's Guides and worksheets.)

This self-study EBM project is mandatory.

**COVERSHEET & CHECKLIST FOR THE
INDEPENDENT EBM PROJECT**

Name: _____

Year (circle one): MSIII MSIV

Date: _____

Phone/pager: _____

e-mail: _____

Checklist of Activities (Complete and hand-in at end of project):

- Read 5 “Overview” sheets in self-study workbook
- Complete Worksheet 1: Formulating a Focused Clinical Question
- Involve preceptor in formulating question and obtain signature
- Complete Worksheet 2: Conducting a Search for Evidence
- Attach copy of article selected to the workbook and provide bibliographic information and identify database where you found article
- Complete Worksheet 3: Appraise the Article you Find
- Attach User’s Guide Worksheet to workbook
- Complete Worksheet 4: Presentation
- Obtain preceptor’s evaluation and comments on Worksheet 4
- Complete Worksheet 5: Project Evaluation Survey

AN INTRODUCTION TO EVIDENCE-BASED MEDICINE

What is Evidence-Based Medicine?

Evidence-based medicine has its philosophical roots in mid-19th century Paris. It is the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients. The practice of evidence-based medicine means integrating individual clinical expertise with the best available external evidence from clinical research. The process of EBM is a process of life-long, self-directed learning in which caring for our own patients creates the need for clinically important information about diagnosis, prognosis, therapy and other clinical and health care issues.

D. Sackett

How is EBM different from the MEDLINE searches I already do?

EBM is different because it involves much more than just a literature search. It is a five-step process for knowledge utilization that involves questioning, searching, appraising, applying and evaluating.

Why Should I Learn the EBM Process?

Three reasons. First, through using the EBM Process you will help to reduce the amount of time that passes between the discovery and validation of an innovation in medicine and its implementation in the medical setting. Second, EBM will help you critically appraise and evaluate interventions you are already using. And finally, and simply, when you know the process well and have practiced it several times, it will begin to save you a tremendous amount of time. Recent surveys have suggested that in order for a general practitioner to keep-up with important developments in medicine, he or she will need to read 19 articles a day, every day, 365 days a year! The EBM process, by synthesizing and compiling the information, makes it much easier to stay on top of important information and developments in medicine.

What are the Steps to the EBM Process?

There are five steps to the EBM Process. They are:

1. Compose a focused clinical question
2. Conduct a search for evidence
3. Appraise the evidence you find
4. Present and apply your results
5. Evaluate the EBM process and your skill

OVERVIEW -STEP 1 FORMULATE A FOCUSED CLINICAL QUESTION

How do Clinical Questions Arise?

During a patient encounter, the clinician may be uncomfortable making a decision until more is known. Finding these “knowledge gaps” can cause clinicians to ask questions and search for answers. David Sackett and his associates found that most questions arise from the following 6 aspects of clinical work:

1. Clinical evidence: how to gather clinical findings properly and interpret them soundly
2. Diagnosis: how to select and interpret diagnostic tests
3. Prognosis: how to anticipate the patient’s likely course
4. Therapy: how to select treatments that do more good than harm
5. Prevention: how to screen and reduce risk for disease
6. Education: how to teach yourself, the patient, and the family what is needed

Involving Your Preceptor in Constructing the Question.

It is your job to involve your preceptor in the development of the Focused Clinical Question you will address in your project. Use the worksheet on the following page to assist you in this process. The question you develop should address an area of particular interest to your preceptor.

Use PICO to Help You and Your Preceptor Build a Good Clinical Question.

To build a good clinical question, the question should be directly relevant to the problem at hand, and the question should be phrased to facilitate searching for a precise answer. A good way to build a good clinical question is to apply four questions to your clinical problem. This is called PICO which stands for:

P atient population	What group do you want information on?
I ntervention (or exposure)	What medical event do you want to study the effect of?
C omparison	Compared to what? Better or worse than no intervention at all, or than another intervention?
O utcomes	What is the effect of the intervention?

How can you recognize and formulate clinical questions as they occur?

