Evidence-Based Medicine Introduction

Component 2/Unit 5

What is Evidence-Based Medicine (EBM)?

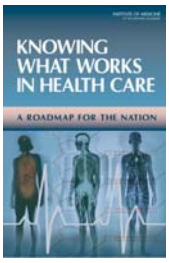
- A set of tools and disciplined approach to informing clinical decision-making
  - Applies the best evidence available
  - Though cannot forget the caveat: "Absence of evidence is not evidence of absence" (Carl Sagan)
- Allows clinical experience (art) to be integrated with best clinical science
- Makes medical literature more clinically applicable and relevant
- Relationship to medical decision-making? Focuses more on finding and applying evidence but the two are interrelated

Why are we not evidence-based?

- Kida (Don't Believe Everything You Think, 2006) lists six ways we arrive at false beliefs
  - We prefer stories to statistics
  - We seek to confirm, not to question, our ideas
  - We rarely appreciate the role of chance and coincidence in shaping events
  - We sometimes misperceive the world around us
  - We tend to oversimplify our thinking
  - Our memories are often inaccurate
- Medical "myths" persist (Vreeman, 2008), e.g.,
  - Sugar causes hyperactivity
  - Excess heat loss in the hatless
  - And others

Growing advocacy for medicine being more evidence-based

- "Effectiveness" was one of 6 attributes advocated in IOM Quality Chasm report (IOM, 2001)
- A recent report in this series advocates this in more detail and advocates use of informatics for a "learning health care system" (Eden, 2008)
- Descriptions of methodological details and challenges for EBM in supplement to *Medical Care* (2007, 47: 10 Supp 2)



"Cultural" pushback on EBM

- Not everyone agrees with the experimental-oriented approach of EBM (Luce, 2010)
- There are some valid criticisms of EBM (Cohen, 2004)
  - Challenges physician-patient autonomy
  - Focuses on large-scale randomized controlled trials that homogenize individual differences
  - Concerns about manipulations of clinical trials data and reports

The new EBM mantra: comparative effectiveness research

- Achieved new prominence when American Recovery and Reinvestment Act (ARRA) allocated $1.1 billion for comparative effectiveness research (CER)
  - Also a "down payment" on healthcare reform
  - Allocated to HHS Secretary ($0.4B), NIH ($0.4B), and AHRQ ($0.3B)
  - Required preparation of two reports by June 30, 2009 to inform operational plan
    - Federal Coordinating Council for CER (HHS, 2009)
    - IOM report for prioritizing research (IOM, 2009; NAP, 2009)

CER (cont.)

- From the "draft definition" of CER
  - "research comparing different interventions and strategies to prevent, diagnose, treat and monitor health conditions"
  - "must assess a comprehensive array of health-related outcomes for diverse patient populations"
  - "necessitates the development, expansion, and use of a variety of data sources and methods" (informatics!)
- Federal Coordinating Council report called for emphasis not only on research but also human and scientific capital, data infrastructure, and dissemination (HHS, 2009; Conway, 2009)
- IOM report prioritized top 100 research priorities (Sox, 2009; Iglehart, 2009) – not only addresses common diseases but also healthcare delivery and disparities

Unit topics

1. Definitions and Application of EBM
2. Intervention
3. Diagnosis
4. Harm and Prognosis
5. Summarizing Evidence
6. Putting Evidence into Practice
7. Limitations of EBM