THE MERITS OF EVIDENCE BASED MEDICINE IN MEDICAL INFORMATION JUNGLE

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ABSTRACT

Most clinicians neither have enough time nor are trained to pick the best information from the enormous literature available. By practicing Evidence Based Medicine, they can give better patient care. EBM is the integration of the best research evidence with clinical expertise and patient values to make clinical decisions.

Key Words: Evidence Based Medicine, Evidence Based Practice, Patient care.

INTRODUCTION:

The first randomized controlled trial (RCT) was published in the British Medical Journal in 1948. 1 Now, several databases containing numerous clinical trials are available. Medical research grows at a rapid pace. Clinical practitioners do not have enough time to go through all the new information that is being published. They are also not trained to pick the best information from the vast material which is available both online and offline. Here comes the role of Evidence Based Medicine (EBM). EBM is the integration of the best research evidence with clinical expertise and patient values to make clinical decisions. 2

The classical definition of EBM is credited to David L.Sackett: conscious, explicit and sensate use of the best evidence available in decision making about patient care, added to the physician’s experience and the patient's preferences. 3 As the EBM precepts were incorporated into other disciplines, it started to be called Evidence-Based Practice (EBP). 4

Research studies show that EBP leads to higher quality care, improved patient outcomes, reduced costs, and greater nurse satisfaction than traditional approaches to care. 5 Research literature is not static. It is changing continuously. The best guidelines this year may be modified next year. The task of staying current, although never easy, is made much simpler by incorporating the tools of EBM into everyday practice. 6

HOW CAN CLINICIANS PRACTICE EBM?

For improved patient care, health care professionals can practice EBM in the following ways: 7

1. Clinicians must recognize the gaps in their own information retrieval and evaluation skills.

2. They should look for and obtain continuing education that enhances the relevant skill sets.

3. They should demand greater access to high-quality information resources in the workplace.

4. Clinicians should demonstrate a commitment to using information resources effectively to improve care.

5. They should set goals for integrating evidence-based practice that link practice interventions to patient and hospital outcomes.

THE STAGES OF EBP: 8

1. Identification of a clinical problem.

2. Formulation of a relevant, specific and answerable clinical question.

3. Searching and finding the scientific evidence in the literature and online databases.

4. Critical appraisal tools: Appraising the evidence gathered with regard to its validity and relevance.

5. Evaluation of clinical applicability of evidence.


7. Evaluation of the changing results.

EBM RESOURCES:


MEDLINE, PubMed, Index Medicus: MEDLINE is created by US National Library of Medicine. It is an easy to use interface. It has both basic and advanced search options. One can effectively search information using Medical Subject
Headings (MeSH). As of July 2016, 5630 journals are indexed in MEDLINE. MEDLINE includes journals that are cited as INDEX-MEDICUS as well as other non-INDEX-MEDICUS journals. Journals are selected on the basis of recommendations of a selection committee. MEDLINE is available online and at no cost through PubMed, or it can be obtained for a fee through several subscription databases like Ovid. PubMed has been available since 1996. Its more than 25 million references include the MEDLINE database plus other types of citations. The National Guideline Clearinghouse, a program of the U.S. Department of Health and Human Services, is a database of evidence-based clinical practice guidelines. The web site is www.guideline.gov.

Barriers to EBM:

Too much literature, not enough time. To stay current with advances in the field, it is estimated that health care professionals would have to read 19 journal articles per day every day of the year. Research barriers, lack of resources, lack of time, inadequate skills, and inadequate access, lack of knowledge and financial barriers were found to be the most common barriers to EBM.

EBM GLOSSARY:

Following are some of the key terms in relation to Evidence-Based Medicine.

Absolute risk reduction (ARR): The difference in the event rate between control group (CER) and treated group (EER): ARR = CER – EER.

Bias: Any tendency to influence the results of a trial (or their interpretation) other than the experimental intervention.

Blinding: A technique used in research to eliminate bias by hiding the intervention from the patient, clinician, and/or other researchers who are interpreting results.

Clinical practice guideline: A systematically developed statement designed to assist health care professionals and patients make decisions about appropriate health care for specific clinical circumstances.

Cochrane collaboration: A worldwide association of groups who create and maintain systematic reviews of the literature for specific topic areas.

Effectiveness: A measure of the benefit resulting from an intervention for a given health problem under usual conditions of clinical care for a particular group.

Efficacy: A measure of the benefit resulting from an intervention for a given health problem under the ideal conditions of an investigation.

Forrest plot: A diagrammatic representation of the results of individual trials in a meta-analysis.

Funnel plot: A method of graphing the results of trials in a meta-analysis to show if the results have been affected by publication bias.

Negative predictive value (+PV): The proportion of people with a negative test who are free of disease.

Number needed to treat (NNT): The number of patients who need to be treated to prevent one bad outcome. It is the inverse of the ARR: NNT=1/ARR.

Odds: A ratio of events to non-events. If the event rate for a disease is 0,2 (20%), its non-event rate is 0,8 and therefore its odds are 2/8.

Positive predictive value (+PV): The proportion of people with a positive test who have disease.

Publication bias: A bias in a systematic review caused by incompleteness of the search, such as omitting non-English language sources, or unpublished trials (inconclusive trials are less likely to be published than conclusive ones, but are not necessarily less valid).

Randomized trial: An epidemiological experiment in which subjects in a population are randomly allocated into groups, usually called study and control groups, to receive or not receive an experimental preventive or therapeutic procedure, maneuver, or intervention. The results are assessed by rigorous comparison of rates of disease, death, recovery, or other appropriate outcome in the study and control groups.

Relative risk (RR) (or risk ratio): The ratio of the risk of an event in the experimental group compared to that of the control group (RR=EER / CER).

Relative risk reduction (RRR): The percentage reduction in events in the treated group event rate (EER) compared to the control group event rate (CER): RRR = (CER-EER) / CER.

Sensitivity: The proportion of people with disease who have a positive test.

Specificity: The proportion of people free of a disease who have a negative test.

Systematic review: The application of strategies that limit bias in the assembly, critical appraisal, and synthesis of all relevant studies on a specific topic. Systematic reviews focus on peer-reviewed publications about a specific health problem and use rigorous, standardized methods for selecting and assessing articles. A systematic review may or may not include a meta-analysis, which is a quantitative summary of the results.

Treatment benefits: Positive patient-relevant outcome associated with an intervention, quantifiable by epidemiological measures such as absolute risk reduction (ARR) and number needed to treat (NNT).
Validity: The extent to which a variable or intervention measures what it is supposed to measure or accomplishes what it is supposed to accomplish. The internal validity of a study refers to the integrity of the experimental design. The external validity of a study refers to the appropriateness by which its results can be applied to non-study patients or populations.

**BENEFITS OF EBM:**

Guidelines improve health outcomes. They discourage ineffective interventions. This leads to reduced morbidity and mortality. Guidelines can also improve the consistency of care; studies around the world show that the frequency with which procedures are performed varies dramatically among doctors, specialties, and geographical regions, even after case mix is controlled for. The patients will be cared for in a similar manner in all locations and by all clinicians.

**POTENTIAL HARSMS:**

Some clinical guidelines, especially those developed by medical and other groups unconcerned about financing, may advocate costly interventions that are unaffordable or that cut into resources needed for more effective services. Conflicting guidelines from different professional bodies can also confuse and frustrate practitioners.

**CONCLUSION:**

EBM provides short, comprehensible and applicable guidelines to clinicians to apply latest research findings in their practice.

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**REFERENCES:**


