Evidence-based medicine: What it is, what it is not

SCENARIO 1. As a conscientious ophthalmologist you desire to be up-to-date on the current accepted clinical practice. You read several journals, but you are not sure which to adopt and which to reject. You attend conferences and seminars, but you are not sure that the “experts” are providing you unbiased justification for their recommendations.

Scenario 2. Representatives of pharmaceutical companies visit you and provide you with reprints in support of their product. How much value should you give to the information they provide?

Scenario 3. A patient whom you have been treating for some time visits you and asks about a new treatment that he picked up from the Internet. You admit that you are not aware of the treatment but promised to look it up. How will you find the answer?

The answers to your dilemma in the above or similar scenarios may very well be found in the use of the principles of evidence-based medicine (EBM). What follows is an abstract of the Introduction to Sackett’s book. EBM is the integration of the best research evidence with clinical expertise and patient values.

The first part of EBM involves finding the best research evidence. This has been made difficult because of:

- the daily need for valid information about diagnosis, prognosis, therapy, and prevention (up to 5 times for inpatient and twice for every 3 outpatient);
- the inadequacy of traditional sources of information because they are out-of-date (textbook), frequently wrong (experts), ineffective (didactic continuing education), or too voluminous (journals);
- the disparity between our diagnostic skills and clinical judgment, which increases with experience, and our up-to-date knowledge and clinical performance, which decline;
- our inability to set aside more than half an hour per week for general reading and study, or more than a few seconds per patient for assimilating this evidence.

Five developments have made these seeming insurmountable problems amenable to full-time clinicians:

- the development of strategies for efficiently tracking down and appraising evidence (for its validity and relevance);
- the creation of systematic reviews and concise summaries on the effect of health care.
• the creation of evidence-based journals of secondary publication;
• the creation of information systems and bringing the information to clinicians in seconds; and
• the identification and application of effective strategies for life-long learning and for improving our clinical performance.

The practice of EBM is composed of 5 steps:

Step 1. Convert the need for information into an answerable question.
Step 2. Track down the best evidence to answer the question.
Step 3. Critically appraise the evidence for its validity, impact, and applicability.
Step 4. Integrate the critically appraised evidence with clinical expertise and the patient’s values and circumstances.
Step 5. Evaluate the effectiveness and efficiency in executing steps 1-4 and seek ways to further improve the process.

(The reader is referred to the book or other references for details in undertaking the above steps.)

What are the limitations of EBM?

1. There is no indication that evidence-based medicine improves outcomes of patient care. Randomized clinical trials are difficult to conduct in certain instances due to problems of sample size, blinding, contamination, long-term follow-up, and ethical considerations.
2. The difficulty of looking for the best available evidence from the scientific literature, which is not coherently and consistently catalogued.
3. The difficulty of applying the best available evidence to the care of a particular patient.
4. The limitations and barriers to the practice of quality medicine.
5. The need for developing the skills in critical appraisal.
6. The limited time of busy clinicians to apply and master EBM.

EBM provides the clinician with an opportunity for adding the best clinical evidence to the usual clinical paradigm of understanding the pathophysiology of the disease, common sense, experience, and expert opinion. EBM does not provide the answer, only the evidence that the clinician integrates with his expertise and the patient’s circumstances.

The practice of EBM, particularly for the beginner, is difficult and time-consuming. The application of the best available evidence in clinical practice appears logical but there is no evidence that it is cost-effective. On the other hand, the clinician will be on the defensive for not using the best available evidence in case of litigation.

The following articles will provide you with a glimpse of what EBM can and cannot do.

References