

# Evidence-based medicine in primary care:

## Perils and pitfalls

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Evidence-based medicine (EBM) announced itself in 1992 in the *Journal of the American Medical Association* with the bold proclamation that 'a new paradigm for medical practice is emerging'.<sup>1</sup> In articulating their model, the architects of EBM explicitly de-emphasised intuition, unsystematic clinical experience, and pathophysiologic rationale as sufficient grounds for clinical decision making, stressing instead the use of best available evidence from clinical research. The new paradigm would demand new skills of the physician; indeed, at the core of EBM is the 5-step method of practice:

1. Formulation of a clinical question;
2. Search of the literature for the best available evidence;
3. Critical appraisal of the evidence;
4. Application of the evidence in clinical practice; and
5. Evaluation of performance.

A cursory glance indicates the degree to which EBM has permeated medical culture. A search of the

phrase 'evidence-based medicine' in PubMed yields over 12 000 hits – truly an astonishing abundance. The concept has also become a mainstay of undergraduate, graduate, and postgraduate medical education curricula. There is a proliferation of journals devoted to the concept of EBM. Clearly, the success of the dissemination of the concept has been aided by the advent of information technology.

Despite the widespread enthusiasm for the concept, however, there are reasons for pause before accepting in an uncritical manner the tenets of EBM. In this commentary, we outline some of our thoughts and concerns with the model of EBM, which we have categorised as follows:

1. The effectiveness or superiority of EBM;
2. The conceptualisation of evidence in EBM;
3. The base and fundamental nature of evidence; and
4. The future of EBM in primary care.

### What is the evidence that EBM is effective?

One of the paradoxes of the move towards EBM is that it has a scant empirical base suggesting its own effectiveness or superiority to other more traditional forms of medical practice. This issue, among others, was summarised recently by Geoff Norman, in the *Journal of Evaluation in Clinical Practice*.<sup>2</sup> It is no small irony that a movement premised on the superiority of research-based approaches cannot sustain or provide evidence of clear superiority. Part of this is conceptual, as it would be difficult now to arrange a randomised trial of EBM; however, from the outset, members of the Evidence-Based Medicine Working Group appeared cognisant of the fact that there would never be evidence of the superiority of EBM when they wrote: 'The proof of the pudding of evidence-based medicine lies in whether patients cared for in this fashion enjoy better health. This proof



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is no more achievable for the new paradigm than it is for the old, for no long term randomized trials of traditional and evidence-based medicine are likely to be carried out.<sup>3</sup>

Further concerns arise from the empirical investigations of physicians' attitudes toward EBM. For example, a study of Australian primary care providers indicated that they were barely able to define key definitions in EBM.<sup>4</sup> The authors of another study concluded that the EBM approach may not be best suited for primary care. British general practitioners prefer to use evidence generated summaries by others and evidence-based practice guidelines or protocols:

*'Most of the respondents (57%) thought that the most appropriate way to move from opinion based practice to evidence based medicine was 'using evidence based guidelines or protocols developed by colleagues for use by others,' while 37% thought it should be by 'seeking and applying evidence based summaries' and only 5% by 'identifying and appraising the primary literature or systematic reviews.'*<sup>5</sup> When one makes the move back to pre-appraised sources of evidence, which are gaining popularity in primary care (see, for example, *Journal of Family Practice POEMS*) one is simply introducing another form of authority, namely that of the appraiser. The means of determining who becomes an appraiser for a POEM, or an evidence-based digest producer is ad hoc at best and it is really a disguised form of evidence-based authority supplanting independent reasoning, which was one of the central tenets of traditional practice EBM sought to challenge.

## What is the conceptualisation of evidence in EBM?

A second problem with EBM is its underlying definition of evidence and

its relation to a central evidence hierarchy. Two issues emerge from this. First, critics have argued that the definition of evidence implicit to EBM is highly restrictive; in fact, it eliminates from consideration as evidence a number of important inputs to the clinical decision-making process that would be considered under

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a broader definition of evidence.<sup>6-8</sup> Patient values and preferences, which are meant to be integrated into decision making, are arguably on some constructions of EBM, excluded as forms of evidence. Qualitative research, which can illuminate many aspects of primary care, is discounted and devalued within the EBM approach.<sup>9</sup> The evidence derived during the course of clinical practice – the type of practical, experiential knowledge that only develops over time – is also excluded in the initial model of EBM though recent reformulations have tried to re-emphasise its importance.

The concept of an evidence hierarchy itself is also problematic. As recently reported, there is a profusion of evidence hierarchies, each using somewhat a different nomenclature and basing the recommendations on slightly different variants of the assessment of the evidence.<sup>10</sup> In some, meta-analysis with systematic reviews with no homogeneity of the data counts as the highest evidence. For others, a single well-designed randomised controlled trial constitutes 'best evidence'. Some hierarchies admit consensus deliberations and others banish them.

Again, like the concept of EBM itself, these various hierarchies have not been derived from any form of

systematic research into the reliability and validity of claims. Indeed, on an evidence hierarchy basis, there is a certain contradiction as the evidence hierarchy itself is largely driven by expert opinion and not systematic research into what counts as critical evidence and hence represents low grade evidence.

