

Review article:

“The Practice of Evidence based medicine in Indian scenario”

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Abstract:

Today, with the advent of large databases of medical research, a wealth of new evidence-based resources, the rise of “information mastery” and easy access to information via the Internet and various mobile services evidence-based medicine is finally becoming doable for busy health care practioner. In India, the practise of EBM is not really thought at undergraduate or postgraduate level. There is a strong need to propagate EBM in our society so that it is inculcated in day to day practise. The article is on practise of EBM and it is consisting of the historic aspects of EBM, the need of EBM, the resources in EBM, etc. The practice EBM is not just better medicine for patients, it is also better medicine for physicians. Hope the article certainly solves some uncertainty in the fundamentals of EBM.

Keywords: Evidence based medicine, Medical Research

Introduction: In 1981, a group of clinical epidemiologists at McMaster University, led by Dave Sackett, published the first of a series of articles advising clinicians how to read clinical journals(critical appraisal). In the early 1990s, a group of clinicians and epidemiologists at McMaster University in Ontario, Canada, officially coined the term “evidence-based medicine.” It didn't take long for people to realize that the principles of EBM were equally applicable for other health care workers including nurses, dentists, orthodontists, physiotherapists, occupational therapists, chiropractors, and podiatrists. Thus, terms such as evidence-based health care or evidence-based practice are appropriate to cover the full range of clinical applications of the evidence-based approach to patient care. From the beginning, the concept faced mixed reviews: excitement from those in the academic and research worlds and suspicion from those in the “real world,” who found EBM impractical in a busy medical office. However, a lot can change in the

past decades. Today, with the advent of large databases of medical research, a wealth of new evidence-based resources, the rise of “information mastery” and easy access to information via the Internet and various mobile services evidence-based medicine is finally becoming doable for busy health care practioner. In India, the practise of EBM is not really thought at undergraduate or postgraduate level. There is a strong need to propagate EBM in our society so that it is inculcated in day to day practise. The article is on practise of EBM and it is consisting of the historic aspects of EBM, the need of EBM, the resources in EBM, etc.

Beyond EBM : The original model of evidence-based medicine presented in 1992 in the Journal of the American Medical Association¹ went something like this: A clinical question would arise at the point of care, and the physician would conduct a literature search yielding multiple (sometimes hundreds of) articles. The physician would then select the best articles from the results,

evaluate the research, determine its validity and decide what to do – all while the patient waited in the exam room. This was obviously impractical.

KEY POINTS: The practice of evidence-based medicine requires integrating individual clinical experience with the best available external clinical evidence. One of the greatest achievements of evidence-based medicine has been the development of systematic reviews and meta-analyses, which summarize the best available evidence on a topic. The easiest way to practice evidence-based medicine is to use EBM resources that continually search, appraise and summarize the literature for you and give you a useful, actionable bottom line based on the evidence

According to David Sackett, MD, who was part of the McMaster group that coined the term, EBM 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 experience with the best available external clinical evidence from systematic research.”⁵

One of the greatest achievements of evidence-based medicine has been the development of systematic reviews and meta-analyses, methods by which researchers identify multiple studies on a topic, separate the best ones and then critically analyze them to come up with a summary of the best available evidence. “

However, EBM is not simply about finding evidence of what works but finding “evidence that matters,” says Kathryn Stewart, MD, medical director for care management at Sinai Health System in Chicago. “Physicians sometimes forget that simply changing a blood-test level, for example, isn’t the goal we’re after. Just because we can do something doesn’t mean we should. We need to ask, ‘How is this going to change the

patient’s overall prognosis and outcome and quality of life?’ If it’s not going to change any of these things, then we shouldn’t be doing it. We need to look at the evidence in the context of the patient and make sure we are doing things that will make a difference.”

This idea of “patient-oriented evidence that matters” (POEMs) was developed specifically for primary care physicians in 1994 by family physician David Slawson, MD, and Allen Shaughnessy, PharmD. POEMs allow physicians to disregard much of the medical literature and focus only on what’s important, which simplifies EBM. This is the heart of “information mastery,” a concept also developed by Slawson and Shaughnessy.⁶ It entrusts to experts the complicated, time-consuming task of searching the literature, filtering it for relevance using the POEMs criteria, and determining the validity of clinical studies. It asks individual physicians to focus on finding useful information at the point of care that will assist them in caring for their patients. “Information mastery is the practical application of EBM, just like infectious disease practice is the practical application of microbiology,” explains Shaughnessy. “Knowledge of microbiology is necessary but not sufficient to treat people with infections. In the same way, some EBM knowledge is necessary but not sufficient to practice medicine in this age of information.”