Pay careful attention to the questions that spontaneously occur to you. Also listen for the “question behind the question”. Next, try saying your questions out loud or writing them down with all four PICO components included. If you are stuck, try building your question in two steps, starting with “location”, such as my question is about “therapy,” then filling in all four PICO components explicitly. If too many questions arise, ask yourself what is the most important issue for this patient now?

WORKSHEET - STEP 1
FORMULATE A FOCUSED CLINICAL QUESTION WITH YOUR PRECEPTOR

Patient Name (Use Pseudonym): _____
 Age: _____ Ethnicity: _____ Gender: _____
 Presenting problem/s or Diagnosis: _____

Our Clinical Concern/Problem with this Patient:

CLASSIFY THE PROBLEM - Does the Problem Concern (select one category):

- Therapy: how to select treatments that do more good than harm
- Diagnosis and screening: how to select and interpret tests
- Etiology: development of an illness or condition
- Prognosis: how to anticipate the patient's likely course

USE 4 PART "PICO" TO FORMULATE A FOCUSED CLINICAL QUESTION ABOUT THE PROBLEM:

Fill-in column with your question

<u>P</u>atient population What group do you want information on?	
<u>I</u>ntervention (or exposure) What medical event do you want to study the effect of?	
<u>C</u>omparison Compared to what? Better or worse than no intervention at all, or than another intervention?	
<u>O</u>utcomes What is the effect of the intervention?	

OUR FOCUSED CLINICAL QUESTION FOR THIS PATIENT IS: (Combine the four segments above into a single question):

I participated in the development of the PICO question: _____

Preceptor signature

OVERVIEW -STEP 2 CONDUCTING A SEARCH FOR EVIDENCE

Where Should I Look for Answers to My Focused Clinical Question?

To answer your clinical question you must now conduct a search for evidence. There are many sources of evidence you can consult. For broad questions dealing with an overall condition, the best place to go is often a textbook. For example, to obtain an overview of headaches and their treatment, you would be best served to begin by consulting a basic medical text. For EBM Focused Clinical Questions however, you need to consult more focused literature sources. Specifically, you will need to look in the medical research literature reported in journals and sometimes Clinical Guidelines.

The medical research literature can be divided into two categories: primary studies (those that report original research), and secondary studies (those that draw conclusions from original research).

With the advent of EBM, articles reporting research studies can be further categorized as “appraised” or “non-appraised.” Appraised articles are articles that have been systematically analyzed by a group of experts for validity, relevance and clinical usefulness. The results of the systematic appraisals of the research studies are reported either as a part of the article or as a separate “abstract” or “summary” of the original research article. Appraised articles are designed to make research findings more accessible and useful to the practicing physician. Ideally, you hope to find a secondary, appraised research article that addresses the focused clinical question you have posed. In lieu of this, you hope to find a primary, appraised article. When you find this type of article, you do not have to evaluate the validity of the study yourself, you simply have to determine whether the individuals doing the “appraisal” carried-out their duties in a reliable and systematic manner.

Chances are, however, that many of you will not find appraised articles on your topic. You may find a “protocol” for a systematic review (e.g. a plan for conducting an appraisal of multiple studies), or you may find an article where researchers report their findings of a single research study, but one where no outside appraisal body has examined or commented on the researchers’ methods and the validity of their findings. In this case, you will have to carry out the appraisal of the research article you find on your own. The JAMA User’s Guide Series will help you do this. Instructions for how to access the user’s guides are provided as part of Worksheet 3.

Where Will I Find These Different Sources?

Much of the research literature used in an EBM search is available on the internet. The Norris Library at the USC School of Medicine is in the final stages of completing a web-site that will provide hyperlinks to many of the frequently used EBM sites. Be aware, however, that there are over 5000 sites on the internet currently dedicated to EBM (not all of them databases however) and that you may want to “explore” a bit to find those site that are most helpful to you. For example, the University of Washington is developing the premiere EBM database in Pediatrics; and the US government has funded 11 other EBM centers that are developing discipline specific databases of appraised evidence as this is written. A final note: Please see <http://www.aafp.org/x3139.xml> for the most current listing of EBM databases approved by

AAFP. Please include AT LEAST ONE resource from this specific list. For a more exhaustive list of EBM databases and sites on the web go to: <http://www.shef.ac.uk/~ir/netting.html>

What if I Cannot Find Answers to My Focused Clinical Question in the Research Literature?