A further issue arises from the credibility of evidence sources. A recent study we completed on the promotion of EBM in primary care showed that while family physicians are generally accepting of the concept of EBM, they have difficulty with the credibility of certain evidence claims.<sup>11</sup> Part of the explanation is the explosion in the number of industry-sponsored randomised control trials. Many participants in our study pointed to the growing influence of the pharmaceutical companies as an important emerging problem, particularly as they were so heavily detailed in practice. Alternative concepts of evidence have been proposed and modes of clinical reasoning based on narrative approaches has also been advanced that may be more resonant with primary care providers.<sup>8,12</sup>

## How foundational is evidence?

Our third concern relates to the conflicting nature of evidence itself and how evidence can serve as a base or

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foundation for clinical decision making. EBM stresses the application of the best available evidence in clinical practice; however, we are often bombarded by studies reporting contrary results.

One study may show certain exposures such as egg eating or dietary features are deleterious to health, while another study will contradict these results. Even certain well-designed randomised trials designed to clarify issues in clinical practice of-

ten lead to unclear situations. A perfect example of this is the recent randomised trial of prostatectomy versus watchful waiting in the treatment of prostate cancer in men.<sup>13</sup> While the ultimate results showed no mortality benefit in either arm, there were certain trade-offs that were largely incommensurable, in that the intervention arm was less likely to die of prostate cancer while the placebo arm was less likely to suffer impotence or urinary incontinence. How these results can be applied in practice becomes a difficult issue. So evidence at best provides shifting sands for decision making.<sup>14</sup> Evidence relevant to clinical decision making may not be at hand, become rapidly irrelevant, or never be available.<sup>15,16</sup>

The other issue is the extent to which the skills of EBM can be regarded as foundational. Guyatt et al. have in fact acknowledged that because of the time-consuming nature of EBM, it will be difficult for all practitioners to become purely evidence-based practitioners '*as many clinicians will not be interested in gaining a high level of sophistication using the original literature and, secondly, those who do will often be short of time in applying these skills.*'<sup>17</sup> This is a problematic claim.

How can a set of skills be considered foundational if all practitioners would not achieve proficiency in this skill? This certainly could not be claimed for basic skills such as history taking and physical examination.

### What is the future of EBM in primary care?

Finally, there is the issue of the new EBM. In a recent article, Haynes et al. in the *British Medical Journal* have argued that the concept of EBM needs to place clinical expertise at the centre of overlapping concerns with the clinical state and circumstances, research evidence, and pa-

tient preferences and actions.<sup>18</sup> While this step recognises that evidence is not the only component of a good clinical decision, it still leaves unanswered many questions about patient preferences and actions, and how they integrate with clinical care. It also leaves unanswered how one should deal with patient preferences in the absence of evidence or when patients desire treatments or interventions that are broadly contrary to evidence. Family practice often lauds itself for its patient-centered component. An important dimension that requires addressing in the EBM field is how to deal with patient-driven versus patient-centred practice.

In a recent study, we surveyed the attitudes of Canadian family physicians towards EBM, and presented respondents with a series of clinical scenarios or vignettes.<sup>19</sup> We randomly altered the wording in the vignettes so that physicians received a package where patients variously demanded,

requested, or wondered whether they needed a procedure. In one scenario, an 80-year-old woman with congestive heart failure comes in to

variously demand, request, or wonder whether she should have a screening mammogram. When the patient demanded a mammography, the odds ratio was 5.1, indicating a fivefold greater likelihood for physicians to provide screening mammography to a woman with congestive heart failure if demanded as opposed to wondering. We believe these are important results that suggest a need for attention if we are truly to become in some way evidence-based. Patient demands should no more drive clinical practice than physician paternalism, and how one moves towards being patient-centred without being patient-driven is an important

consideration. In this scenario, the utility of mammography screening is quite low to non-existent. There are no evidence-based guidelines to inform our decisions, and it is unlikely that a large randomised trial on the utility of mammography screening in 80-year-old women with congestive

heart failure will be undertaken. The need for physicians to manage patient demands as well as to bring research evidence to bear on this issue is pressing.

Evidence-based medicine is an idea with which most people probably could not disagree. The name it-

self admits to little argument. One would be pressed to admit that they practice whimsically-based, or arbitrary medicine. The challenge for evidence-based medicine in primary care, however, is to admit various forms of evidence and to move the centrality of the patient-physician interaction into a more deliberative mode. There is general agreement that clinical decisions should be well thought out, non-arbitrary, and based on something other than whim or caprice. We think the central task now is to articulate both a theory of evidence in clinical practice that admits a variety of inputs into consideration. The newly-revised model of EBM is a step in that direction; however, it is clear that primary care providers and family physicians have much to contribute to the ongoing evolution of EBM as they are the central interface with the health care system.

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## USERS' GUIDES FOR A PRACTICE GUIDELINE

### I. Are the results of the study valid?

- Primary Guides:
  - Were all important options and outcomes clearly specified?
  - Was an explicit and sensible process used to identify, select, and combine evidence?
- Secondary Guides:
  - Was an explicit and sensible process used to consider the relative value of different outcomes?
  - Is the guideline likely to account for important recent developments?
  - Has the guideline been subject to peer review and testing?

### II. What were the results?

- Are practical, clinically important, recommendations made?
- How strong are the recommendations?
- What is the impact of uncertainty associated with the evidence and values used in the guidelines?

### III. Will the results help me in caring for my patients?

- Is the primary objective of the guideline consistent with your objective?
- Are the recommendations applicable to your patients?

*From: How to Use a Clinical Practice Guideline, Robert S.A. Hayward, Mark C. Wilson, Sean R. Tunis, Eric B. Bass, Gordon Guyatt for the Evidence Based Medicine Working Group.*

### For further information refer to:

The Centre for Health Evidence: <http://www.cche.net/usersguides/guideline.asp>