Building Your Evidence Table

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Director of Nursing Research
Objectives

• To identify sources of evidence

• To describe how to search for evidence

• To become familiar with how to summarize evidence across studies using an evidence table
Where to Begin

- When a general topic is proposed, it is tempting to begin by an extensive literature search.
- Before performing the extensive literature search, it is crucial to understand the topic, identify and define the problem and the questions, and understand the scope of the literature review to be conducted.
State the search question(s) in narrow, manageable terms

Background question: Help define the scope of the project

What are the components?

- Provides broad overview of what's in the literature
- Narrows down the review into specific parts

What comparisons are needed?

- Produces very focused evidence specific to the question
Purposes of a Literature Review

- Identification of a problem
- Orientation to what is known/not known
- Determination of gaps or inconsistencies in a body of research
- Determination of a need to replicate a study
- Identification of clinical interventions that need to be tested
- Identification of relevant conceptual frameworks for a problem
- Identification of designs & data collection methods
- Identification of experts (possible consultant on a project)
- Assistance in interpreting findings & developing practice implications

Polit & Beck, 2011
Steps in Reviewing Evidence

1. Conduct internal & external search for evidence
2. Appraise the level & quality of evidence
3. Summarize the evidence
4. Synthesize overall strength & quality of evidence
5. Develop recommendations based on evidence synthesis
   - Strong compelling evidence, consistent results
   - Good evidence, consistent results
   - Good evidence, conflicting results
   - Insufficient or absent evidence

Dearholt & Dang, 2012
What Evidence Must Be Gathered?

- Literature Search
- Standards
  - Regulatory
  - Professional
  - Community
- Guidelines
- Expert Opinion
- Clinical Expertise
- Financial Analysis
- Patient Preferences

✓ The average time from generation of new evidence to implementation of that evidence into practice is 17 years. For healthcare professionals to keep up with journals relevant to practice, every practitioner would need to read 17 articles per day, 365 days per year

Balas & Boren, 2000
Sources of Evidence

• Principal reliance on *primary sources* (research reports written by researchers who conducted the study)

• Less reliance on *secondary sources* (summaries of studies by others)
Sources of Evidence

- CINAHL (Cumulative Index to Nursing and Allied Health Literature)
- PubMed
- OVID
- Cochrane
- MEDLINE (Medical Literature On-Line)
- EMBASE (the Excerpta Medica database)
- Dissertation Abstracts Online
- ERIC (Educational Resources Information Center database)
Sources of Evidence

- The Joint Commission
  http://www.jointcommission.org/
- Centers for Medicare and Medicaid
  http://www.cms.gov/
- Institute for Healthcare Improvement
  http://www.ihi.org/ihi
- Center for Health Evidence
  www.cche.net
- Cochrane Library
  www.cochrane.org
- Johanna Briggs Institute
  www.joannabriggs.edu.au
- Google scholar
  http://scholar.google.com/
- PubMed
- Turning Research Into Practice Database: For Evidence-Based Medicine
  www.tripdatabase.com/index.html
- Agency for Healthcare Research and Quality EBP Centers
  http://www.ahrq.gov/professionals/clinicians-providers/
- Agency for Healthcare Research and Quality National Guideline Clearinghouse
  www.guideline.gov
Electronic Database Searches

- Subject search: Search for topics or keywords in the database
- Text word search: Search for specific words in text fields of the database record
- Author search: Search for a specific researcher
- The use of OR in a database will broaden your results while the use of AND will narrow your results
- Search a phrase using quotation marks “Medication Administration Process”
- Remember alternate spellings e.g., tumor & tumour
- Set limits for things like date, age, type of publication
- Once you identify a useful article, review search terms, & reference list for other articles
- A successful search, should yield articles directly related to the question
- If little evidence is found consider searching for standards, position statements by published professional organizations or listserv
Database Training Tutorial Websites