Some of you may not be able to locate research evidence that specifically addresses your Focused Clinical Question. If this occurs, you can try “broadening” your Focused Clinical Question to the point that you can address at least some aspects of it using evidence from the medical research literature. Bear in mind, however, that you should only broaden your question after you’ve thoroughly searched all of the secondary and primary sources for evidence.

The Pebble vs. the Mountain.

Most medical students have difficulty formulating and seeing the value in Focused Clinical Questions. Medical school training and the natural course of developing proficiency in a specific domain (in this case medicine) require the asking of broader, more expansive questions such as what are the types of headaches? Or what are the causes of CHF? To this point, you have been taught to ask and answer questions that lead to an overview of a specific area of interest – you have been asked in essence to describe the “mountain.” Evidence-Based Medicine takes you a step further. It help you to develop information seeking skills that will allow you to address very precise, highly-focused questions that address a highly proscribed area of concern. In essence, EBM asks you to explore a single pebble on the mountain. The 4-part Focused Clinical Question is a tool used in EBM to help you ask focused rather than broad questions. As you progress through medical school, in some instances you will find evidence that provides an overview of an area or a “mountain” to be more appropriate; in other instances you will find evidence that provides information on highly focused topics to be more appropriate. For the purposes of this project, we want you to focus on the “pebble” as much as possible.

SUGGESTED STEP-BY-STEP STRATEGY FOR CONDUCTING AN SEARCH FOR EVIDENCE FOR THIS PROJECT

Following is a step-by-step strategy to use when you conduct a search for evidence for this project. Pay CAREFUL ATTENTION to the directions about where to access each database. Some you will access through OVID on the NORRIS LIBRARY SITE. Others you will access through the NORRIS LIBRARY site but you will use their EBM TUTORIAL as your gateway. If you FOLLOW the steps listed below EXACTLY, you will save time, experience a number of new databases, and find what you need for your project.

STEP 1: Search *All EBM Reviews – Cochrane Database of Systematic Reviews, ACP Journal Club, DARE, and CCTR*

A. **To access:** go to USC Keck School of Medicine homepage:
<http://www.usc.edu/schools/medicine/ksom.html> Click on “Research,” and then “Libraries.” Then, go to the right side of the screen, and click on “Ovid.” Then, click “Start Ovid.” (If calling in on commercial server, give your USC username and id/password.) Click “Continue.” Click “All EBM Reviews – Cochrane DSR, ACP Journal Club, DARE and CCTR.”

B. **To search:** Enter keyword you want to search for, and before you click “perform search,” limit your search by checking the “Systematic Reviews” box. If it pulls up extraneous articles, you may want to limit keyword search to the “Title” field. You can combine search terms etc. just as you would in a Medline Search.

STEP 2: Search *MEDLINE*.

A. **To switch to MEDLINE:** Click “change database” icon at top of search page. Click “MEDLINE 1966-March 2000.” Then, Click “yes” to question “do you want to re-run saved searches?” Use combined terms if articles retrieved too high. Use “saved search” filters such as Randomized Controlled Trials (RCT) and the EBM Reviews limiter to help you identify the more rigorously studies and EBM reviews.

B. **Secondary search strategy:** If there are no RCT or EBM articles, then select the best one from your general search of MEDLINE. Avoid “editorials” and other opinion pieces (see parenthesized descriptor just after title of article). Select “original contributions or research”

STEP 3: Search at least 2 sites from the following list:

*Clinical Evidence through Books@OVID**

To switch to Clinical Evidence: Click “change database” icon at top of search page. Click [Books@OVID](#), and then click “Clinical Evidence.” This is a hit and miss site, and some topics are not covered.

