

# Evidence-based Medicine: Two Sides of the Same Coin

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## ABSTRACT

Any discussion about evidence-based medicine (EBM) is bound to reveal both negative and positive reactions. Evidence-based practice with respect to interventional pain management specialty is reviewed here, and the most common appraisals and criticisms described. A few potential solutions to the most common negative reactions are being described with a highlight on future areas anticipating further input of efforts.

**Keywords:** Evidence-based guidelines, Evidence-based medicine, Randomised control trials.

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## INTRODUCTION

Evidence-based medicine (EBM), systematic reviews and guidelines are an inherent part of interventional pain management or every branch of medicine in modern times. Though the concept of EBM has been philosophically known since long, the official term was coined and has been incorporated into widespread clinical use since the past three decades.<sup>1</sup> EBM was initially called “critical appraisal” to describe the application of basic rules of evidence as they evolve into application in daily practices. EBM is “the process of systematically finding, appraising and using contemporaneous research findings as the basis for clinical decisions”.<sup>2</sup> In simple terms, the idea of EBM is to explain what is happening to the patient in terms of evidence. Randomized control trials form the core concept of EBM.

The practice of EBM involves four primary steps: formulating a clear question based on a patient problem, identifying relevant studies from the literature, critically appraising the validity and usefulness of the identified studies, and applying the findings in clinical practice.<sup>3</sup> Although EBM encourages the use of primary research studies, evidence-based clinical practice guidelines, and systematic overviews to inform treatment decisions,<sup>4</sup> many surveys have suggested that most physicians still

rely heavily on the opinion of colleagues or consultants when making these decisions.<sup>5,6</sup> Below we discuss the positive and negative aspects associated with EBM.

## Achievements of Evidence-based Medicine

EBM has resulted in the integration of medical education with clinical practice. Establishment of the Cochrane database to collate and summarize evidence from clinical trials<sup>7</sup> has been an important step in this direction. Students and doctors who have adopted evidence-based medicine in their clinical practice are found to be more adept in generating their questions and solving them through efficient literature support. EBM has resulted in establishing methodological and publication standards for primary and secondary research.<sup>8</sup> The uniform set pattern adopted by reputed journals for accepting publications has standardized the publication pattern so that audience can easily locate their articles of interest. The principles of EBM have been incorporated as core concepts in undergraduate, postgraduate and continuing medical education and workshops. It has the potential for producing uniformity in patient’s care through common approaches and guidelines.

The evidence-based practice guidelines published in 2007 in *Pain Physician*<sup>9</sup> proposed evidence-based clinical practice guidelines for interventional techniques in the diagnosis and treatment of chronic spinal pain, utilizing all types of evidence and applied an evidence-based approach, with broad representation by specialists from academic and clinical practices. American Society of Interventional Pain Physicians–The Integrated Programme in Management (ASIPP-IPM) guidelines<sup>10</sup> published in 2009 provided comprehensive, evidence-based guidelines for interventional techniques in the management of chronic spinal pain to provide recommendations for clinicians.

## Limitations of Evidence-based Medicine

Despite the aforementioned and many other successes, EBM is being faced with numerous drawbacks too. The first amongst is the reported interference by the drug and medical device industries in actually deciding the study frame and also the result of trials. The vested interests of these companies have truly compromised the quality of trial studies. A study trial showed that 37 of 38 with positive findings, but only 14 of 36 with negative findings, were published.<sup>11</sup> Another negative aspect associated

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with EBM is the sheer volume of evidence available that is slowly becoming unmanageable. However, it has been found that students and doctors well versed with EBM early in their careers are better able to segregate their articles of interest. The fact that EBM takes time both to learn and practice proves to be another hindrance factor. The cost of infrastructure for practicing EBM is also a limiting factor in perpetuating EBM. The race amongst the newer publishing houses to "buy" and incorporate evidence is also a negative factor for the growth of EBM.

The NeuPSIG recommendations on the role of interventional pain management in neuropathic pain states<sup>12</sup> advised the use of interventions in these conditions preferably on study basis, though because of the poor quality of available data no conclusive recommendation could be based. Percutaneous vertebroplasty, a procedure involving the percutaneous injection of bone cement into fractured vertebral body became popular for management of pain in initial years of 1990. However, recent trials quote mixed results. A 2018 Cochrane-based data analysis revealed high- to moderate-quality evidence that vertebroplasty has no important benefit in terms of pain, disability, quality of life or treatment success in the treatment of acute or sub-acute osteoporotic vertebral fractures in routine practice when compared with a sham procedure.<sup>13</sup>

## FUTURE

Evidence-based medicine (EBM) biggest future challenge is making clinicians base their decisions on the latest evidence, adopting EBM in their day-to-day clinics. This requires the replacement of traditional sources of information with the latest ones. Medline, Embase are some of the initial few right steps in this direction. Another challenge is to ensure that EBM-based decisions are consistent with the patient's values. The clinicians should be able to convey decisions with ambiguity efficiently that may be achieved with step-by-step recommendations so that patients can trade off between benefits and risks. Purpose of EBM is to make sure all patients who have understood the evidence should end up making similar decisions.<sup>14</sup> Decision aids providing a structured representation of options and outcomes for conditions, such as osteoarthritis knee, and low backache can be tried.

So, with the research and clinical trials being adopted with a rapid pace at the experimental community level, appropriate incorporation of evidence in all clinical decisions is the ultimate goal.

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