• EBSCO Training Tutorial
  http://support.ebsco.com/training/tutorials.php

• Pub Med Tutorial
  http://www.nlm.nih.gov/bsd/disted/pubmed.html#qt

• Ovid Training
  http://www.ovid.com/webapp/wcs/stores/servlet/content_service_Training_13051_-1_13151
Documenting the Search Process

• Good idea to maintain a record of the literature search process for questions that may arise at a future time

• Essential elements needed to track your search:
  – Titles of databases searched (e.g., PsycInfo)
  – Names of the hosts or systems (e.g., EBSCOhost)
  – Date search was run (month, day, year)
  – Years covered by the search
  – Include search terms
The strength of evidence found helps to determine whether to accept or reject recommendations from the EBP. Research evidence with a stronger scientific basis is weighted more heavily in decision making.

Dearholt & Dang, 2012
# Quality Guide

## Evidence Levels I, II, & III (Includes Experimental, Quasi-Experimental & Non-Experimental Research Studies)

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A High Quality</strong>:</td>
<td>Consistent, generalizable results; sufficient sample size for the study design; adequate control; definitive conclusions; consistent recommendations based on comprehensive literature review that includes thorough reference to scientific evidence</td>
</tr>
<tr>
<td><strong>B Good Quality</strong>:</td>
<td>Reasonably consistent results; sufficient sample size for the study design; some control, fairly definitive conclusions; reasonably consistent recommendations based on fairly comprehensive literature review that includes some reference to scientific evidence</td>
</tr>
<tr>
<td><strong>C Low Quality or Major Flaws</strong>:</td>
<td>Little evidence with inconsistent results; insufficient sample size for the study design; conclusions cannot be drawn</td>
</tr>
</tbody>
</table>

## Evidence Level IV (Includes Clinical Practice Guidelines & Position Statements)

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A High Quality</strong>:</td>
<td>Material officially sponsored by a professional, public, private organization, or government agency; documentation of a systematic literature search strategy; consistent results with sufficient numbers of well-designed studies; criteria-based evaluation of overall scientific strength and quality of included studies and definitive conclusions; national expertise is clearly evident; developed or revised within the last 5 years</td>
</tr>
<tr>
<td><strong>B Good Quality</strong>:</td>
<td>Material officially sponsored by a professional, public, private organization, or government agency; reasonably thorough and appropriate systematic literature search strategy; reasonably consistent results, sufficient numbers of well-designed studies; evaluation of strengths and limitations of included studies with fairly definitive conclusions; national expertise is clearly evident; developed or revised within the last 5 years</td>
</tr>
<tr>
<td><strong>C Low Quality or Major Flaws</strong>:</td>
<td>Material not sponsored by an official organization or agency; undefined, poorly defined, or limited literature search strategy; no evaluation of strengths and limitations of included studies, insufficient evidence with inconsistent results, conclusions cannot be drawn; not revised within the last 5 years</td>
</tr>
</tbody>
</table>

## Evidence Level V (Includes Literature Reviews, Expert Opinion, Quality Improvement, Financial/Program Evaluation)

### Organizational Experience:

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A High Quality</strong>:</td>
<td>Clear aims and objectives; consistent results across multiple settings; formal quality improvement; financial or program evaluation methods used; definitive conclusions consistent recommendations with thorough reference to scientific evidence</td>
</tr>
<tr>
<td><strong>B Good Quality</strong>:</td>
<td>Clear aims and objectives; consistent results in a single setting; formal quality improvement or financial or program evaluation methods used; reasonably consistent recommendations with some reference to scientific evidence</td>
</tr>
<tr>
<td><strong>C Low Quality or Major Flaws</strong>:</td>
<td>Unclear or missing aims and objectives; inconsistent results; poorly defined quality improvement, financial or program evaluation methods; recommendations cannot be made</td>
</tr>
</tbody>
</table>