Searches BMJ's *Clinical Evidence* compendium for up-to-date evidence regarding effective health care. Lists available topics and describes the supporting body of evidence to date (e.g., number of relevant randomized controlled trials published to date). Concludes with interventions "likely to be beneficial" versus those with "unknown effectiveness."

Agency for Healthcare Research and Quality (AHRQ), formerly known as the Agency for Health Care Policy and Research (AHCPR): Clinical Guidelines and Evidence Reports*

<http://www.ahrq.gov/clinic>

The AHRQ Web site includes links to the National Guideline Clearinghouse, Evidence Reports from the AHRQ's 12 Evidence-based Practice Centers (EPC), and Preventive Services. The AHCPR released 19 Clinical Practice Guidelines between 1992 and 1996 that were not subsequently updated.

Bandolier*

<http://www.usc.edu/hsc/nml/lis/tutorials/ebm.html>

Features short evaluations/discussions of individual articles dealing with evidence-based clinical practice.

Effective Health Care*

<http://www.york.ac.uk/inst/crd/ehcb.htm>

Bi-monthly, peer-reviewed bulletin for medical decision-makers. Based on systematic reviews and synthesis of research on the clinical effectiveness, cost-effectiveness and acceptability of health service interventions.

Institute for Clinical Systems Improvement (ICSI)*

<http://www.ICSI.org>

ICSI is an independent, nonprofit collaboration of health care organizations, including the Mayo Clinic, Rochester, Minn. Web site includes the ICSI guidelines for preventive services and disease management.

U.S. Preventive Services Task Force (USPSTF)*

<http://www.ahrq.gov/clinic/uspstfix.htm>

This Web site features updated recommendations for clinical preventive services based on systematic evidence reviews by the U.S. Preventive Services Task Force.

STEP 4: Familiarize yourself with the *National Guideline Clearinghouse* website as an additional resource for this project and for future use.

A. To access: Go to <http://www.guideline.gov/> Click “go to NCG webpage at bottom of disclaimer.

B. To search: Enter single word search term (Note: you may have to try a couple of times as the site sometimes jams.

ADDITIONAL SITES YOU MAY WISH TO VISIT BUT ARE NOT REQUIRED FOR THIS PROJECT

The most comprehensive listing of EBM sites available (including alternate access sites for the above mentioned databases) is **Netting the Evidence**:

<http://www.shef.ac.uk/~scharr/ir/netting/>

The following are sites that have been approved by the American Academy of Family Physicians for use in Evidence Based Medicine searches and reviews:

Free and/or Accessible through Norris Medical Library

American College of Physicians Journal Club (ACPJC)

<http://www.usc.edu/hsc/nml/ovid>

ACP Journal Club evaluates evidence in individual articles. Commentary by ACP author offers clinical recommendations. This can be accessed through the Ovid at Norris Medical Library.

Canadian Task Force on Preventive Health Care

<http://www.ctfphc.org/>

Serves as a practical guide for a wide variety of preventive health interventions using the evidence-based recommendations of the Canadian Task Force on Preventive Health Care (CTFPHC).

Centre for Evidence Based Medicine (CEBM)

<http://cebm.jr2.ox.ac.uk/>

The University of Oxford/Oxford Radcliffe Hospital Clinical School Web site includes links to CEBM within the Faculty of Medicine, a CATbank (Critically Appraised Topics), links to evidence-based journals, and EBM-related teaching materials.

National Health Service (NHS) Centre for Reviews and Dissemination (CRD)

<http://www.york.ac.uk/inst/crd/>

Searches CRD Databases (includes DARE, NHS Economic Evaluation Database, Health Technology Assessment Database) for EBM reviews. More limited than TRIP Database.

Primary Care Clinical Practice Guidelines

<http://medicine.ucsf.edu/resources/guidelines>

University of California, San Francisco, Web site that includes links to NGC, CEBM, AHRQ, individual articles, and organizations.

