

Introduction to Evidence Based Medicine

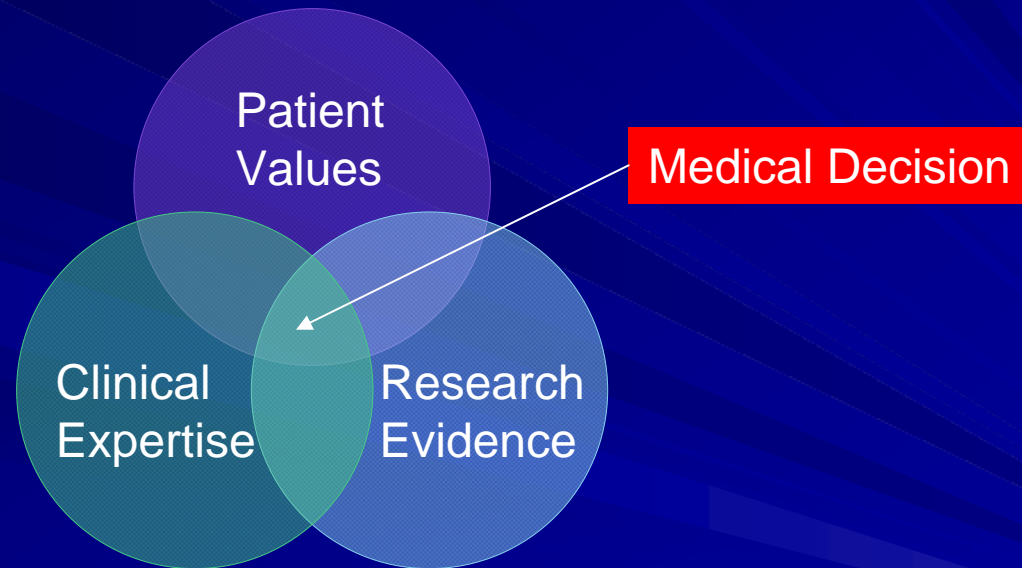
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Evidence Based Medicine

“the conscientious use, explicit, and judicious use of current best evidence in making decisions about the care of individual patients.”

Sackett DL, et al. Evidence-based medicine: what it is and it isn't.
BMJ 1996;312:71-2.

Evidence Based Medicine



Evidence Based Medicine

- Identify a clinical problem
- **Ask** a relevant, focused question
- **Acquire** the necessary resources to answer the question
- **Appraise** the evidence obtained
- **Apply** to patient care



ASK

■ Background Questions

- Information can be found in textbooks and review articles
- General questions about conditions, illnesses, syndromes and patterns of disease, pathophysiology

ASK

■ Foreground Questions

- Information found in primary literature, evidence-based extraction service, guidelines, or systematic reviews
- Questions about issues of care, i.e. diagnostic tests or therapies, needed for clinical decision-making

Background vs. Foreground

- **Identify the following questions as either background or foreground questions:**
 1. **What causes gastroenteritis?**
Background
 2. **Is oral rehydration as effective as IV rehydration?**
Foreground
 3. **How can I tell if my patient is dehydrated?**
Background

Background vs. Foreground

4. **What are the symptoms of otitis media?**

Background

5. **Can I effectively treat otitis media with a shorter course of antibiotics?**

Foreground

6. **Can this febrile infant be safely treated as an outpatient?**

Foreground

ASK

- **Formulate your clinical question:**
 - **Patient or Population**
 - Be specific
 - **Intervention**
 - **Comparison Group**
 - i.e. standard therapy, “gold standard”
 - **Outcome of Interest**
 - i.e. efficacy of therapy, mortality, specificity of diagnostic test

ASK

- **In the following questions, identify the missing component:**
- 1. **Is oral rehydration in the emergency room more cost-effective than IV rehydration?**
 - **Patient/Population** – Not identified. Examples: infants, infants with vomiting.
 - **Intervention** – Oral rehydration.
 - **Comparison** – IV rehydration.
 - **Outcome** – Cost-effectiveness.