### Literature Review, Expert Opinion, Case Report, Community Standard, Clinician Experience, Consumer Preference:

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A High Quality</strong>:</td>
<td>Expertise is clearly evident; draws definitive conclusions; provides scientific rationale; thought leader(s) in the field</td>
</tr>
<tr>
<td><strong>B Good Quality</strong>:</td>
<td>Expertise appears to be credible; draws fairly definitive conclusions; provides logical argument for opinions</td>
</tr>
<tr>
<td><strong>C Low Quality or Major Flaws</strong>:</td>
<td>Expertise is not discernible or is dubious; conclusions cannot be drawn</td>
</tr>
</tbody>
</table>

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This guide assists with evaluating the strength & quality of evidence. The assumption is that evidence of high quality represents best practice & lower strength & quality represents low quality.
## Literature Appraisal Tool Example

<table>
<thead>
<tr>
<th>Citation</th>
<th>Author(s):</th>
<th>Title:</th>
<th>Journal, Year, Volume, Issue Pages:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of study</td>
<td><img src="check" alt="Quantitative" /></td>
<td><img src="check" alt="Qualitative" /></td>
<td><img src="check" alt="Mixed Methods" /></td>
</tr>
<tr>
<td>Location/setting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Key concepts/variables</td>
<td>Concepts</td>
<td>Interventions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Independent variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dependent variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Framework/theory</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Study Design</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample</td>
<td>Size</td>
<td>Sampling method</td>
<td>Sample characteristics</td>
</tr>
<tr>
<td>Data sources</td>
<td>Type <img src="check" alt="Self-report" /> <img src="check" alt="Observational" /> <img src="check" alt="Biophysiologic" /> <img src="check" alt="Other" /></td>
<td>Description of measures</td>
<td>Data quality</td>
</tr>
<tr>
<td>Statistical tests</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Findings</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Recommendations</td>
<td></td>
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<tr>
<td>Strengths</td>
<td></td>
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</tr>
<tr>
<td>Weaknesses</td>
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</tr>
</tbody>
</table>
**Research Evidence Appraisal Tool Example**

<table>
<thead>
<tr>
<th>Article Title</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Author(s)</td>
<td>Publication Date</td>
</tr>
<tr>
<td>Journal</td>
<td></td>
</tr>
<tr>
<td>Setting</td>
<td>Sample (Composition/Size):</td>
</tr>
<tr>
<td>Does the evidence address the ESP question?</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Level of Evidence**

- **Study Design**
  - A. Is this a report of a single research study? If no, go to B.
    - 1. Was there an intervention? Yes | No
    - 2. Was there a control group? Yes | No
    - 3. Were study participants randomly assigned to groups? Yes | No
  - If Yes to all 3, this is a Randomized Controlled Trial or Experimental
  - If Yes to #1 & #2 & No to #3, OR Yes to #1 & No to #2 & #3 this is Quasi Experimental (some degree of investigator control, some manipulation of independent variable, lacks random assignment to groups, may have a control group)
  - If Yes to #1 only, OR No to #1, #2 & #3, this is Non-Experimental (no manipulation of independent variable, can be descriptive, comparative, or correlation, often uses secondary data) or Qualitative (exploratory in nature, a starting point for studies for which little research currently exists, has small sample sizes, may use results to define empirical studies)

- **Study Results**
  - B. Is this a summary of multiple research studies? If no, go to Non-Research Evidence Appraisal Form.
    - 1. Does it employ a comprehensive search strategy & rigorous appraisal method (Systematic Review)? If no, use Research Evidence Appraisal Tool
      - a. Does it combine and analyze results from the studies to generate a new statistic (effect size)? Systematic review with meta-analysis
      - b. Does it analyze and synthesize concepts from qualitative studies? (Systematic review with meta-synthesis)
    - If Yes to either a or b, go to B below.
    - 2. For Systematic Reviews, Systematic Reviews with meta-analysis or meta-synthesis:
      - a. Are all studies included RCTs? Level I
      - b. Are studies a combination of RCTs &/OR quasi-experimental? Level II
      - c. Are studies a combination of RCTs, quasi-experimental, and non-experimental or non-experimental only? Level III
      - d. Are any or all of the included studies qualitative?