Subscription Required – Not expected to search these but know that they are available

Center for Research Support, TRIP Database

<http://www.tripdatabase.com>

The AHRQ began the Translating Research into Practice (TRIP) initiative in 1990 to implement evidence-based tools and information. The TRIP Database features hyperlinks to the largest collection of EBM materials on the internet, including NGC, POEM, DARE, Cochrane Library, CATbank, and individual articles. A good starting place for an EBM literature search.

Evidence-Based Medicine*

<http://ebm.bmjournals.com>

Bimonthly publication launched in 1995 by the BMJ Publishing Group. Article summaries include commentaries by clinical experts. Subscription is required.

Evidence-Based Practice Newsletter (including JFP Patient-Oriented Evidence that Matters [POEM])*

<http://www.ebponline.net>

This *JFP* newsletter features up-to-date POEM, Disease-Oriented Evidence (DOE), and tests approved for Category 1 CME credit. Subscription required.

InfoPOEMs

<http://www.infopoems.com>

Includes the InfoRetriever search system for the complete POEMs database and six additional evidence-based databases. Subscription is required.

** These Web sites are AAFP-approved sources of systematic evidence reviews. As stated above, please obtain a review from AT LEAST ONE of these (*) resources. Please attach a copy of the specific Web page where your supporting evidence may be found (not the source's home page).*

**WORKSHEET –STEP 2
CONDUCTING A SEARCH FOR EVIDENCE**

Step 1: Indicate databases you searched and how useful you found them to be

DATABASES SEARCHED (check those that apply)	USEFULNESS OF DATABASE (circle appropriate number)
All EBM Reviews (check which subsites visited) <input type="checkbox"/> DARE <input type="checkbox"/> Cochrane <input type="checkbox"/> ACP Journal Club <input type="checkbox"/> CCTR	1 _____ 2 _____ 3 _____ 4 _____ 5 Very useful Not at all useful
<input type="checkbox"/> Medline	1 _____ 2 _____ 3 _____ 4 _____ 5 Very useful Not at all useful
<input type="checkbox"/> FIRST SITE FROM REQUIRED LIST: _____	1 _____ 2 _____ 3 _____ 4 _____ 5 Very useful Not at all useful
<input type="checkbox"/> SECOND SITE FROM REQUIRED LIST: _____	1 _____ 2 _____ 3 _____ 4 _____ 5 Very useful Not at all useful
<input type="checkbox"/> National Guideline Clearinghouse	1 _____ 2 _____ 3 _____ 4 _____ 5 Very useful Not at all useful
<input type="checkbox"/> ADDITIONAL SITES: _____	1 _____ 2 _____ 3 _____ 4 _____ 5 Very useful Not at all useful

Step 2: Select one article (systematic review, original research, or guideline) you believe “best” answers your and your preceptor’s Focused Clinical Question. Note: you may not find an article that exactly addresses your question. If this happens, simply select the one that comes the closest. It is as important to learn that there is no evidence or only weak evidence available on your question, as it is to find an exact answer.

Step 3: Attach a copy of the article to this workbook and provide the bibliographic information on the lines below (e.g. Author, Title of Article, Journal Title, Volume, Number, page numbers, year). Your workbook will be considered INCOMPLETE if your article is not attached and/or if you fail to provide the bibliographic information below.

On what database/site did you find your article? _____

OVERVIEW -STEP 3 APPRAISE THE ARTICLE YOU FIND

What do I do with the article now that I've found it?

Once you find an article that looks like it addresses the question you are interested in, you then have to decide how much weight to give to its conclusions and how they affect your patient care decisions. This section will provide some guidelines for evaluating the articles you find but please remember, evaluating medical studies is a complex subject and this section is not designed to make you an expert. It is only meant to get you started.

How much work should I put into evaluating the article?

