Using the Evidence in Decision Making

1. Converting an information need into an answerable question
2. Find the best evidence available
3. Critically appraise the evidence for validity and usefulness
4. Apply the results to practice
5. Evaluate performance of process
Barriers to EBP

• Public health infrastructure
  – Lack of leadership
  – Lack of a long-term horizon for program implementation & evaluation
  – Lack of time & resources
  – Lack of training

• Knowledge resources: lack of comprehensive, organized, synthesized body
Find the Best Evidence Available

• Requires knowing what resources are available
• Understanding their contents
• How to search them
• How to filter out noise
  – Critical appraisal skills to identify the best evidence
Table 4.3  The findability gaps

<table>
<thead>
<tr>
<th></th>
<th>Experienced clinical searching</th>
<th>Skills gap</th>
<th>Optimal skilled MEDLINE searching</th>
<th>Indexing gap</th>
<th>Hand searching</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of RCTs found</td>
<td>18</td>
<td>52</td>
<td></td>
<td>94</td>
<td></td>
</tr>
</tbody>
</table>

Searching: Problems

1. Lack of high-quality evidence
2. Unpublished evidence (gray literature)
3. Limitations of databases
4. Inadequate indexing
5. Misleading abstracts
6. Human frailty

Searching: Problem/Solution

1. Lack of high-quality evidence
   - Solution: Cochrane Database of Systematic Reviews (and other EB resources)
Searching: Problem/Solution

2. Unpublished evidence (gray literature)
   - Solution: if doing research, will have to search for gray literature; if a busy decision maker, won’t bother
3. Limitations of databases
   - Solution: CDSR + other specialty EB resources + MEDLINE (PubMed)
   - This is a “cascade” search strategy, going from synthesized to primary resources
Searching: Problem/Solution

4. Inadequate indexing
   - Solution: good search strategies + expert searcher (!)
5. Misleading abstracts
   - *Solution: if unstructured, beware; if reporting positive findings, scrutinize methods section; if reporting negative findings, may not be biased*
Searching: Problem/Solution

6. Human frailty
   - Solution: training to improve search skills
Question Categorization

1. What are the types of phenomena or problems?
2. What is the prevalence or frequency of the problem?
3. Who has the problem?
4. Who will get the problem?
5. Does this intervention help alleviate the problem?

Question Categorization

1. What are the types of phenomena or problems?
   – What issues concern parents reluctant to vaccinate their children?
     • Qualitative research
2. What is the prevalence or frequency of the problem?
   – *How common are different parental concerns?*
     • Relevant survey from a random sample or census
Question Categorization

3. Who has the problem?
   – Are there appropriate case-finding instruments for depression or abuse?
     • Diagnosis or Screening/Monitoring
     • Random or consecutive sample compared to “gold standard”
Question Categorization

4. Who will get the problem?
   - Which older people are at risk for falls?
     • Long-term study of relevant target population ("inception cohort")
Question Categorization

5. Does this intervention help alleviate the problem?
   – *Do education strategies reduce childhood injury?*
   – *Does mass screening for colorectal cancer reduce mortality?*
     • Randomized trial (“cluster” RT)
<table>
<thead>
<tr>
<th>Outcome</th>
<th>Qualitative research</th>
<th>Surveys</th>
<th>Case control</th>
<th>Cohort</th>
<th>RCT</th>
<th>Systematic review</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effectiveness of an intervention</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>√✓</td>
<td>√✓✓</td>
</tr>
<tr>
<td>Effectiveness of health service delivery</td>
<td>√✓</td>
<td></td>
<td>√✓</td>
<td></td>
<td></td>
<td>√✓✓</td>
</tr>
<tr>
<td>Safety</td>
<td>√✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>√✓✓</td>
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<tr>
<td>Acceptability</td>
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<td></td>
<td>√✓✓</td>
</tr>
<tr>
<td>Cost-effectiveness</td>
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<tr>
<td>Appropriateness</td>
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<tr>
<td>Quality</td>
<td>√✓</td>
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<td>√✓</td>
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<table>
<thead>
<tr>
<th>Question</th>
<th>Study Types</th>
<th>Appraisal Issues</th>
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<tbody>
<tr>
<td>Frequency</td>
<td>Survey or census</td>
<td>Sample frame</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Case ascertainment</td>
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<tr>
<td></td>
<td></td>
<td>Adequate response/follow-up</td>
</tr>
<tr>
<td><strong>Test Accuracy</strong></td>
<td>Systematic review of RCTs</td>
<td>Independent, blind comparison with &quot;gold standard&quot;</td>
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<tr>
<td></td>
<td>Random/consecutive sample</td>
<td>Appropriate selection</td>
</tr>
<tr>
<td>Intervention</td>
<td>Systematic review of RCTs</td>
<td>Randomization</td>
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<td></td>
<td>RCTs</td>
<td>Blinding</td>
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<td></td>
<td>Cohort study</td>
<td>Follow-up</td>
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<tr>
<td>Etiology/Risk</td>
<td>Cohort study</td>
<td>Groups only differ in exposure</td>
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<tr>
<td></td>
<td>Case-control study</td>
<td>Outcomes measurement</td>
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<tr>
<td>Screening</td>
<td>Systematic review of RCTs</td>
<td>Reasonable evidence for causation</td>
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<tr>
<td></td>
<td>RCTs</td>
<td></td>
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<tr>
<td></td>
<td>Cohort study</td>
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<table>
<thead>
<tr>
<th>Type</th>
<th>Strength of evidence</th>
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<tbody>
<tr>
<td>I</td>
<td>Strong evidence from at least one systematic review of multiple well-designed randomised controlled trials</td>
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<tr>
<td>II</td>
<td>Strong evidence from at least one properly designed randomised controlled trial of appropriate size</td>
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<tr>
<td>III</td>
<td>Evidence from well-designed trials without randomisation, single group pre-post, cohort, time series or matched case-control studies</td>
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<tr>
<td>IV</td>
<td>Evidence from well-designed non-experimental studies from more than one centre or research group</td>
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<tr>
<td>V</td>
<td>Opinions of respected authorities, based on clinical evidence, descriptive studies or reports of expert committees</td>
</tr>
</tbody>
</table>
Now on to …

- Search demonstration
- Exercises
- Break
- Discussion
- Demonstration
- Exercises
- Discussion/Wrap up/Evaluation