Today, some 30 to 40 POEMs – short synopses of research focusing on patient-oriented evidence that matters – are created monthly and published in a number of clinical journals, including American Family Physician, the British Medical Journal and the Journal of Family Practice. (The entire monthly collection can be obtained by subscribing to the Daily POEMs at <http://www.info poems.com>.) Additionally, more and more physicians are discovering resources that summarize the literature

and make it available at the point of care (see the listing). All of these developments have helped push EBM in a more practical and useful direction.

Why do we need EBM?

An ever-expanding literature base, the complexity of modern medicine and a limited amount of time and human mental capacity make clinical uncertainty a reality of medical practice. In a 1999 study, Ely and colleagues looked at how often family physicians faced clinical questions in their practices and what they did to resolve their uncertainty. The researchers found that clinical questions arose 3.2 times for every 10 patients seen, but physicians did not seek an answer 64 percent of the time.⁷The bottom line, says Ely, is that “most clinical questions don’t get answered, and most of the time that’s because the physician doesn’t pursue an answer. If the physician does pursue an answer, then about 80 percent of the time they’ll get a reasonable one, according to our research.”

On average, physicians spent less than two minutes seeking an answer to a question. The two most common sources physicians turned to were 1) fellow physicians, pharmacists and other individuals and 2) drug references and textbooks. “Most physicians depend on relatively low-quality

sources of information,” says Flaherty. “Traditional medical journal Articles that describe randomized controlled trials may seem credible, but they provide relatively low-quality information when you compare them to what a systematic review on the same topic can provide. Physicians will often read a journal article and then base decisions on that when in fact it’s only a tiny part of the picture.

“We also know that traditional lecture-style continuing education meetings, where an expert describes a few randomized controlled trials and gives a whole lot of opinion about treating or diagnosing a particular medical condition, aren’t the best sources of information,” says Flaherty. In recent years, physicians such as Flaherty and Paauw⁸ have brought attention to a number of medical myths that physicians learned in their training were the standard way to practice. “For example, when I was in medical school, we were taught to never ever use beta blockers in patients with congestive heart failure,” says Stewart. “So, at the time, I thought that was an absolute truism and I made a mental note that I would never ever prescribe beta blockers for such patients. Well, of course, we now do the exact opposite. We put them all on beta blockers.”

EBM RESOURCES

The following table highlights some of the leading EBM resources now available to physicians. Most offer free trial access.

Name	Description	Publisher/Sponsor
JOURNALS ACP Journal Club http://www.acpj.org	Bimonthly journal that analyzes the content of over 100 clinical journals and summarizes those articles found to have scientific merit and relevance to medical practice.	American College of Physicians
American Family Physician http://www.aafp.org/afp	Twice monthly clinical review journal that contains evidence-based components, such as POEMs (patient-oriented evidence that matters), Cochrane for Clinicians and Point-of-	American Academy of Family Physicians

Name	Description	Publisher/Sponsor
Bandolier http://www.jr2.ox.ac.uk/bandolier	Care Guides. Monthly journal that searches PubMed and the Cochrane Library for systematic reviews and meta-analyses published in the recent past and summarizes those that "are both interesting and make sense."	Produced from Pain Research at Oxford University with multiple sponsors
The Journal of Family Practice http://www.jfponline.org	Monthly clinical review journal that contains evidence-based components, such as its online archives of POEMs.	Dowden Health Media
EVIDENCE SUMMARIES		
Clinical Evidence http://www.clinicalevidence.com	A compendium of systematic reviews, gathered m from Cochrane, MEDLINE and other sources, updated and expanded every six months.	BMJ Publishing Group
The Cochrane Database of Systematic Reviews http://www.cochrane.org/cochrane/revabstr/mainindex.htm	Arguably the most extensive collection of systematic reviews.	The Cochrane Collaboration
DynaMed http://www.dynamicmedical.com	A database of summaries of the evidence drawn from sources such as Clinical Evidence and the Cochrane Library.	DynaMed
FIRSTConsult http://www.firstconsult.com (formerly PDxMD)	A database of evidence summaries drawn from Cochrane, Clinical Evidence, the National Guideline Clearinghouse and others.	Elsevier
InfoRetriever http://www.infopoems.com	A search engine with access to evidence-based sources such as POEMs, Cochrane, clinical rules, a diagnostic test database, practice guideline summaries and Griffith's Five-Minute Clinical Consult; subscribers also receive Daily POEMs via e-mail.	InfoPOEMs Inc.
SUMSearch http://sumsearch.uthscsa.edu/	A search engine that gathers evidence-based clinical information from MEDLINE, DARE and the National Guideline Clearinghouse.	The University of Texas Health Science Center
TRIP Database (Turning Research Into Practice) www.tripdatabase.com	A search engine that gathers evidence-based clinical information from MEDLINE, DARE, the National Guideline Clearinghouse and many other evidence-based Web sites.	Gwent, Wales
The York Database of Abstracts of Reviews of Effects (DARE) http://www.york.ac.uk/inst/crd/darehp.htm	A collection of abstracts of systematic reviews.	Centre for Reviews and Dissemination, University of York
CLINICAL GUIDELINES Institute for Clinical Systems Improvement (ICSI) http://www.icsi.org/knowledge/	Guidelines for preventive services and disease management developed by ICSI, an independent, nonprofit collaboration of health care organizations, including the Mayo Clinic, Rochester, Minn.	Institute for Clinical Systems Improvement
National Guideline Clearinghouse http://www.guidelines.gov	Comprehensive database of evidence-based clinical practice guidelines.	The Agency for Healthcare Research and Quality
U.S. Preventive Services Task Force (USPSTF) Recommendations http://www.ahrq.gov/clinic/uspstfix.htm	Recommendations for clinical preventive services based on systematic reviews by the U.S. Preventive Services Task Force.	USPSTF

