

Building Your Evidence Table

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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

Provides broad overview of what's in the literature

What are the components?

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.ihl.org/ihl>
- 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
www.ncbi.nlm.nih.gov/sites/entrez?db=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

Evidence Level

Level I: Experimental study, randomized controlled trial (RCT), systematic review of RCTs, with or without meta-analysis

Level II: Quasi-experimental study, systematic review of a combination of RCTs & quasi-experimental, or quasi-experimental studies only, with or without meta-analysis

Level III: Non-experimental study, qualitative study, or meta-synthesis

Level IV: Opinion of respected authorities and/or nationally recognized expert committee/consensus panels based on scientific evidence includes: clinical practice guidelines & consensus panels

Level V: Based on experiential and non-research evidence. Includes: Literature review; Quality improvement, program or financial evaluation; Case reports; Opinion of nationally recognized experts(s) based on experiential evidence

Dearholt & Dang, 2012

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

Quality Guide

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

A High Quality: 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

B Good Quality: 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

C Low Quality or Major Flaws: Little evidence with inconsistent results; insufficient sample size for the study design; conclusions cannot be drawn

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

A High Quality: 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

B Good Quality: 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

C Low Quality or Major Flaws: 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

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

Organizational Experience:

A High Quality: 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

B Good Quality: 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

C Low Quality or Major Flaws: Unclear or missing aims and objectives; inconsistent results; poorly defined quality improvement, financial or program evaluation methods; recommendations cannot be made

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

A High Quality: Expertise is clearly evident; draws definitive conclusions; provides scientific rationale; thought leader(s) in the field

B Good Quality: Expertise appears to be credible; draws fairly definitive conclusions; provides logical argument for opinions

C Low Quality or Major Flaws: Expertise is not discernible or is dubious; conclusions cannot be drawn

Dearholt & Dang, 2012

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



Evidence Level & Quality:

Article Title:		Number:	
Author(s):		Publication Date:	
Journal:			
Setting:		Sample (Composition/Size):	
Does the evidence address my EBP question?		<input type="checkbox"/> Yes	<input type="checkbox"/> No
If the answer is No, DO NOT proceed with appraisal of this evidence			
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?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
2. Was there a control group?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
3. Were study participants randomly assigned to groups?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
If Yes to all 3, this is a Randomized Controlled Trial or Experimental →		<input type="checkbox"/> Level I	
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 an independent variable, lacks random assignment to groups, may have a control group) →		<input type="checkbox"/> Level II	
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) →		<input type="checkbox"/> Level III	
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 Tool if Yes:	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
a. Does it combine and analyze results from the studies to generate a new statistic (effect size)? (Systematic review with meta-analysis)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
b. Does it analyze and synthesize concepts from qualitative studies? (Systematic review with meta-synthesis)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
If Yes to either a or b, go to 2B below.			
2. For Systematic Reviews, Systematic Reviews with meta-analysis or meta-synthesis: →	<input type="checkbox"/> Level I		
a. Are all studies included RCTs?	<input type="checkbox"/> Level II		
b. Are studies a combination of RCTs &/OR quasi-experimental? →	<input type="checkbox"/> Level III		
c. Are studies a combination of RCTs, quasi-experimental, and non-experimental or non-experimental only? →	<input type="checkbox"/> Level III		
d. Are any or all of the included studies qualitative? →	<input type="checkbox"/> Level III		
Study Conclusions:			
Study Findings that help answer EBP question:			

Evidence Rating

Quality Appraisal of Research Studies			
▪ Does researcher identify what is known & not known about problem & how study will address any gaps in knowledge?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
▪ Was purpose of study clearly presented?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
▪ Was literature review current (most sources within the last 5 years or classic)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
▪ Was sample size sufficient based on study design and rationale?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
▪ If there is a control group:			
○ Were characteristics and/or demographics similar in both control and intervention groups?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
○ If multiple settings were used, were settings similar?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
○ Were all groups equally treated except for intervention group(s)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
▪ Are data collection methods described early?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
▪ Were instruments reliable (Cronbach's alpha ≥ 0.70)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
▪ Was instrument validity discussed?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
▪ If surveys/questionnaires were used, was response rate ≥ 25%?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
▪ Were results presented clearly?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
▪ If tables were presented, was narrative consistent with table content?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA
▪ Were study limitations identified and addressed?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
▪ Were conclusions based on results?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Quality Appraisal of Systematic Review with or without Meta-Analysis or Meta-Synthesis			
▪ Was purpose of systematic review clearly presented?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
▪ Were reports comprehensive, with reproducible search strategy?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
○ Key search terms stated			
○ Multiple databases searched and identified			
○ Inclusion and exclusion criteria stated			
▪ Was there a flow diagram showing # of studies eliminated at each level of review?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
▪ Were details of studies presented (design, sample, methods, results, outcomes, strengths/ limitations)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
▪ Were methods for appraising strength of evidence (level and quality) described?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
▪ Were conclusions based on results?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
○ Results were interpreted			
○ Conclusions flowed logically from interpretation and systematic review question			
▪ Did systematic review include both a section addressing limitations and how they were addressed?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Quality Rating Based on Quality Appraisal			
A. 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			
B. Good Quality: reasonably consistent results; sufficient sample size; some control, & comprehensive literature review that includes reference to scientific evidence			
C. Low Quality or Major Flaws: little evidence with inconsistent results; insufficient sample size; conclusions cannot be drawn			
Dearholt & Dang, 2012			

