Evidence-Based Medicine

EBM NOTEBOOK

On the need for evidence-based medicine

Welcome to *Evidence-Based Medicine*, the journal. Its purpose is to serve evidence-based medicine (EBM), the emerging clinical discipline that brings the best evidence from clinical and health care research to the bedside, to the surgery or clinic, and to the community.

The practice of EBM is a process of life-long, problem-based learning in which caring for our own patients creates the need for evidence about diagnosis, prognosis, therapy, and other clinical and health care issues. In the EBM process, we 1) convert these information needs into answerable questions; 2) track down, with maximum efficiency, the best evidence with which to answer them (whether from the clinical examination, the diagnostic laboratory, the published literature, or other sources); 3) critically appraise that evidence for its validity (closeness to the truth) and usefulness (clinical applicability); 4) apply the results of this appraisal in our clinical practice; and 5) evaluate our performance.

We clinicians need new, clinically important evidence as often as twice for every 3 patients seen, and affecting up to 8 clinical decisions a day, according to Covell and colleagues (1). Most of our information needs, however, are never met. Our textbooks are out of date, our journals are disorganised, and the disparity between our reading time and our reading load is discouraging. Even self-reports from enthusiastic clinical teachers place their median reading time at only about 2 hours per week, yet general physicians must come to grips with 19 original articles per day, 365 days per year, if they want to keep abreast of their field (2).

It is no wonder, then, that a statistically and clinically significant negative correlation exists between our knowledge of up-to-date care and the years that have elapsed since our graduation from medical school. In one study of clinical behaviour, the decision to start antihypertensive drugs was more closely linked to the number of years since the physician's medical school graduation than to the severity of the patient's target organ damage (3). It is no wonder that continuing medical education (CME) programmes flourish. But traditional, instructional CME fails to modify our clinical behaviour and is ineffective in improving the health outcomes of our patients. For example, a random sample of Canadian general practitioners received personalised, instructional CME programmes for clinical conditions they personally preferred to learn more about, but only on the condition that they would accept additional CME for conditions they did not want to learn more about. When the quality of care they subsequently provided patients was monitored and compared with that of control physicians, it was found that quality of care improved only for the low-preference conditions (CME works when you don't want it), and the small improvement in the care they gave patients with high-preference conditions was matched by that provided by control physicians (when you want CME, you don't need it) (4).

Does anything work? Recent evidence suggests that 3 broad strategies based on the principles, strategies, and tactics of EBM can be successful in keeping us up-to-date. They consist of learning how to practise EBM ourselves, of seeking and applying EBM summaries produced by others, and of adopting evidence-based practice protocols developed by respected colleagues and introduced with validated manoeuvres that help us improve our clinical behaviour (5).

When graduates of a medical school that emphasised problem-based learning and critical appraisal were compared with graduates of a traditional school for their knowledge of clinically important advances in the detection, evaluation, and management of hypertension, the latter exhibited the usual, progressive deterioration, but the knowledge of the former remained high-level and up-to-date, even 15 years after graduation (6). Other studies and observations have shown that we can master EBM skills even after several years in practice (e.g., by participating in case-based journal clubs or in continuing professional development programmes that stress active learning).

The second effective strategy for keeping up-to-date is to seek out and apply specific examples of EBM produced by others. *Evidence-Based Medicine* tries to serve this second approach. We will screen over 50 journals (*see* next page for listing) each month for articles on diagnosis, prognosis, therapy, aetiology, quality of care, and health economics that are both relevant to medical practice and adhere to rigorous methodological standards for patient-based research (e.g., if the study is about therapy, was there random allocation of patients to treatments?; if the study is about diagnosis, was there an independent, blind comparison with a gold standard?; if the study is about prognosis, were patients assembled at an early and uniform point in their illness?).

Each of those that pass muster (only about 12 per month!) will be introduced with a declarative title that announces its clinical bottom line, summarised in a more informative abstract, and placed in its proper clinical context by an accompanying commentary from a seasoned clinician.

Evidence-Based Medicine is produced in collaboration with its related publication, the highly successful *ACP Journal Club*, and takes half of its contents from the internal medicine offerings of the latter. To these we will

add the most important clinical studies in general practice/family medicine, surgery, obstetrics and gynaecology, paediatrics, and psychiatry.