There are trade-offs involved in deciding how extensively you want to evaluate the article you find. On the one hand, you do not want to base your patient care on results that are misleading or that do not apply to your patient's situation; on the other hand, you probably don't want to or have the time to, examine every possible flaw in the study you've found. How involved you become in evaluating your article will be determined by factors such as:

- The seriousness of the problem and the risks involved
- How often it comes up in your practice
- The extent to which the results of the study agree with our own experience
- Any suspicions of bias you have (e.g. a drug manufacturer's study of own product)
- Your available time

What criteria do I use to evaluate the articles I find while using the EBM process?

You will use different criteria to evaluate different types of articles. For all studies you will want to ask the following questions:

1. Are the people in the study like my patient?
2. Did the study cover all aspects of the problem I am concerned with?
3. Does the research suggest a clear and useful plan of action?
4. Is the study well-designed (e.g. adequate internal and external validity, etc.)

What questions do I need to answer in evaluating my article?

The questions you will need to ask about your article will vary depending upon the type and focus of the article you find. You will ask different questions about an original research article, an appraisal of an original research article (these documents are usually VERY short – sometimes only a half a page), a systematic review and a guideline. JAMA has developed a comprehensive series of User's Guides and Worksheets for the medical literature. Complete the JAMA Worksheet that is appropriate for your article for this project. See instructions on Worksheet 3 on how to access the User's guides articles and the worksheets online.

WORKSHEET-STEP 3

APPRAISE THE ARTICLE YOU FIND

STEP 1: Read the JAMA User's Guide Article on how to appraise the type of article you find

If you have an ORIGINAL RESEARCH ARTICLE (or PRIMARY STUDY), read the User's Guide for Primary Studies that is appropriate to your topic (therapy, harm, prognosis, diagnosis)

If you have a SYSTEMATIC REVIEW (an article that reviews multiple studies using an EBM-type systematic process), read the User's Guide for Overviews. Note: an overview is a systematic review of multiple articles, or appraisal of a single primary study.

If you have an OVERVIEW OF A SINGLE PRIMARY STUDY, you will also read the User's Guide for Systematic Reviews, but you will need to adjust the article's recommendations to fit the review of a single rather than multiple studies. Please note that overviews of single primary studies can be very short, sometimes only a paragraph long. Despite this, you still need to appraise the piece using criteria suggested in the Overview User's Guide

You can access these User's Guides at: <http://www.cche.net/>

Route to User's Guides: Click "User's Guide to EBP" on the left of the screen. Select the User's Guide Article that is appropriate to your article and read it. Note: A Primary Study is an original research article reporting on a single study (example: an article on a Randomized Controlled Trial of sumatriptan vs. placebo); an Integrative Study is a study (and article) that systematically reviews and combines the results of multiple studies (example: a systematic review of all RCTs on the effectiveness of sumatriptan; a guideline on the treatment of migraine based on multiple RCTs on treatment methods; a meta-analysis of 5 RCTs of sumatriptan)

STEP 2: Select the worksheet appropriate to the article you selected. There are user's guides for original research articles on therapy/diagnosis, prognosis, harm; or a guideline or systematic review. Methods for evaluating original or primary research articles ARE DIFFERENT from methods for evaluating systematic reviews and meta-analyses (integrative studies) or practice guidelines. So SELECT CAREFULLY.

Website address for accessing Worksheets:
<http://www.cebm.utoronto.ca/teach/materials/caworksheets.htm>

Complete the User's Guide Worksheet for your article type. In some instances, especially if you are using an overview (an appraisal of a primary study or systematic

review), you may not have the information you need to calculate Numbers Needed to Treat (NNT), Relative Risk Ratios (RRRs), etc. In these instances, describe on your worksheet the quantitative data that you needed to make the appropriate calculations that was not supplied in your article.

STEP 3: Rate the “strength of evidence” provided by your article using the AAFP categories below. Please supply the Rating (level A, B or C) on Worksheet 4.