**Quality Rating**

- **Quality Appraisal of Research Studies**
  - Does researcher identify what is known & not known about problem & how study will address any gaps in knowledge? Yes | No
  - Was purpose of study clearly presented? Yes | No
  - Was literature review current (most recent sources within the last 5 years or classic)? Yes | No
  - Was sample size sufficient based on study design and rationale? Yes | No
  - If there is a control group:
    - o Were characteristics and/or demographics similar in both control and intervention groups? Yes | No
    - o If multiple settings were used, were settings similar? Yes | No
    - o Were all groups equally treated except for intervention group(s)? Yes | No
  - Are data collection methods described early? Yes | No
  - Were instruments reliable (Cronbach's alpha)? Yes | No
  - Was instrument validity discussed? Yes | No
  - If surveys/questionnaires were used, was response rate ≥ 50%? Yes | No
  - Were results presented clearly? Yes | No
  - If tables were presented, was narrative consistent with table content? Yes | No
  - Were study limitations identified and addressed? Yes | No
  - Were conclusions based on results? Yes | No

- **Quality Appraisal of Systematic Review with or without Meta-Analysis or Meta-Synthesis**
  - Was purpose of systematic review clearly presented? Yes | No
  - Were reports comprehensive, with reproducible search strategy? Yes | No
    - o Key search terms stated
    - o Multiple databases searched and identified
  - Were inclusion and exclusion criteria stated? Yes | No
  - Were there a flow diagram showing # of studies eliminated at each level of review? Yes | No
  - Were details of studies presented (design, sample, methods, results, outcomes, strengths/limitations)? Yes | No
  - Were methods for appraising strength of evidence (level and quality) described? Yes | No
  - Were conclusions based on results? Yes | No
    - o Results were interpreted
    - o Conclusions flowed logically from interpretation and systematic review question
  - Did systematic review include both a section addressing limitations and how they were addressed? Yes | No

- **Quality Rating Based on Quality Appraisal**
  - **High Quality**: consistent, generalizable results; sufficient sample size; adequate control; definitive conclusions; consistent recommendations based on comprehensive literature review that includes appropriate reference to scientific evidence
  - **Good Quality**: reasonably consistent results; sufficient sample size; some control; comprehensive literature review that includes reference to scientific evidence
  - **Low Quality or Major Flaws**: little evidence with inconsistent results; insufficient sample size; conclusions cannot be drawn

*Dearhoff & Deng, 2012*
### Evidence Level & Quality:

<table>
<thead>
<tr>
<th>Article Title:</th>
<th>Number:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Author(s):</td>
<td>Publication Date:</td>
</tr>
<tr>
<td>Journal:</td>
<td></td>
</tr>
</tbody>
</table>

#### Does this evidence address my EBP question?
- [ ] Yes
- [ ] No

#### Clinical Practice Guidelines
- Systematically developed recommendations from nationally recognized experts based on research evidence or expert consensus panel. **LEVEL IV**
  - Are the types of evidence included identified? [ ] Yes [ ] No
  - Were appropriate stakeholders involved in the development of recommendations? [ ] Yes [ ] No
  - Are gaps in the literature identified? [ ] Yes [ ] No
  - Were recommendations valid (reproducible search, expert consensus, independent review, current, and level of supporting evidence identified for each recommendation)? [ ] Yes [ ] No
  - Were the recommendations supported by evidence? [ ] Yes [ ] No
  - Are recommendations clear? [ ] Yes [ ] No

#### Consensus or Position Statement
- Systematically developed recommendations based on research and nationally recognized expert opinion that guides members of a professional organization in decision-making for an issue of concern. **LEVEL IV**
  - Are groups to which recommendations apply and do not clearly stated? [ ] Yes [ ] No
  - Have potential biases been eliminated? [ ] Yes [ ] No

#### Literature Review
- Summary of published literature without systematic appraisal of evidence quality or strength. **LEVEL III**
  - Is subject matter to be reviewed clearly defined? [ ] Yes [ ] No
  - Is relevant, up-to-date literature included in the review (most sources within last 5 years or classic)? [ ] Yes [ ] No
  - Is there a meaningful analysis of the conclusions in the literature? [ ] Yes [ ] No
  - Are recommendations made for future practice or study? [ ] Yes [ ] No

