

Evidence Based Medicine: Changing the Modern Clinical Practice

Someone once asked the anthropologist Margaret Mead (1901-1978), "What is the first sign you look for, to tell you of an ancient civilization?" She said she knew that ancient people had reached the point of becoming an actual society whenever she found a healed femur."

Medicine has evolved from an individual's interest to care for the sick to treating the sick in an institutional setup based on knowledge acquired from enormous scientific research. The modern era of clinical sciences has grown from a purely research-based practice to evidence-based practice. As more and more professionals embraced the advantages of clinical practice based on evidence, the concept of evidence-based medicine has expanded to evidence-based practice.

The scope of evidence-based practice is so broad and vast that many definitions coined so far have all remained insufficient. It was Guyatt et al in 1992 who coined the term "Evidence based Medicine" and Sackett et al in 1996 explained evidence-based clinical decision making as a combination of best available research evidence, clinical expertise and patient's preferences.^{1,2} A trans-disciplinary model for evidence-based practice by Satterfield et al in 2009 depicted the three core components of evidence based practice within the broader clinical or organizational context.³ Dawes et al. defined Evidence-Based Practice requiring that decisions about health care be based on the best available, current, valid and relevant evidence. These decisions should be made by those receiving care, informed by the tacit and explicit knowledge of those providing care within the context of available resources.⁴ The process of

developing evidence-based practices goes through five steps.⁴

1. Translation of uncertainty to an answerable question.
2. Systematic retrieval of the best evidence available.
3. Critical appraisal of evidence for validity, clinical relevance and applicability.
4. Application of results in practice.
5. Evaluation of performance.

Classifying the evidence is the next step in the process. The hierarchical system of classifying evidence forms a foundation of evidence-based practice known as 'Level of Evidence'. Evidence is classified into different levels based on the methodological quality of their design, validity and applicability to patient care. The highest levels are given to systematic reviews and meta-analyses. Study designs in which randomization is done are given higher levels in comparison to non-randomized designs. Diverse types of clinical questions are best answered by different types of research studies. One might not always find the highest level of evidence (i.e., systematic review or meta-analysis) to answer a particular diagnostic or therapeutic question; in such a situation, work your way down to the next highest level of evidence.⁵

Evidence is also graded into different 'Grades of Recommendation' based on the quality of evidence.

Clinical guidelines help practitioners and patients make appropriate decisions about health care under specific circumstances. However, guidelines based on consensus or partial reviews of the literature are susceptible to bias. This has led to growing interest in evidence-based guidelines,

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Level of evidence (LOE)	Description
Level I	Evidence from a systematic review or meta-analysis of all relevant RCTs (randomized controlled trial) or evidence -based clinical practice guidelines based on systematic reviews of RCTs or three or more RCTs of good quality that have similar results.
Level II	Evidence obtained from at least one well-designed RCT (e.g. large multi-site RCT).
Level III	Evidence obtained from well -designed controlled trials without randomization (i.e. quasi -experimental).
Level IV	Evidence from well-designed case-control or cohort studies.
Level V	Evidence from systematic reviews of descriptive and qualitative studies (meta-synthesis).
Level VI	Evidence from a single descriptive or qualitative study.
Level VII	Evidence from the opinion of authorities and/or reports of expert committees.

This level of effectiveness rating scheme is based on: Ackley, B. J., Swan, B. A., Ladwig, G., & Tucker, S. (2008). Evidence-based nursing care guidelines: Medical-surgical interventions. (p. 7). St. Louis, MO: Mosby Elsevier.

which critically appraise the available evidence and highlight its strengths and weaknesses. The systematic examination of evidence is done through a comprehensive search of the literature, critical appraisal of the quality of the evidence and interpretation of the findings in light of patients' preferences and societal values.⁶

Additionally, an increasing number of evidence-based guidelines grade the quality of the evidence that the recommendations are based upon, thus providing a more uniform interpretation of the recommendations. The grading system also clearly indicates where the recommendations are beneficial or harmful or where the benefits and risks are uncertain. Evidence-based guidelines aim to provide users of the guidelines with a valuable tool to improve the quality of care.⁷

There are potential benefits of guidelines for both patients and healthcare professionals, particularly in our sub-continent where resources are still limited. Guidelines tend to make care more consistent, making it more likely that patient receives the same treatment regardless of where or by whom they are treated, empowering patients to make more informed healthcare choices, reassure practitioners about the appropriateness of their treatment policies.⁸ However, guidelines can also be misleading and cause harm, particularly if recommendations are based on an incomplete or weak dataset, data from geographically distant areas, genetically different populations and if they are biased. There is a gap in evidence-based practice in part because the evidence is averaged global evidence gathered from exogenous populations in particular for south and

south-east Asian countries. Guidelines based on western data may not be relevant to our population and circumstances. The need for good quality scientific research and developing evidence-based guidelines relevant to this region is evolving and progressing now in all practice-based medical branches.

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