ASK

2. **Will atrovent help prevent hospitalization of my 2 year old patient with an acute asthma exacerbation?**
 - **Patient/Population** – Child w/ acute asthma
 - **Intervention** – Atrovent
 - **Comparison** - Not identified. Examples: standard therapy, albuterol alone.
 - **Outcome** – Prevent hospitalization.

ASK

3. **Is 10 days of antibiotic therapy better than 5 days of antibiotic therapy for treating an infant with acute otitis media?**
 - **Patient/Population** – Infant with AOM
 - **Intervention** – 10 days of antibiotic therapy
 - **Comparison** – 5 days of antibiotic therapy
 - **Outcome** – Not identified. Examples:
Resolution of symptoms, recurrence risk,
persistent effusion.

ACQUIRE

- **Classify the Clinical Question into Domain**
 - **Therapy**
 - Randomized controlled trials or meta analyses
 - **Diagnosis**
 - Sensitivity and specificity, predictive value, diagnostic errors
 - **Prognosis**
 - Cohort studies, survival analysis
 - **Harm or Casualty**
 - Case control studies, cohort studies

ACQUIRE

- Search the Medical Literature
 - Select initial search terms:
 - Population
 - Intervention
 - Narrow search further with:
 - Comparison
 - Outcome
 - Use **MeSH** terms to start

ACQUIRE

■ Narrow search using limiters:

– Examples of limiters:

- Date of publication
- Type of study
- Language
- Human
- Specific age group
- Full text online
- Sensitivity and Specificity

ACQUIRE

- **Scan the articles for:**
 - Is it a clinical study?
 - Is the research current?
 - Is the journal well-regarded?
 - Are the research questions similar to my question with regards to **P**opulation, **I**ntervention, **C**omparison groups and **O**utcomes?
- **Select an article for appraisal**

APPRAISE

■ Validity

– Can I trust this information?

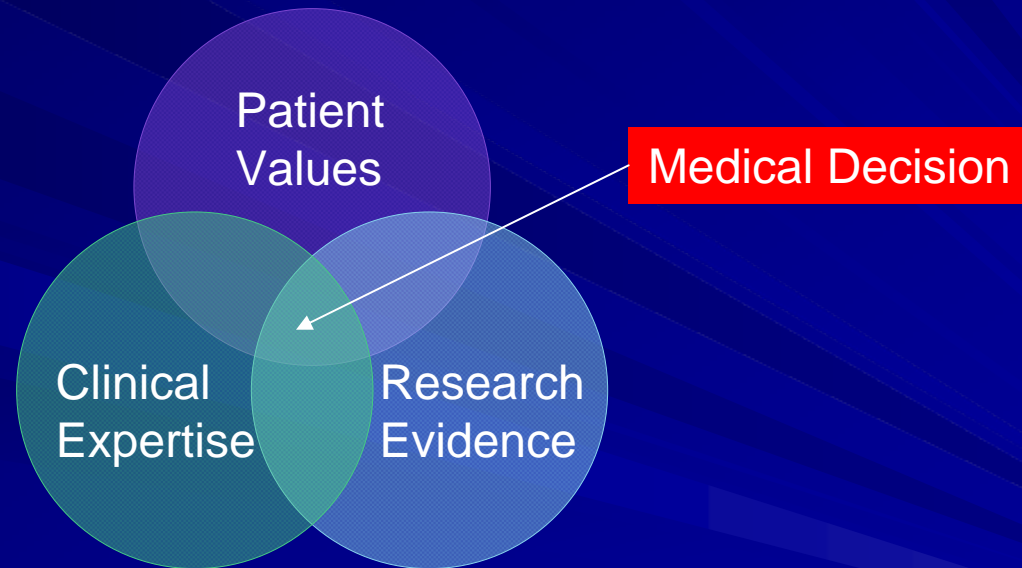
■ Clinical Importance

– If true, will the use of this information make an important difference?

■ Applicability

– Can I use the information in this instance?

APPLY TO PATIENT CARE



Bibliography

- Evidence Based Medicine Tool Kit
 - <http://www.med.alberta.ca/ebm/ebm.htm>
- Evidence-Based Medicine CD-ROM
 - John Frohna, MD, MPH
- Other important websites:
 - <http://www.cche.net/usersguides/main.asp>
 - <http://www.cebm.utoronto.ca/practise>