



ISSN: 2091-2749 (Print)
2091-2757 (Online)

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How to cite this article

Pradhan NM. Challenges of
evidence based medicine in
clinical practice. Journal of
Patan Academy of Health
Sciences. 2023Apr;10(1):1-3.

<https://doi.org/10.3126/jpahs.v10i1.54987>

Challenges of evidence based medicine in clinical practice

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Evidence-based medicine (EBM) is an approach by clinicians that involves conscientious, explicit, and judicious use of available evidence in deciding on the care of individual patients.¹ With the digital revolution and easy access to the available literature, EBM, which was not very practical a few decades ago due to the difficulty in assessing the resources, has been practiced with increasing success nowadays, even in the developing world. The revolution brought about by EBM with regard to the practice of medicine over the past few decades has been remarkable.² Because of the individualized treatment based on external evidence, EBM leans towards justifying the action with accountability; hence being labeled as the fourth revolution in American Medicine.³

It must be borne in mind that EBM is a two-edged sword. When used judiciously and combined with expertise, it can provide clinicians with the liberty and much-needed support to bring about a revolution in the way one individualizes optimal patient care. On the other hand, over-dependence on it with overly rigid protocol can lead to confinement and biased options, leading to poorer outcomes in some patients. It can be seen that the medical fraternity is deeply divided into two factions, with the ones relying on EBM while the more traditional ones following the “cookbook” protocol. However, a few ‘good doctors’ tend to use the best of both practices to bring out the best of both worlds. Despite its scientific use and benefits, EBM faces several challenges that must be addressed to ensure its continued success.

The first challenge that a clinician faces in the world of the digital age is information overload. The plethora of new information published every day, and the ease of access to them, even when one just considers the super specialty in the medical field, is overwhelming to keep up with.⁵ The next challenge that presents to the clinician with regards to the EBM is familiarity with the search tools. For many clinicians, indexing is synonymous with PubMed. While PubMed provides a focused literature search for the topic under consideration, the clinician will tend to lose out on the vast majority of the information that is not included in PubMed if they are not aware of other search engines/websites for EBM. A few prominent EBM resources have been listed in an article published in the journal ‘Clinical Chemistry’ in 2001⁵ which can be very helpful for clinicians. Over time the useful resources have expanded significantly and should be familiarized so that important information is not missed out.

The next problem with the vast majority of information available is the reliability of the published articles. The challenges are even greater today as systematic reviews have repeatedly shown that most of the papers published are grossly inadequate and potentially misleading, with >95% of the articles published in medical journals do not meet the minimum standard of critical appraisal. Evidence shows that only 2% of the published papers that follow rigorous methodology set by evidence-based journals are useful for clinicians. Detailed statistical and epidemiologic knowledge is not essential, but critical appraisal skills and a competent understanding of the strengths and weaknesses of systematic review and meta-analysis are necessary.⁵

Systematic reviews and meta-analyses are known to provide the best evidence for clinical practice when followed with rigorous methodological details. They sit at the top of the pyramid providing level 1 evidence along with Randomized Controlled Trails (RCT) which they are based on. The challenge of EBM, however, is the limitations of RCTs, which are considered the gold standard for evaluating the effectiveness of interventions. RCTs are expensive and time-consuming to conduct, and they may not always be feasible or ethical. Besides, translating a complex clinical problem into an RCT by breaking down the variables to minimize the confounders and biasedness is often beyond the reach of the clinicians due to strict procedures that need to be followed. When the researcher is able to simplify the problem to narrow it down to one or a few variables under study, the outcome measures are so limited that the results cannot be generalized for clinical practice.

Oftentimes, translating evidence from RCTs into real-world clinical practice is a major challenge. Although detailed and complex statistical and epidemiological knowledge is not essential, it is mandatory to have competency in understanding the strengths and weaknesses of both systematic review and meta-analysis. Factors such as patient

preferences, comorbidities, and resource constraints can make it challenging to apply the results of RCTs to individual patients. Furthermore, the results of RCTs may not always align with the goals and values of patients or the priorities of healthcare systems.

Finally, there is a growing recognition that EBM must be complemented by a focus on patient-centered care. EBM is often criticized for being overly focused on disease-specific outcomes and neglecting the broader context of patients' needs. Incorporating patient values, preferences, and goals into clinical decision-making is essential for providing high-quality, patient-centered care. The primary driving force behind a clinician pursuing EBM is based on the logic that any information relating to the patient's needs must be turned into answerable questions, and the best evidence must be searched out, critically evaluated based on the expertise, justified in terms of feasibility and effectivity, and applied for the maximum benefit of the patient. To understand whether the action taken was beneficial requires a long tedious process of evaluation and acceptance of the possibility of improvement, which is often a life-long self-directed learning.⁵

Despite these challenges, EBM remains a vital approach to clinical practice that can improve patient outcomes and promote efficient resource use. It needs to be understood that EBM provides a decisive edge in the practice of clinical patient care, but it cannot replace the experience and expertise the clinician develops over the course of his/her practice. Addressing these challenges will require a collaborative effort from researchers, healthcare professionals, patients, and policymakers. By working together, we can ensure that EBM continues to evolve and adapt to meet the changing needs of patients and healthcare systems.

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