#### Expert Opinion
- Opinion of one or more individuals based on clinical expertise. **LEVEL III**
  - Has the individual published on the topic? [ ] Yes [ ] No
  - Is author’s opinion based on scientific evidence? [ ] Yes [ ] No

#### Organization Experience
- Cyclic method to examine organization-specific processes at the local level. **LEVEL III**

#### Quality Improvement
- Economic evaluation that applies analytic techniques to identify, measure, and compare the cost of outcomes of two or more alternative programs or interventions. **LEVEL III**

#### Financial Evaluation
- Systematic assessment of the processes and/or outcomes of a program and can involve both quantitative and qualitative methods. **LEVEL III**

### Setting
- Sample (composition/size):
  - Was the aim of the project clearly stated? [ ] Yes [ ] No
  - Was the method adequately described? [ ] Yes [ ] No
  - Were process or outcome measures identified? [ ] Yes [ ] No
  - Were results adequately described? [ ] Yes [ ] No
  - Was interpretation clear and appropriate? [ ] Yes [ ] No
  - Are components of cost/benefit analysis described? [ ] Yes [ ] No

#### Case Reports
- In-depth look at a person, groups, or other social unit. **LEVEL III**
  - Is the purpose of the case report clearly stated? [ ] Yes [ ] No
  - Is the case report clearly presented? [ ] Yes [ ] No
  - Are the findings of the case report supported by relevant theory or research? [ ] Yes [ ] No
  - Are the recommendations clearly stated and linked to the findings? [ ] Yes [ ] No

#### Community Standard, Clinical Experience, or Consumer Preference
- Knowledge gained through practice experience. **LEVEL III**
- Knowledge gained through life experience. **LEVEL III**

### Information Source(s):
- Source of information has credible experience.
- Opinions are clearly stated.
- Identified practices are consistent.
- Number of Sources: [ ] Yes [ ] No [ ] NA

### Findings that help you answer EBP question:

*Deahl & Darra, 2012*
Evidence Table

• A summary of important information from multiple research studies and can capture underlying similarities or differences to illustrate trends in the data and/or to support next steps

• Incorporating multiple studies into a single table allows entire subsets of the literature to be summarized and compared (e.g., by key question or study design)

• Can be designed for subsets of included studies (examples: evidence table for randomized controlled trials, prevalence studies, etc.)

• Properly constructed evidence tables
  – Effectively convey results
  – Provide an overview of the literature in a given field
  – Enable the reader to grasp results for subsets of the literature

• Making sense of the data requires presentation and clear organization

AHRQ, 2013
Evidence Table

• Simplified entry (one row) for each study
• Table columns may include, for example:
  – Methodological quality
  – Applicability
  – Sample size
  – Strength & quality
• A single study may be represented in multiple evidence tables (e.g., different outcomes)
<table>
<thead>
<tr>
<th>Article #</th>
<th>Author &amp; Date</th>
<th>Evidence Type</th>
<th>Sample Size</th>
<th>Study Findings that help answer the question</th>
<th>Limitations</th>
<th>Evidence Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mollon et al, 2012</td>
<td>Pre-posttest Quasi Experimental</td>
<td>282</td>
<td>Evaluated online EBP learning module &amp; was ineffective in improving 282 healthcare providers’ attitude, knowledge, &amp; skill level related to EBP. Staff needed more time to practice knowledge &amp; skills learned from the EBP module</td>
<td>Lack of knowledge testing; one hospital; convenience sample</td>
<td>II A</td>
</tr>
<tr>
<td>2</td>
<td>League et al, 2012</td>
<td>Pre-posttest Quasi Experimental</td>
<td>Survey I 744; Survey II 1164</td>
<td>Developed a centralized web-based resource including EBP toolkit, monthly EBP project highlights &amp; electronic site nurses could formulate an EBP question to seek guidance. Nurses had favorable attitudes toward EBP &amp; more likely to access EBP resources</td>
<td>Single academic medical center; threat of history</td>
<td>II A</td>
</tr>
<tr>
<td>3</td>
<td>Levin et al, 2011</td>
<td>Two-group randomized controlled</td>
<td>46</td>
<td>Evaluated an EBP model in a community &amp; home health setting. Intervention (n = 22) included a 4-week didactic training (4-one hour classes), EBP toolkit, posters to encourage EBP participation, &amp; an on-site mentor for 12 weeks (2 hours 1 day per week). Control group (n =24) did not receive the mentorship or EBP training. Intervention group had stronger EBP beliefs, higher EBP implementation behaviors, higher group cohesion, &amp; less attrition &amp; turnover compared to the control group. An EBP mentor was critical to enhancing nurses EBP beliefs &amp; implementation</td>
<td>Generalizability of findings (limited home care settings); PI was also mentor to experimental group</td>
<td>I B</td>
</tr>
</tbody>
</table>
## Evidence Table Example