- **Level A** (randomized controlled trial/metaanalysis): High-quality randomized controlled trial (RCT) that considers all important outcomes. High-quality meta-analysis (quantitative systematic review) using comprehensive search strategies.
- **Level B** (other evidence): A well-designed, nonrandomized clinical trial. A nonquantitative systematic review with appropriate search strategies and well-substantiated conclusions. Includes lower quality RCTs, clinical cohort studies, and case-controlled studies with nonbiased selection of study participants and consistent findings. Other evidence, such as high-quality, historical, uncontrolled studies, or well-designed epidemiologic studies with compelling findings, is also included.
-
- **Level C** (consensus/expert opinion): Consensus viewpoint or expert opinion.

NOTE: Attach a copy of your completed worksheet to this workbook. Your project will be considered incomplete if the worksheet is missing

OVERVIEW -STEP 4 PRESENT THE RESULTS OF YOUR EBM SEARCH

Introduction to the “One-Minute Oral Presentation” of critically appraised literature:

The “One Minute Oral Presentation” is a user-friendly, audience-friendly tool that briefly summarizes the 7 steps outlined below. The emphasis is on being concise and focused. The short presentation is meant to stimulate discussion, **not** provide a comprehensive review of every detail of the article.

Guideline for the “One Minute Oral Presentation:”

These are the seven steps of a “One Minute Oral Presentation”

- 1) State your clinical question
- 2) Describe your search strategy and provide bibliographic info on your articles
- 3) Provide a critical appraisal of your articles
- 4) Summarize the results
- 5) Discuss clinical applications of the evidence and factors that might affect implementation
- 6) State your conclusion about your clinical question and the degree to which it is answered by the evidence you found

An example of a “One Minute Oral Presentation:”

My focused clinical question is: “Will ACE-inhibitors decrease mortality in congestive heart failure?”

At the library, **I did a Medline search using the terms** “congestive heart failure”, “ACE-inhibitors” and “treatment.”

I selected an article entitled “The effect of enalapril on survival in patients with left ventricular dysfunction and congestive heart failure”, published in the NEJM in 1991.

I believe the results of the study are valid because treatment groups were randomized, an intention-to-treat analysis was used, and follow-up was complete.

The **results showed** that treatment with enalapril resulted in a 16% reduction of mortality with a 95% confidence interval of 5-26%.

I believe that the results will help me in caring for my patient because he is similar to those in the study population and the benefits appear to outweigh the risks.

So, **in conclusion**, I believe that the ACE-inhibitor enalapril does decrease mortality in congestive heart failure and suggest we consider starting our patient on this medication today.

WORKSHEET 4
PRESENT THE RESULTS OF YOUR EBM SEARCH

FOR STUDENTS: Please write-out the content of your presentation on the form below and turn-in with your workbook.

FOR PRECEPTORS: To insure proper documentation and completion of the EBM Exercise and to quality your for CME, you must follow the instructions and provide responses in the boxed areas below. Please review the student's article before his/her presentation.

1. State your Focused Clinical Question with the PICO elements: **P**atient, **I**ntervention, **C**omparison, and **O**utcome.

Preceptor Assessment:

Please circle appropriate answer

Is the question appropriate to clinical practice? YES / NO

Is the question in PICO format? YES / NO

2. Describe where you searched for the evidence and provide the bibliographic information for the 2 articles you found that best address the focused clinical question you and your preceptor developed, and characterize the nature of each of the articles (original research article, systematic review, book chapter, treatment guideline, etc.)

Preceptor Summary:

Provide narrative feedback regarding the student's work.

What new information did you learn from this exercise?

Indicate whether or not this information will change your practice of medicine. If so, describe how you will integrate these changes. If not, why not?

How much will this information impact your clinical practice (circle one)?

1	2	3	4
No impact	Minor Impact	Moderate Impact	Major Impact

How useful was this EBM exercise to you (circle one)?

1	2	3	4
Not at all	A little	Somewhat	Very
Useful	Useful	Useful	Useful

Do you have any suggestions for improving this EBM exercise?

