Evidence based medicine

Definition of Evidence Based Medicine

- Evidence Based Medicine (EBM) is the process of making healthcare decisions by using the best available scientific evidence along with clinical expertise and patient preferences.
- It helps healthcare professionals select the most appropriate treatment for patients.
- EBM ensures that medicines are used safely, effectively, and rationally.
- It is an important component of Quality Use of Medicines (QUM).

Objectives

- To improve patient care and treatment outcomes.
- To promote rational use of medicines.
- To reduce unnecessary and ineffective treatments.
- To support clinical decision-making using scientific evidence.
- To improve patient safety.

Importance of Evidence Based Medicine

- EBM helps healthcare professionals make informed decisions.
- EBM improves the quality of healthcare services.
- EBM reduces variations in treatment practices.
- EBM supports the use of effective and safe medicines.
- EBM improves patient confidence in healthcare decisions.

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Components of Evidence Based Medicine



A. Best Available Evidence

- Healthcare decisions should be based on reliable scientific research.
- Evidence is obtained from clinical studies, systematic reviews, and medical literature.

B. Clinical Expertise

- Healthcare professionals should use their knowledge, skills, and experience while making treatment decisions.

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- Clinical judgment helps apply evidence appropriately to individual patients.

C. Patient Values and Preferences

- Patient needs, expectations, beliefs, and preferences should be considered.
- Treatment decisions should involve patient participation whenever possible.

Concept of Evidence Based Medicine

Definition

- The concept of EBM involves integrating scientific research, professional expertise, and patient preferences to achieve the best healthcare outcomes.
- It emphasizes the use of current and reliable evidence rather than relying solely on personal experience or tradition.

Principles of Evidence Based Medicine

A. Use of Scientific Evidence

- Clinical decisions should be supported by valid scientific research.
- The most current and reliable evidence should be used.

B. Critical Evaluation of Evidence

- Evidence should be carefully examined before being applied in practice.
- The quality, reliability, and relevance of research should be assessed.

C. Patient-Centered Care

- Patients should be involved in treatment decisions.
- Their values and preferences should be respected.

