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The 'EBM movement': Where did it come from, where is it going, and why does it matter?

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Abstract

Evidence Based Medicine (EBM) has now been part of the dominant medical paradigm for 15 years, and has been frequently debated and progressively modified. One question about EBM that has not yet been considered systematically, and is now particularly timely, is the question of the novelty, or otherwise, of the principles and practices of EBM. We argue that answering this question, and the related question of whether EBM-type principles and practices are unique to medicine, sheds new light on EBM and has practical implications for those involved in all EBM. This is because one's answer to the question (whether explicit or implicit) affects the amount and type of funding and attention received by EBM, the extent to which EBM, and the generation, judgment and use of evidence more generally, can be appropriated by certain groups and questioned by others, and the extent to which truly unique socio-political developments in evidence, and in medicine more generally, are recognized and harnessed.

Keywords:

Evidence-based medicine, Exceptionalism

Concerns and debates about Evidence Based Medicine

The phrase 'evidence-based medicine' and the acronym 'EBM' have been in common usage since the 1990's, at which time they were introduced as a means of formalizing Archie Cochrane's proposal to privilege evidence over idiosyncratic clinical judgment [1]. During this time, EBM principles and practices have come to have a profound influence on the setting of biomedical research priorities, the generation of public health and clinical practice guidelines and the implementation of these guidelines in practice. At present, all funders and publishers of biomedical research and all policymakers and

practitioners of clinical and public health medicine are expected to understand and implement the principles of EBM.

Since its inception, EBM has been the subject of considerable professional and political debate and its principles and practice have evolved over time. There is, for example, an increasing recognition of the importance of integrating clinical expertise and patient values into evidence-based practice [2], of the need to avoid 'cookbook' and 'defensive' EBM practice [3] and of the need to challenge the traditional hierarchy that privileges randomized trials over all other study designs [4]. Whether these concerns have been addressed adequately is open to debate, with some seeing contemporary EBM as a relatively unproblematic practice and others, particularly those with a more philosophical or sociological bent, seeing EBM as a potentially problematic epistemological and socio-political movement [5].

In this paper we will argue that now is the perfect time to address systematically one of the many questions that has been asked about EBM: whether EBM (or, more accurately, its principles and practices) truly represent anything new about medicine, and the related question of whether EBM-type principles and practices are unique to medicine. Put another way, we need to address *systematically*, using a theory of perceptions of novelty and uniqueness, the question of whether EBM is 'old hat' or whether EBM truly represents a paradigm shift in biomedical thought and practice [3].

At first glance, this may seem to be a relatively academic question which is perhaps less important than questions about the kind(s) of evidence, and therefore research priorities, that are privileged within EBM [4,6,7] and questions about the ways in which EBM can and should be incorporated into clinical and public health policy and practice [3,6,7]. But we argue that perceptions of novelty and uniqueness have broad socio-political effects for all of those involved with EBM at the level of research, policy and practice. These socio-political effects include: the amount and type of funding and attention received by EBM; the extent to which EBM, and the generation, judgment and use of evidence more generally, can be appropriated by certain groups and questioned by others; and the extent to which truly unique socio-political developments in evidence, and in medicine more generally, are recognized and harnessed.

EBM and exceptionalism

To understand the link between perceptions of novelty and uniqueness and these broad socio-political implications, it is useful to draw on the sociological notion of 'exceptionalism'. This provides a means of linking the conceptualization of emerging phenomena—in particular judgments about their novelty and uniqueness—with the status given the phenomenon, its impacts and the way in which it is controlled.

The notion of ‘exceptionalism’ has been used by political scientists to describe the perception or claim that a particular social or political system (e.g. ‘America’) [8] or religion [9] is unique and has developed in unique ways. Bayer introduced the term into biomedicine when he used it to describe claims that HIV was a unique disease warranting a unique public health response [10]. It has since been applied to debates about the uniqueness, or otherwise, of genetic research and testing as compared to other types of medical research and testing [11]. In relation to EBM, therefore, an exceptionalist stance would hold that EBM is unique to, and/or novel within medicine, and a non-exceptionalist stance would emphasise the overlap between EBM and other evidence-related practices either outside of medicine, or within medicine prior to the advent of ‘EBM’. Debates about exceptionalism have evolved because it has been recognized that these stances have profound socio-political implications.