Some of the abstracts that appear in *Evidence-Based Medicine* are possible because of the development of scientific methods for identifying, assembling, and synthesising the growing numbers of randomised trials of the effects of health care. As described in the following EBM Note, the performance of systematic reviews of health care (also called overviews or, when they employ statistical methods for combining trials, meta-analyses) is so logical a step in the progress toward evidence-based health care that it has become the focus of a rapidly growing international group of clinicians, methodologists, and consumers called the Cochrane Collaboration. The systematic reviews that are beginning to flow from this unselfish collaboration, updated each time an important new trial is reported, are providing the highest levels of evidence ever achieved on the efficacy of preventive, therapeutic, and rehabilitative regimens, and those pertinent to our areas of clinical interest will appear here.

We want to make it possible for busy clinicians seeking valid clinical bottom lines to eschew nonsystematic expert reviews and self-serving commercial sources and, in journals such as *Evidence-Based Medicine*, find more useful and valid summaries of evidence on a growing array of clinical topics, prepared and appraised according to uniform, scientific principles.

When clinical guidelines and other practice recommendations are based on this level of evidence (most to date are not), they become worth following. This leads to the third strategy we can use for keeping up-to-date: combining evidence-based guidelines with validated strategies that help us follow them. Such strategies include individualised audit and feedback (the growing use of computers in clinical practice can enable and enhance this approach); receiving advice from a respected colleague (who has learnt EBM); visits from noncommercial detailers (who inform us about specific evidence-based ways of caring for patients rather than exhorting us to prescribe specific drugs); taking minisabbaticals or preceptorships in places where EBM is practised; and being influenced by our patients who have received reminders and information about their care.

We hope that *Evidence-Based Medicine* will serve all these strategies for achieving more effective health care by providing easier access to high-quality evidence that is ready for prime-time clinical application, and can help us move ourselves from opinion-based practice toward evidence-based medicine.

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References

1. **Covell DG, Uman GC, Manning PR.** Information needs in office practice: are they being met? Ann Intern Med. 1985;103:596-9.
2. **Davidoff F, Haynes B, Sackett D, Smith R.** Evidence based medicine. A new journal to help doctors identify the information they need. BMJ. 1995;310:1085-6.
3. **Evans CE, Haynes RB, Gilbert JR, et al.** Educational package on hypertension for primary care physicians. Can Med Assoc J. 1984;130:719-22.
4. **Sibley JC, Sackett DL, Neufeld VR, et al.** A randomized trial of continuing medical education. N Engl J Med. 1982; 306:511-5.
5. **Davis DA, Thomson MA, Oxman AD, Haynes RB.** Changing physician performance: a systematic review of the effect of educational strategies. JAMA. 1995; [In press].
6. **Shin JH, Haynes RB.** The effect of problem-based, self-directed undergraduate education on life-long learning. Can Med Assoc J. 1993;148:969-76.

Core Journals

Am J Med	Arch Intern Med	Diabetes Care	Lancet
Am J Obstet Gynecol	Arch Pediatr Adol	JAMA	N Engl J Med
Am J Psychiatry	Arch Surg	J Am Board Fam Pract	Obstet Gynecol
Am J Surg	BMJ	J Am Coll Surg	Pediatrics
Ann Intern Med	Br J Obstet Gynaecol	J Gen Intern Med	Surgery
Ann Surg	Br J Surg	J Intern Med	
Arch Dis Child	Clin Pediatr	J Neurol Neurosurg Psychiatry	
Arch Gen Psychiatry	Circulation	J Pediatr	

Journals for Continuing Review

Age Ageing	Arch Neurol	Gastroenterology	Med Care
Am J Cardiol	Br Heart J	Gut	Med J Aust
Am J Public Health	Br J Rheumatol	J Am Coll Cardiol	Neurology
Am J Respir Crit Care Med	Can Fam Phys	J Am Geriatr Soc	Spine
Ann Emerg Med	Can Med Assoc J	J Clin Epidemiol	Stroke
Ann Med	Chest	J Fam Pract	Thorax
Arch Fam Med	Crit Care Med	J Infect Dis	