<table>
<thead>
<tr>
<th>Author, Year</th>
<th>Study Design</th>
<th>Setting</th>
<th>Sample</th>
<th>Evidence Level</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ang et al, 2011</td>
<td>RCT</td>
<td>8 medical wards; acute care; Singapore</td>
<td>1822 patients</td>
<td>I</td>
<td>Significantly fewer falls</td>
</tr>
<tr>
<td>Dykes et al, 2010</td>
<td>Cluster RCT</td>
<td>8 units; medical; urban; U.S.</td>
<td>All patients admitted or transferred to units over 6 month study period</td>
<td>I</td>
<td>Significantly fewer falls</td>
</tr>
<tr>
<td>Barker et al, 2009</td>
<td>Before/After</td>
<td>Small; acute care; Australia</td>
<td>271,095 patients</td>
<td>II</td>
<td>Significantly fewer injuries</td>
</tr>
</tbody>
</table>

Adapted from AHRQ, 2013
### Table 4. Comparison of antibiotics/placebo in the randomized controlled trials: each trial contributes 1 or more comparisons to the table

<table>
<thead>
<tr>
<th></th>
<th>Penicillins</th>
<th>Cephalosporins</th>
<th>Macrolides / Azalides / Ketolides</th>
<th>Quinolones</th>
<th>Others</th>
<th>Number of Comparisons for Each Drug</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Penicillins</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amoxicillin</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Amoxicillin clavulanate</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Penicillin</td>
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<td>2</td>
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<td>1</td>
<td>5</td>
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<tr>
<td><strong>Cephalosporins</strong></td>
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<td>Cefibuten</td>
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<td>Cefuroxime axetil</td>
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<td>Erythromycin</td>
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<td>Roxithromycin</td>
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<td>1</td>
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<td>6</td>
</tr>
<tr>
<td>Telithromycin</td>
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<td>Trovafloxacin</td>
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<td><strong>Quinolones</strong></td>
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<td>Faropenem</td>
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<td>Doxycycline</td>
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</table>