OTHER

Name	Description	Publisher/Sponsor
DailyPOEMs http://www.info poems.com	Daily e-mail update with approximately 30 POEMs per month; subscription includes InfoRetriever access online or via PDA (above).	InfoPOEMs Inc.

Other myths include “Replacement for vitamin B₁₂ deficiency caused by pernicious anemia must not be done orally” and “Patching the eye improves comfort and healing in patients with corneal abrasions.”⁸ “The passing down of medical myths is unfortunately the way most of us learn medicine,” says Stewart. “Even in the face of new information, it’s more comfortable to keep doing what we’ve always done. We then take these medical myths and hand them down from generation to generation of physicians instead of looking at what the current evidence truly shows us we should be doing.” Without the aid of current best evidence, physicians can easily fall into a “clinical cascade,”⁹ trying to be certain that their clinical decisions are correct. In one study, physicians who were trying to detect liver metastases were asked at what point they would discontinue testing and be satisfied with the likelihood of their diagnosis. In 86 percent of cases, physicians said they would be comfortable with an 80 percent chance of certainty. But when presented with hypothetical situations, 50 percent called for further evaluations even after reaching their stated thresholds.¹⁰ “Basically, the physicians wouldn’t stop until they had added yet another modality and another modality and so on,” says Stewart. “When you start adding layer after layer of testing, your chances of having a false positive go up astronomically and you don’t improve care.”

One reason physicians mistakenly embark on this path is anecdotal evidence that the worst could happen. “Physicians must refuse to give in to the mentality that ‘I saw it once, and so forevermore I will order this test on every patient like this who I see.’”

Getting started

Until recently, practicing EBM was a technical, time-intensive endeavor that few physicians had the skills, time or will to pursue on their own. Today, thanks to new resources and technologies, EBM has become doable even for busy healthcare professionals. Here’s how to get started:

1. Know where to look for the answers to your clinical questions. “The easiest way to practice evidence-based medicine is to let someone else do the work for you,” says Flaherty, referring to the wealth of reputable EBM resources now available, which continually search, appraise and summarize the literature for physicians.

To decide which resources suit you best, experiment with those listed in the box, ask your colleagues for their recommendations as well, and answer the following questions:

- How strong is the evidence, and is it rated? The resources will vary in how systematically they approach the evidence, but they should at least support their statements with references from original research and should supply evidence rankings for any recommendations.
- Is it comprehensive? If the resource answers only 20 percent of your questions, you’re not going to find it useful in everyday practice.
- Is the information filtered to focus on the most relevant information that actually addresses patient outcomes?
- Is it easy to use? With some practice, you should be able to find the information you need quickly and easily.

- Does the resource offer a final recommendation? This can be a useful aid in making decisions at the point of care.
- Is it available at the point of care?
- Is it regularly updated?
- Does it take into account the primary care perspective?

2. Get EBM resources into your exam room. The most effective way to learn from clinical questions is to address them at the moment they arise, which requires having EBM resources accessible at the point of care. While many physicians still prefer paper-based resources (e.g., the print version of Clinical Evidence), mobile technology based resources are becoming more attractive, particularly for their searching abilities. One option is for physicians to put a computer in their exam room with quick links to EBM Web sites (again, see the resource list). "I have a computer right in my exam room, and when I'm done with the exam, it's not unusual for the patient and me to sit down, go to resources like Cochrane, and actually find out what the best information is on a topic," says Flaherty.

