

Editorials

Evidence-Based Emergency Medicine

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[Guyatt GH: Evidence-based emergency medicine. *Ann Emerg Med* November 1997;30:675-676.]

Evidence-based medicine (EBM), a term that first appeared in the medical literature only 6 years ago, has become something of a mantra.¹ EBM is sometimes perceived as a blinkered adherence to randomized trials, or a health care managers' tool for controlling and constraining recalcitrant physicians. In fact, EBM involves informed and effective use of all types of evidence, but particularly evidence from the medical literature, in patient care.

The evolution of EBM has included outward expansion—we now realize that optimal health care delivery must include evidence-based nursing, physiotherapy, occupational therapy, podiatry, and so on—and specialization. We need evidence-based obstetrics, gynecology, internal medicine, and surgery—and indeed, urology, orthopedics, and neurosurgery. And of course, we need evidence-based emergency medicine (EBEM).

EBM involves a hierarchy of evidence, from metaanalyses of high-quality, randomized trials showing definitive results directly applicable to an individual patient, to relying on physiologic rationale or previous experience with a small number of similar patients. The hallmark of the evidence-based practitioner is that, for particular clinical decisions, she or he knows the strength of the evidence, and therefore the degree of uncertainty.

Unfortunately, practicing EBM is not easy. Practitioners must know how to frame a clinical quandary to facilitate use of the literature in its resolution. "What is the role of thrombolytics in patients with acute myocardial infarction?" must, for instance, become "in patients presenting with chest pain and particular ECG features, what is the effect of streptokinase on mortality and morbidity, including intracerebral hemorrhage?" Evidence-based practitioners must know how to search the literature efficiently to obtain the best available

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evidence bearing on their question, to evaluate the strength of the methods of the studies they find, extract the clinical message, apply it to the patient, and store it for retrieval when faced with similar patients in the future.

Traditionally these skills have not been taught in either medical school or postgraduate training. Although this situation is changing, the biggest influence on how trainees will practice is their clinical role models, few of whom are currently accomplished EBM practitioners. The situation is even more challenging for those seeking to acquire the requisite skills after completing their clinical training.

Yet, many clinicians have risen to the challenge. The variability in enthusiasm with which different branches of medicine have embraced EBM is interesting. Every year at McMaster University, a group of clinical teachers who have devoted themselves to the pedagogy of EBM offer a course on how to teach EBM. The course, based on a small-group learning paradigm, has always attracted internists and, to a lesser extent, primary care practitioners and pediatricians. We have yet to be able to construct a full group (eight people) of specialists in surgery or obstetrics and gynecology.

Last year, we had sufficient enrollment to form our first emergency medicine group. I believe this is one barometer of the rapidly growing interest in EBEM. The formation of a group who will begin the EBEM series and the decision by *Annals* to sponsor and publish the series are further indicators.

What will *Annals* readers gain from the series? Those already trained in EBEM skills will find case studies of how colleagues address important emergency medicine issues using evidence-based methods. Those without such training will find an introduction to EBEM approaches.

One aspect of the series could be seen as a violation of a fundamental tenet of EBM. Traditional narrative reviews risk misleading through biased selection of articles, and biased weighing or pooling of the evidence from those articles. Systematic reviews and metaanalyses reduce the likelihood of bias through explicit inclusion and exclusion criteria, a comprehensive search for relevant articles, explicit assessment of the methodologic quality of the articles included, reproducible selection and rating of studies, and formal statistical analysis of the pooled data.² The reviews in this series will be neither fully systematic nor fully comprehensive.

Further, evidence alone never makes treatment decisions; value judgments are required to proceed from evidence to action. When done well, decision analysis and practice guidelines constitute formal processes whereby representative values are made explicit in the movement from evidence to recommendations.³⁻⁶ To the extent that authors of the series

suggest specific management approaches they risk keeping value judgments implicit and idiosyncratic.

Fortunately, the series includes a potential corrective mechanism for biased ascertainment or summarization of evidence, and idiosyncratic value judgments. Readers will be able to point out key articles that authors may have neglected, or inappropriate inferences they might make. In doing so, the series will make evident the possibly unsettling uncertainty involved in the practice of EBEM.

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Myths Regarding the NINDS rt-PA Stroke Trial: Setting the Record Straight

[Haley EC Jr, Lewandowski C, Tilley BC, NINDS rt-PA Stroke Study Group: Myths regarding the NINDS rt-PA Stroke Trial: Setting the record straight. *Ann Emerg Med* November 1997;30:676-682.]

Since the publication of the results of the NINDS rt-PA Stroke Trial in December 1995,¹ some have debated the significance of the reported observations for patients with ischemic stroke. The debate continues even after the US Food and Drug Administration approved recombinant tissue plasminogen activator (rt-PA) for use in highly selected patients with ischemic stroke in June 1996. The NINDS rt-PA Stroke Study Group* applauds the close scrutiny of

*Members of the NINDS rt-PA Stroke Study Group are listed in the Appendix to reference 1.