



GUEST EDITORIAL

Criticisms of Evidence-Based Medicine

More than twenty years after its conception, 'evidence-based medicine' (EBM) continues to invoke polarised debate. There are several areas of disagreement between EBM supporters and detractors as well as unanswered questions about the role of EBM in modern healthcare. Proponents suggest that the goal of EBM is to rescue medicine from many of its major ills, including wide variations in clinical practice, use of unproven interventions, and failure to apply consistent practice guidelines. Opponents disagree that EBM adequately addresses these issues, and dismiss EBM on the grounds of philosophical and practical flaws. This editorial briefly summarises the criticisms of EBM under five main themes, to provide a starting point for more focused discussion.

The first type of criticism involves the philosophical underpinnings of EBM, which is based on empiricism. In its rawest form, EBM elevates experimental evidence to primary importance over pathophysiological and other forms of knowledge, and implicitly assumes that scientific observations can be made independent of the theories and biases of the observer. However, since the late 19th century, philosophers and scientists have been aware that making theory-free, objective observation is impossible. All observations are affected by the world view of the observer.¹ In fact, the preferred situation is for "clinical trials to provide evidence in support of theory".² Clearer observations allow for theory to be challenged and eventually replaced by better theory. Better theory allows for more specific, more detailed, and ultimately more useful observations. EBM ignores this essential interplay between observation and theory, disregarding the history and philosophy of science.³

The second theme is that the definition of evidence within EBM is narrow and excludes information important to clinicians.^{4,5} EBM grades evidence according to the methods used to collect it. Certain types of studies, such as randomised

trials, are thought to be less vulnerable to bias and therefore 'better' evidence.^{3,6} However, randomised trials and meta-analysis have not been found to be more reliable than other research methods.^{3,7,8} The EBM definition of high quality evidence excludes information necessary to address many kinds of medically relevant questions.⁹ In addition, EBM does not provide a means to integrate other, non statistical, forms of medical information, such as professional experience and patient specific factors.^{3,4,10}

Third, EBM is not 'evidence-based' because it does not meet its own empirical tests for efficacy.^{3,11,12} Considering that EBM proposes that patient care can be improved by basing clinical decision-making on information from statistically valid clinical trials, it is somewhat ironic to find there is no evidence (as defined by EBM) that this is actually the case.³

Fourth, the usefulness of applying EBM to individual patients is limited. Because individual circumstances and values vary, and because there are so many uncommon diseases and variants, for "an increasing number of subgroups of patients we will never have higher levels of evidence".⁹ Clinicians must balance general rules, empirical data, theory, principles, and patient values and apply them to individual people.^{3,5} This requires a great deal of clinical judgment.¹³

Lastly, EBM has been criticised for reducing the autonomy of the doctor-patient relationship by limiting the patient's right to choose what is best in their individual circumstances. EBM *could* be used as a cost-cutting tool to deny treatment where interventions are not 'proven' effective. On the other hand, EBM could also increase costs by 'proving' the efficacy of some expensive interventions. Currently, the net effect of EBM is unknown.^{5, 14–16}

None of the critics of EBM suggest that high-quality evidence obtained by clinical epidemiological methods should be ignored in the context of

patient care. But it is only one factor of many, in a complex context. The five criticisms described above suggest that while EBM can be a useful tool, it has drawbacks when used in isolation in individual patient care. Modern medicine must strive to balance a complex set of priorities. To be an effective aid in achieving this balance, the theory and practice of EBM must expand to include new methods of study design and knowledge integration, and must adapt to the needs of both patients and healthcare professionals in order to provide the best care at the lowest possible cost.

Acknowledgements

The ideas in this editorial are explored in greater depth in Cohen AM, Stavri PZ, Hersh WR. A categorization and analysis of the criticisms of evidence-based medicine. *Int J Med Inf* 2004; 73(1): 35-43.

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