With some practice, the searching process takes just a few minutes, so it can be incorporated into even a busy practice. "The key is establishing the habit, developing convenient resources, and not being afraid to look things up in front of the patient," says Flaherty.

In some cases, physicians can save their search until after the patient leaves. The trick is to capture those questions in writing and later follow through with finding an answer.

3. Don't believe everything you read. As you wade through the medical literature in your in-box each month, be selective and critical in your reading. To decide quickly whether a study warrants attention,

Flaherty teaches his students to look at the abstract and answer seven questions (PP-ICONS, for short):

- Problem - Is it a problem I see in my practice?
- Patient population - Does the study's patient population look like my patient population?
- Intervention - What is the intervention, and is it realistic in my setting?
- Comparison - What is the intervention being compared to, and is it a reasonable comparison?
- Outcomes - Would the outcomes matter to my patients?
- Number - How many patients were in the study? "Studies with small numbers, generally less than 400, may be interesting, but not worth applying," says Flaherty. "Wait for the meta-analysis."
- Statistics - How does the study present its findings? Most research papers use the relative risk reduction, which tends to emphasize small differences in the research findings. A better statistic, says Flaherty, is the number needed to treat, which is simply the reciprocal of the absolute risk reduction.

"The number needed to treat is the most brilliant statistic that we have devised in the last hundred years," says Flaherty. "It tells you how many patients you need to treat for one patient to benefit. For many of our popular treatments, the NNT is 100, which means our patients have a 1 percent chance of benefiting from it." (For more information on the number needed to treat, see "Understanding the Risks of Medical Interventions," FPM, May 2000, page 59-60.)

4. Start with common, important conditions. To make the best use of your time and energy, focus your EBM efforts on the most common and

important conditions in your practice. First, you must identify them, and then commit to finding the best information for each one. You could tackle this project as a group, assigning a few conditions to each physician, or you could go it alone. “Any physician could do this,” says Flaherty. “Commit to spending a little time after work this month, go to the best resources, such as Cochrane or Bandolier, and find out what the best evidence is for treating ear infections, for instance.” You can then summarize your findings and print them as a care reminder or encounter form to aid your decision making. (For an example, see page 61 of this issue.)

When Flaherty analyzed his practice, he found that roughly 90 percent of visits dealt with 26 common conditions, including depression, low-back pain, headache, asthma and hypertension.

5. Use evidence-based clinical guidelines – and ignore the rest. “Until a few years ago, clinical guidelines were mostly junk,” says Flaherty. “They were consensus-based. They were opinions not backed up by science.” Such guidelines earned the nickname “BOGSATs,” says Shaughnessy, “because they were created by a Bunch of Old Guys Sitting Around Talking.” In recent years, thanks to EBM’s influence on professional bodies, more of them are using scientifically rigorous methods for establishing guidelines versus relying on consensus and expert opinion. “You can tell good guidelines at a glance,” says Flaherty, “because they grade the relevance and validity of the recommendations and the quality of the research that they’re based on.”

6. Don’t lose sight of the individual patient. The one step in EBM that remains a do-it-yourself endeavor is integrating the evidence with your clinical expertise and applying it to the patient sitting in front of you. For example, when deciding whether catheterization is appropriate for a patient with chest pain, the physician must not only be aware of the evidence but must take into account the patient’s risk factors, comorbidities, preferences, etc. “The likelihood that chest pain is caused by coronary artery disease is vanishingly small in an otherwise healthy 20 year old, but may exceed 50 percent in an older patient catheterization may be an appropriate initial study,” says Mark Ebell, MD, MS, deputy editor for evidence-based medicine for American Family Physician and a founder of InfoPOEMs. “While having a single diagnostic strategy for all patients with chest pain would be convenient, it would not be good practice.”

Adaptation of EBM:

The shift from traditional to evidence-based medicine is possible, with little efforts. “Change, such as voluntarily finding and employing the best evidence, requires not just time and skill but a personal attitude and commitment to change,” says Flaherty. “The trick is not just teaching the use of a tool like EBM but, more fundamentally, fostering the attitude of change. This doesn’t come from external sources, but from internal commitment.”

The practice EBM is not just better medicine for patients, it is also better medicine for physicians. Hope the article certainly solves some uncertainty in the fundamentals of EBM.

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