Evidence-Based Practice: Integrating evidence-based medicine and everyday patient care

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Objectives

• Define and describe evidence-based medicine and evidence-based practice

• Discuss challenges to implementation of evidence-based practice

• Review method used at MUSC to incorporate evidence-based decision-making in everyday patient care
Evidence-Based Medicine (EBM) and Evidence-Based Practice (EBP)

The practice of evidence-based medicine means integrating individual clinical expertise with the best available external clinical evidence from systematic research...including more thoughtful identification and compassionate use of individual patients’ predicaments, rights and preferences.

- David Sackett

History of EBM

"It is surely a great criticism of our profession that we have not organised a critical summary, by specialty or sub-specialty, adapted periodically, of all relevant randomized controlled trials."


Voelker R. Everything You Ever Wanted to Know About Evidence-Based Medicine. JAMA 313(18) 1783-1785.

Changing What’s Possible
Evidence-Based Practice

- Higher quality care
- Improved patient outcomes
- Reduced cost
- Greater clinician satisfaction

Changing What’s Possible
Every day, clinicians perform interventions that should stimulate questions about the evidence supporting their use.
Barriers to Implementation


Changing What’s Possible
Number of Randomized controlled trials published in PubMed

Year


total number

0 5000 10000 15000 20000 25000 30000 35000
Steps of EBP:

1) Ask the question
2) Find the best evidence
3) Evaluate the evidence
4) Apply the information
5) Evaluate outcomes
Step 1: Ask the Question - defining the need

Clinical Needs:
Frustration in perceived lack of quality or efficiency

Process Needs:
Unwanted Variation
Most common DRGs
High cost
Step 2: Find the Best Evidence

PubMed

Scopus

Ovid

MEDLINE

THE COCHRANE COLLABORATION

Dynamed

Changing What’s Possible
Step 3: Evaluate the Evidence

It’s peer-reviewed, therefore it must be OK?

Changing What’s Possible
Hierarchy of Evidence

1. Systematic review or meta-analysis of all relevant randomized controlled trials (RCTs), or evidence-based clinical practice guidelines based on systematic reviews of RCTs

2. Well-designed RCT

3. Well-designed controlled trial without randomization (quasi-experimental design)

4. Case-control, cohort, or cross-sectional study

5. Systematic reviews of descriptive or qualitative studies

6. Quantitative descriptive or qualitative study

7. Opinion of authorities, reports of expert committees or organizations, textbooks, non-EBP guidelines

Adapted from Melnyk & Fineout-Overholt, 2005
Step 3: Appraising the Evidence

- Are the results valid?
- Are the results important?
- Can the results be applied to my patient?
Step 4: Apply The Evidence
MUSC has developed over 30 evidence-based order sets.

Over 100 adult and pediatric clinicians have participated as content experts.

Order sets have been built into Epic and validated by the content expert teams.

Changing What’s Possible
Ampicillin is recommended as first-line therapy for fully immunized infants and children. CefTRIaxONE should be prescribed for those who are not fully immunized or those with life-threatening infections.

**Use of Ampicillin for Admitted Children with CAP**
- ampicillin (OMNIPEP) IV
  - Intravenous, (suggest 50mg/kg/dose q8h)
- cefTRIAXone (ROCEPHIN) IV
  - Intravenous, (suggest 50mg/kg/dose q24h)

**Antibiotics - If DOCUMENTED Penicillin / Cephalosporin Allergy OR concern for resistant strep pneumoniae**
- clindamycin (CLEOCIN) IV
  - Intravenous, (suggest 12.5mg/kg/dose to a MAX of 900 mg/dose)

**If concerned for an atypical pathogen, add:**
- Azithromycin liquid (dose Day 1 + dose days 2-5)
- Azithromycin tablet (dose day 1 + dose days 2-5)

**If MRSA suspected or severe (ICU, sepsis) or complicated pneumonia (parapneumonic effusion, necrotizing pneumonia, lung abscesses), consider adding:**
- vancomycin (VANCOCIN) IV
  - 15 mg/kg, Intravenous, Every 6 hours, Obtain Vancomycin trough prior to 4th dose
- Pharmacy consult: lab order for medication levels
  - Routine, Once

**Diagnostics & Imaging**

**Imaging**

**XR Chest AP and Lateral:** Consider repeat chest x-ray for worsening symptoms, increased oxygen requirements, concern for development of effusion or if patient is unresponsive to therapy

**US Chest:** US should be used to confirm the presence of a pleural fluid collection

**US Peds Chest**

STAT, 1 time imaging, Starting 10/15/15
Step 5: Evaluate the Results
Limitations...

No protocol fits every patient

AND

No protocol (perfectly) fits any patient

Target the applicability to 80% (the Pareto principle)

80% of the effects come from 20% of the causes
Acknowledgements

MUSC Center for Evidence-Based Practice

- Elizabeth Crabtree, PhD
- Emily Brennan, MLIS
- Amanda Davis, MPH, RD
Questions?