Exceptionalist judgments (i.e. judgments that an emerging phenomenon, such as EBM is unique and/or novel) have both advantages and disadvantages. The perception that something is new, unique and therefore ‘special’ can create a healthy interest in the phenomenon, but it can also lead to a detrimentally exclusive focus on the phenomenon, as well as unnecessary fear and mystique. To say, for example, that genetic testing is a unique and novel kind of medical testing makes genetics seem interesting to funders of research and regulators of genetic testing. This is good for those with genetic diseases, but it also has the potential to disadvantage those with other kinds of diseases, whose concerns are relatively sidelined [12], and it can result in an arguably unwarranted fear of genetic testing. EBM exceptionalism might, therefore, result in a healthy interest in the generation and application of evidence in medicine. Indeed, it has been observed recently that:

The evidence-based medicine (EBM) movement is touted as a new paradigm in medical education and practice, a description that carries with it an enthusiasm for science that has not been seen since logical positivism flourished (circa 1920-1950) [5: 2621]

But the resulting ‘EBM movement’ may also draw attention away from other aspects of medicine, and the notion that EBM is new and ‘special’ may make EBM seem unnecessarily mystical and inaccessible to all but the most specialized theorists and practitioners. This could account for the complaint, by some, that EBM has taken on an inappropriate degree of centrality in medical education and practice, sidelining other concerns, and that EBM has achieved ‘cult status’ and cannot be questioned.⁶

Exceptionalist judgments can result also in the political ‘hijacking’ of the emerging phenomenon by particular interest groups, since what is new and unique can be more easily appropriated and ‘owned’. This can be good if a sense of ownership motivates action and promotes a sense of responsibility, but the effects are not always positive. Everett complains about the hijacking of the genetics policy agenda by the ‘genetics privacy movement’ [13] and it is conceivable that EBM exceptionalism has resulted in a similar concentration of power in the hands of those who accept and have expertise in the principles and practices of EBM, and has marginalized those who do not [6].

Non-exceptionalist judgments (i.e. judgments that an emerging phenomenon, such as EBM, is part of the incremental development of a field) also have both advantages and disadvantages. On the positive side, non-exceptionalism allows practitioners to draw on insights from elsewhere rather than 're-inventing the wheel'. If, for example, the similarities between genetic testing and other forms of medical testing are recognized, then insights from our understanding of the issues relating to other medical tests, and our regulation of these testing procedures, can be applied to genetics, rather than generating a morass of unnecessary and possibly incomplete genetics-specific regulation and practice. Similarly, it could be very useful to draw on the rich insights and practical strategies of those who, throughout the history of medicine, have reflected on the role of evidence in medical practice [6]. And it could be very useful to recognize the similarities between the evidence-generating and evidence-applying principles of EBM and those of law, engineering and politics. Sophisticated debates about the nature and application of evidence have taken place, for example in relation to expert testimony in law [14] and in relation to the political assessment and management of scientific evidence of environmental and technological risks [15], and these debates could be applied to similar problems in medicine.

On the other hand, taking a non-exceptionalist stance (particularly if this stance is naïve and ill-considered) can prevent us from focusing on what is truly unique about an emerging phenomenon. To say that genetic testing is simply an extension of other testing procedures is to lose sight of the fact that genetic testing does, arguably, raise novel issues relating to the stability of the information throughout life, the potential for information to be generated about family members, etc. Similarly, to say that EBM is simply the latest iteration of evidence-use in medicine might lead us to lose sight of what is truly new and unique about modern EBM, such as its specific prioritization of some, relatively new, forms of evidence-generation (RCTs and meta-analyses) over others¹ and its grounding in 'post-genomic' medicine, with its generation of an unprecedented amount of raw data that needs to be translated (or not) into clinically-relevant evidence.

Given these implications of both exceptionalism and non-exceptionalism, it is crucial to be aware of whether one is taking an exceptionalist or a non-exceptionalist stance. What needs to be avoided is a *naïve* position in either direction in which the effects of exceptionalism or non-exceptionalism are hidden, which in turn means that the advantages cannot be maximized and the disadvantages cannot be managed [16].

The challenge of considering questions about exceptionalism

In relation to EBM, a critical (i.e. non-naïve) stance on EBM's exceptionalism or non-exceptionalism would require:

- 1) carefully defining EBM;

- 2) systematically comparing the principles and practices of EBM to older medical practices and to practices outside of medicine such as law, engineering and politics;
- 3) deciding, on the basis of the above, whether an exceptionalist, non-exceptionalist or mixed exceptionalist/ non-exceptionalist stance should be taken and
- 4) harnessing the positive effects and managing the negative effects of the chosen stance.