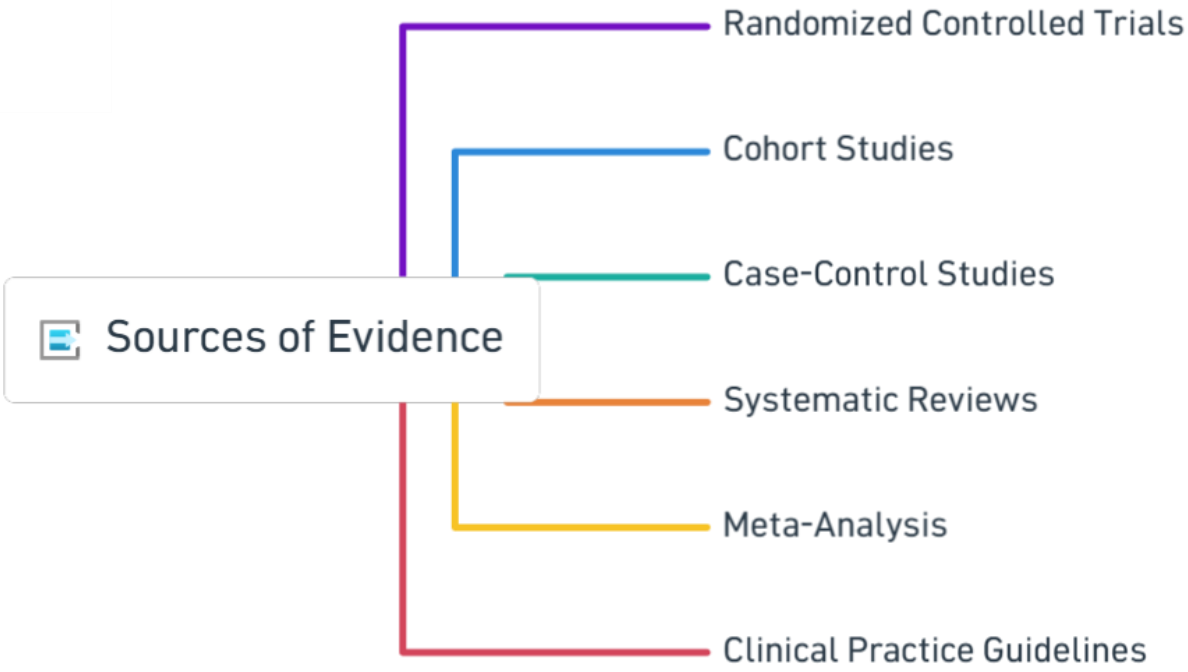
D. Continuous Learning

- Healthcare professionals should regularly update their knowledge.
- New research findings should be incorporated into practice.

Sources of Evidence

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1. **Randomized Controlled Trials**
   - These studies compare treatments under controlled conditions.
   - They provide strong evidence regarding treatment effectiveness.
2. **Cohort Studies**
   - These studies follow groups of people over time to observe outcomes.
3. **Case-Control Studies**
   - These studies compare patients with a condition to those without the condition.
4. **Systematic Reviews**
   - Systematic reviews combine results from multiple studies.
   - They provide comprehensive evidence on a topic.
5. **Meta-Analysis**
   - Meta-analysis statistically combines data from several studies.
   - It provides strong evidence regarding treatment effects.
6. **Clinical Practice Guidelines**
   - Guidelines provide recommendations based on available evidence.
   - They assist healthcare professionals in making treatment decisions.

Hierarchy of Evidence

A. Systematic Reviews and Meta-Analyses

- These provide the highest level of evidence.

B. Randomized Controlled Trials

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- These provide strong evidence regarding treatment effectiveness.

C. Cohort Studies

- These provide moderate levels of evidence.

D. Case-Control Studies

- These provide useful observational evidence.

E. Case Reports and Case Series

- These provide limited evidence based on individual cases.

F. Expert Opinion

- Expert opinion provides the lowest level of evidence.
- It is used when stronger evidence is unavailable.

Approach and Practice of Evidence Based Medicine in Clinical Settings

Definition

- The practice of EBM in clinical settings involves applying research evidence, clinical expertise, and patient preferences to patient care.
- It helps healthcare professionals make appropriate treatment decisions.

Steps in Evidence Based Medicine

A. Formulating a Clinical Question

- A clear and focused clinical question should be identified.
- The question should address a specific patient problem.

Components of a Clinical Question (PICO)

a) **Patient or Problem**

- The patient group or clinical condition is identified.

b) **Intervention**

- The treatment, medicine, or intervention being considered is identified.

c) **Comparison**

- An alternative treatment or intervention is identified if applicable.

d) **Outcome**

- The desired result or treatment outcome is identified.

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B. Searching for Evidence

- Relevant scientific literature should be searched.
- Reliable databases and medical journals should be used.

Sources of Information

- Medical journals.
- Clinical guidelines.
- Electronic databases.
- Systematic reviews.

C. Critical Appraisal of Evidence

- The quality and validity of the evidence should be evaluated.
- The strength and limitations of studies should be assessed.

Factors Evaluated

- Study design.
- Sample size.
- Research methods.
- Reliability of results.

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D. Applying Evidence to Patient Care

- The evidence should be combined with clinical expertise and patient preferences.
- Treatment decisions should be individualized according to patient needs.

E. Evaluating Outcomes

- Patient responses to treatment should be monitored.
- The effectiveness and safety of the selected therapy should be assessed.
- Necessary changes should be made if treatment goals are not achieved.

Role of Healthcare Professionals in EBM

1. Doctors

- Doctors use scientific evidence to diagnose and treat patients.
- They apply evidence while selecting medicines and therapies.

2. Pharmacists

- Pharmacists provide evidence-based medicine information.
- They assist in medicine selection and monitoring therapy outcomes.

3. Nurses

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