Evidence-Based Medicine

by Dong Peng

Medical Genomics Group
Outline

What is EBM? → Why is EBM necessary? → What makes EBM possible?

↓

How to practice EBM?

↓

Limitations
What is EBM?

- **Definition**
  - The integration of best evidence with clinical expertise and patient values, resulting in a decision making process for patients care.

- **3 components**
  - Best research evidence
  - Clinical expertise
  - Patients values
Why is EBM necessary?

- **Information Needs**
  - Physicians generate 5 questions for every in-patient \(^{(1)}\) and 2 questions for every 3 outpatients \(^{(2)}\).
  - A need to find relevant information within a short time period.

- **Information Explosion**
  - \(~10,000\) scientific journals in 1900 Vs. \(>100,000\) scientific journals in 1990. \(^{(3)}\)
  - 90% of major scientific advances appear in only 0.15% of total publications.
  - A need to identify relevant information and evaluate the scientific methodology and conclusions of the information.

---


What makes EBM possible?

- The creation of systematic reviews and concise summaries of the effects of health care.
  - E.g. The Cochrane Library

- The secondary publication of evidence-based journals.
  - These re-publish the 2% of clinical articles that are of immediate clinical use.
  - E.g. ACP Journal Club, Evidence-Based Medicine

- The advanced information systems
  - Relevant information can be retrieved within seconds.
How to practice EBM?

1. Construct a well-built clinical question
2. Select an appropriate source, formulate the strategy & conduct a search
3. Appraise the evidence
4. Integrate evidence with clinical expertise and patient preference & apply it to practice
5. Evaluate the performance

- **“Background” question**
  - general knowledge about disorder
- **“Foreground” question**
  - specific knowledge about managing disorder
- **Validity**
  - randomization, follow-up, "blinding", baseline similarities
- **Applicability**

- **Effectiveness**
- **Efficiency**
What are the limitations of EBM?

- The need to develop new skills in searching and critical appraisal can be daunting.
- Busy clinicians have limited time to master and apply new skills.
- The available clinical settings may not provide an adequate access to evidence.
- Valid evidence has been late and slow to come.
Useful Links

- MEDLINE
  

- The Cochrane Library
  

- National Guideline Clearinghouse
  

- Center for EBM
  
  [http://www.cebm.utoronto.ca/](http://www.cebm.utoronto.ca/)

- Duke University Medical Center Library, EBM
  
Reference