Ip et al., 2005
**Evidence Synthesis & Recommendation**

**Evidence Table Example**

<table>
<thead>
<tr>
<th>Category (Level Type)</th>
<th>Total # of Sources/Level</th>
<th>Overall Quality Rating</th>
<th>Synthesis of Findings Evidence that Answers the EBP Question</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level I</strong> Experimental, Randomized Controlled Trial (RCT), Systematic review RTCs with or without meta-analysis</td>
<td>1</td>
<td>B</td>
<td>Intervention group had stronger EBP beliefs, higher EBP implementation behaviors, higher group cohesion, &amp; less attrition and turnover compared to the control group. An EBP mentor was key to enhance nurses EBP beliefs &amp; implementation.</td>
</tr>
<tr>
<td><strong>Level II</strong> Quasi-experimental studies, Systematic review of a combination of RCTs and quasi-experimental studies, or quasi-experimental studies only, with or without meta-analysis</td>
<td>6</td>
<td>4 with A 1 with B 1 with C</td>
<td>Knowledge, self-efficacy &amp; attitude improved post-intervention for 10 nurses. Positive attitudes were found pre-intervention, no significant findings were found post-intervention. Researchers concluded that nurses were more likely to initiate a research study post-intervention. Online EBP learning module was ineffective in improving 282 healthcare providers’ attitude, knowledge, &amp; skill level related to EBP. Staff needed more time to practice knowledge &amp; skills learned from the EBP module. Nurses attitudes were favorable toward EBP, more likely to access EBP resources using a centralized web-based resource that included EBP toolkit, monthly highlights of EBP projects, &amp; electronic site to formulate an EBP question to seek guidance. 488 nurses retrieved drug and medical references, practice guidelines, and nursing evidence several times per week. Nurses’ attitudes &amp; values toward research &amp; communication significantly improved over time. PDA users had higher improvement in quality of care and job satisfaction than tablet users. Significant differences in nurses’ knowledge, attitude, skill level, &amp; organizational readiness post-computer based education intervention. Nurses had positive attitudes about using research to support best nursing practice, but knowledge &amp; skill gaps in research utilization &amp; EBP were evident.</td>
</tr>
<tr>
<td><strong>Level III</strong> Non-experimental, systematic review of RCTs, quasi-experimental, with/without meta-analysis, Qualitative, qualitative systematic review with/without meta-synthesis</td>
<td>2</td>
<td>C</td>
<td>Comfort and EBP skills increased post-training but not sustained due to scheduling &amp; staffing conflicts. Nurses need more time for EBP involvement &amp; continued support in their role. 2-hour packet included reading, hands on literature search, written &amp; content application. Post-intervention nurses met criteria for clinical ladder advancement.</td>
</tr>
<tr>
<td><strong>Level IV</strong> Respected authorities’ opinions, nationally recognized expert committee/consensus panel reports based on scientific evidence</td>
<td>N/A</td>
<td></td>
<td></td>
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<tr>
<td><strong>Level V</strong> Literature reviews, QI, program evaluation, financial evaluation, case reports, nationally recognized expert(s) opinion based on experiential evidence</td>
<td>1</td>
<td>A</td>
<td>3 frameworks described to plan, implement, &amp; translate evidence to practice</td>
</tr>
</tbody>
</table>

**Recommendations Based on Evidence Synthesis**

No clear delineation of a comprehensive training intervention to prepare & sustain nurses in clinical settings to incorporate research & EBP into practice to improve patient outcomes. Suggested that trained EBP mentors are valuable to sustain EBP. There is a need to investigate having trained EBP mentors, on line resources, & a formal educational program to prepare nurses to incorporate research & EBP into clinical practice. Next steps conduct a pilot study.

Dearholt & Dang, 2012
# Next Steps

<table>
<thead>
<tr>
<th></th>
<th>Compelling, consistent</th>
<th>Good, consistent</th>
<th>Good, but conflicting</th>
<th>Insufficient/absent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Make recommended change?</strong></td>
<td>Yes</td>
<td>Consider pilot of change</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><strong>Need for further investigation</strong></td>
<td>No</td>
<td>Yes, particularly for broad application</td>
<td>Yes, consider periodic review for new evidence or development of research study</td>
<td>Yes, consider periodic review for new evidence or development of research study</td>
</tr>
<tr>
<td><strong>Risk-benefit analysis</strong></td>
<td>Benefit clearly outweighs risk</td>
<td>Benefit may outweigh the risk</td>
<td>Benefit may or may not outweigh risk</td>
<td>Insufficient information to make determination</td>
</tr>
</tbody>
</table>

Good evidence suggests possible change especially if there is a patient benefit, and the risk for implementing the change is low.

**Dearholt & Dang, 2012**
Summary

• Evidence tables provide critical information about study characteristics & study findings

• Properly constructed evidence tables:
  – Effectively convey results
  – Provide an overview of the literature in a given field
  – Enable the reader to grasp results of the literature
References