OVERVIEW-STEP 5

EVALUATE YOUR EBM SKILL LEVEL AND THE EBM EXPERIENCE

What role does self-evaluation play in the EBM process? Similar to EBM's emphasis on critically appraising the evidence you find in your search for evidence, it is equally important that you develop the habit of critically appraising your own skill level with the EBM process. Some ideas for questions you can ask to begin to assess your skill level in EBM include:

- ◆ Am I asking questions about my patients?
- ◆ Am I using the guide to ask four-part questions?
- ◆ Is your success rate in asking answerable questions rising?
- ◆ How do your questions compare with those of respected colleagues?
- ◆ Are you searching the literature and other sources for answers?
- ◆ Do you know the best sources of current evidence for your clinical discipline (or anticipated discipline)?
- ◆ Are you finding useful evidence from a variety of sources?
- ◆ Are you becoming more efficient in your searches?
- ◆ Are you using MeSH headings, thesaurus, and limiters?
- ◆ Are you critically appraising external evidence at all?
- ◆ Are the critical appraisal guides becoming easier to apply?
- ◆ Are you becoming more accurate and efficient in applying some of the critical appraisal measures?
- ◆ Are you giving "one-minute" presentations of your findings to your preceptor and colleagues?
- ◆ Are you integrating your critical appraisals into your practice at all?
- ◆ Are you becoming more accurate and efficient in adjusting some of the critical appraisal measures to fit your individual patients (NNT/F, etc.)?

What Type of Evaluation am I Expected to Complete for this Pilot Project? Because we are in the beginning stages of developing this curriculum, we are most interested in assessing your perceptions of the project, of EBM, and of the impact of the project on your skills. Your grade will not be affected by your responses to the evaluation tool. We hope you will respond candidly. Your feedback will help us improve the curriculum.

7. I am more likely to search the primary literature available on my patients' problems.	1 _____ 2 _____ 3 _____ 4 _____ 5 Strongly Agree Strongly Disagree
8. The medical clerkship is an appropriate time to learn the concepts of evidence-based medicine.	1 _____ 2 _____ 3 _____ 4 _____ 5 Strongly Agree Strongly Disagree
9. My preceptor or team utilized the evidence I provided them.	1 _____ 2 _____ 3 _____ 4 _____ 5 Strongly Agree Strongly Disagree
10. I felt that my clinical question was resolved through identification and appraisal of the literature.	1 _____ 2 _____ 3 _____ 4 _____ 5 Strongly Agree Strongly Disagree
11. My appraisal of the literature benefited my patient in some way.	1 _____ 2 _____ 3 _____ 4 _____ 5 Strongly Agree Strongly Disagree
12. My EBM project increased my sense of involvement in the clinical decision made on my patient.	1 _____ 2 _____ 3 _____ 4 _____ 5 Strongly Agree Strongly Disagree
13. The seven-step approach to the presentation of critically appraised literature was easy to learn.	1 _____ 2 _____ 3 _____ 4 _____ 5 Strongly Agree Strongly Disagree
14. The seven-step approach to presentations is a practical way to concisely impart information to colleagues.	1 _____ 2 _____ 3 _____ 4 _____ 5 Strongly Agree Strongly Disagree
15. Using the seven-step approach to presentations has improved my ability to practice EBM.	1 _____ 2 _____ 3 _____ 4 _____ 5 Strongly Agree Strongly Disagree

Continue on next page

16. I find other's presentation of literature using the seven-step format to be useful.	<p style="text-align: center;">1 _____ 2 _____ 3 _____ 4 _____ 5</p> <p style="text-align: center;">Strongly Agree Strongly Disagree</p>
17. I am likely to use the EBM process again during my medical training.	<p style="text-align: center;">1 _____ 2 _____ 3 _____ 4 _____ 5</p> <p style="text-align: center;">Strongly Agree Strongly Disagree</p>
On a 1 to 10 scale, with 1 = "poor" and 10 = "excellent" where would you rate your EBM experience?	<p style="text-align: center;">1 2 3 4 5 6 7 8 9 10</p> <p style="text-align: center;">Poor Excellent</p>
I used the EBM process times during the Clerkship.	

COMMENTS AND SUGGESTIONS: _____