While the issue of novelty has previously been raised in relation to EBM² there is limited evidence that the above steps have been carried out systematically in relation to EBM, and there are a number of reasons why this may be the case.

First, there is no single agreed-upon definition of 'EBM'. To any individual, the phrase 'Evidence-Based Medicine' may refer to one, several or all of: a hierarchy of clinical research methods for generating evidence, a way of evaluating existing clinical research, a method of translating research evidence (and perhaps clinical expertise and patient values) into clinical and public health practice or more abstractly, as a social movement or philosophical construct privileging some forms of knowledge and judgment over others [17].

Second, even where a phenomenon such as EBM is clearly defined, questions about uniqueness and novelty are not always easy to resolve. The ongoing question, for example, of whether HIV is in any way a unique phenomenon, warranting a unique public health response, depends upon whether one considers HIV's scale, its affected populations, its mode of spread and its testing procedures to be sufficiently different to those of other infectious diseases. These assessments depend upon one's understanding of HIV infection as well as one's sense of what degree of difference constitutes true novelty and uniqueness. To some, therefore, the formalization of evidence generation and use that has taken place under the banner of EBM is truly a paradigm shift, perhaps even on the scale of a scientific revolution [1], but to others this may seem to be simply the latest step in the always evolving philosophy and practice of medicine [6].

A third challenge for those wishing to ask questions about uniqueness and novelty is that such assessments change over time. When HIV first emerged, it was generally believed that infectious diseases had been conquered by medicine and that retroviruses did not cause human disease or cancer, so it is perfectly understandable that HIV would have been considered a unique phenomenon [18,19]. But now we have a different understanding of the disease and can, from a biomedical perspective at least, more easily see HIV as just one of many infectious diseases, perhaps with a few unique features. Similarly, EBM, as it emerged, was an unstable and apparently novel phenomenon that could, perfectly understandably be seen as something entirely new,

with the nuances of its overlap with older movements in medicine being temporarily obscured.

Practical implications for policy makers

Despite these challenges, we argue that, given the conceptual and socio-political implications of naïve exceptionalism and non-exceptionalism, the exercise of asking oneself what one means by EBM, and whether one sees EBM as being novel and/or unique, is an exercise worth undertaking by anyone involved in 'EBM'. Indeed, now that EBM is into its third decade, and is well established and relatively stable, this is the perfect time to undertake this exercise.

In order for this process to occur those who set EBM-based research priorities and those who develop EBM-based practice guidelines need to ask themselves what they mean by EBM today and, as a result, whether they wish to take an exceptionalist, non-exceptionalist or mixed exceptionalist/non-exceptionalist stance on their practice. Once this has been achieved, EBM policies (i.e. the policies driving EBM-based research and practice) and educational materials (i.e. documents used to sell and teach EBM to researchers, policymakers and practitioners) could be reviewed in light of these considerations so that the advantages of the stance are harnessed and the disadvantages are managed.

If an exceptionalist stance is taken, EBM policies and educational materials could emphasise EBM's novelty and uniqueness, harness the interest that is generated by claims of uniqueness and novelty, and incorporate strategies to prevent EBM displacing other concerns in medicine, attaining 'cult' status, becoming inaccessible and unquestionable, and being appropriated by only a few powerful groups. If, on the other hand, a non-exceptionalist stance is taken, then EBM policies and educational materials could emphasise its inclusivity and draw explicitly on areas of overlap with other practices both within and outside of medicine. Indeed, a strongly non-exceptionalist stance might even result in the view that the label 'EBM' has outlived its usefulness, since it does not represent anything unique or novel, and EBM non-exceptionalists might argue for a return to more foundational, pre 'EBM' discussions of knowledge, evidence, judgment and values in medicine. We may, for example, wish to question the privileging of RCTs over other study designs [4] and, more philosophically, we may wish to question the notion of evidence as 'facts' about the world, in light of which scientific beliefs, and medical practices, should stand or fall [5].

Whatever stance is taken, we hope that this process of carefully defining modern EBM, and considering it in light of exceptionalism will assist not only EBM policymakers, but also researchers, practitioners, patients and the general public, in navigating a terrain which is necessarily complex, but can be made less obscure by minimizing conceptual ambiguity and highlighting the socio-political implications of conceptual choices.

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