Research Evidence Appraisal Tool Example



Non-Research Evidence Appraisal Tool Example

Evidence Level & Quality: _____

Article Title:	Number:														
Author(s):	Publication Date:														
Journal:															
Does this evidence address my EBP question? <input type="checkbox"/> Yes <input type="checkbox"/> No															
If the answer is No, DO NOT proceed with appraisal of this evidence															
<input type="checkbox"/> Clinical Practice Guidelines: Systematically developed recommendations from nationally recognized experts based on research evidence or expert consensus panel. LEVEL IV <input type="checkbox"/> 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															
<ul style="list-style-type: none"> <input type="checkbox"/> Are the types of evidence included identified? <input type="checkbox"/> Were appropriate stakeholders involved in the development of recommendations? <input type="checkbox"/> Are groups to which recommendations apply and do not apply clearly stated? <input type="checkbox"/> Have potential biases been eliminated? <input type="checkbox"/> Were recommendations valid (reproducible search, expert consensus, independent review, current, and level of supporting evidence identified for each recommendation)? <input type="checkbox"/> Were the recommendations supported by evidence? <input type="checkbox"/> Are recommendations clear? 	<table style="width: 100%; border: none;"> <tr> <td style="width: 33%;"><input type="checkbox"/> Yes</td> <td style="width: 33%;"><input type="checkbox"/> No</td> </tr> <tr> <td><input type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> </tr> <tr> <td><input type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> </tr> <tr> <td><input type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> </tr> <tr> <td><input type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> </tr> <tr> <td><input type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> </tr> <tr> <td><input type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> </tr> </table>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No
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<input type="checkbox"/> Yes	<input type="checkbox"/> No														
<input type="checkbox"/> Literature Review: Summary of published literature without systematic appraisal of evidence quality of strength. LEVEL V <ul style="list-style-type: none"> <input type="checkbox"/> Is subject matter to be reviewed clearly stated? <input type="checkbox"/> Is relevant, up-to-date literature included in the review (most sources within last 5 years or classic)? <input type="checkbox"/> Is there a meaningful analysis of the conclusions in the literature? <input type="checkbox"/> Are gaps in the literature identified? <input type="checkbox"/> Are recommendations made for future practice or study? 															
<input type="checkbox"/> Expert Opinion: Opinion of one or more individuals based on clinical expertise. LEVEL V <ul style="list-style-type: none"> <input type="checkbox"/> Has the individual published or presented on the topic? <input type="checkbox"/> Is author's opinion based on scientific evidence? <input type="checkbox"/> Is the author's opinion clearly stated? <input type="checkbox"/> Are potential biases acknowledged? 															
Organization Experience: <input type="checkbox"/> Quality Improvement: Cyclical method to examine organization-specific processes at the local level. LEVEL V <input type="checkbox"/> Financial Evaluation: Economic evaluation that applies analytic techniques to identify, measure, and compare the cost of outcomes of two or more alternative programs or interventions. LEVEL V <input type="checkbox"/> Program Evaluation: Systematic assessment of the processes and/or outcomes of a program and can involve both quantitative and qualitative methods. LEVEL V															
Setting:	Sample (composition/size):														
<ul style="list-style-type: none"> <input type="checkbox"/> Was the aim of the project clearly stated? <input type="checkbox"/> Was the method adequately described? <input type="checkbox"/> Were process or outcome measures identified? <input type="checkbox"/> Were results adequately described? <input type="checkbox"/> Was interpretation clear and appropriate? <input type="checkbox"/> Are components of cost/benefit analysis described? 	<table style="width: 100%; border: none;"> <tr> <td style="width: 33%;"><input type="checkbox"/> Yes</td> <td style="width: 33%;"><input type="checkbox"/> No</td> </tr> <tr> <td><input type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> </tr> <tr> <td><input type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> </tr> <tr> <td><input type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> </tr> <tr> <td><input type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> </tr> <tr> <td><input type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> </tr> <tr> <td><input type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> </tr> </table>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No
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<input type="checkbox"/> Yes	<input type="checkbox"/> No														
<input type="checkbox"/> Case Report: In-depth look at a person, groups, or other social unit. LEVEL V <ul style="list-style-type: none"> <input type="checkbox"/> Is the purpose of the case report clearly stated? <input type="checkbox"/> Is the case report clearly presented? <input type="checkbox"/> Are the findings of the case report supported by relevant theory or research? <input type="checkbox"/> Are the recommendations clearly stated and linked to the findings? 															
Community Standard, Clinical Experience, or Consumer Preference <input type="checkbox"/> Community Standard: Current practice for comparable settings in the community. LEVEL V <input type="checkbox"/> Clinical Experience: Knowledge gained through practice experience. LEVEL V <input type="checkbox"/> Consumer Preference: Knowledge gained through life experience. LEVEL V															
Information Source(s):	Number of Sources:														
<ul style="list-style-type: none"> <input type="checkbox"/> Source of information has credible experience. <input type="checkbox"/> Opinions are clearly stated. <input type="checkbox"/> Identified practices are consistent. 	<table style="width: 100%; border: none;"> <tr> <td style="width: 33%;"><input type="checkbox"/> Yes</td> <td style="width: 33%;"><input type="checkbox"/> No</td> <td style="width: 33%;"></td> </tr> <tr> <td><input type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> <td><input type="checkbox"/> NA</td> </tr> <tr> <td><input type="checkbox"/> Yes</td> <td><input type="checkbox"/> No</td> <td><input type="checkbox"/> NA</td> </tr> </table>	<input type="checkbox"/> Yes	<input type="checkbox"/> No		<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA					
<input type="checkbox"/> Yes	<input type="checkbox"/> No														
<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA													
<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NA													
Findings that help you answer EBP question:															

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)

Evidence Table Example

Question:		What interventions exist to improve nurses' awareness of EBP & implementation of EBP into clinical practice?					Evidence Rating	
Article #	Author & Date	Evidence Type	Sample Size	Study Findings that help answer the question	Limitations	Level/Quality		
1	Mollon et al, 2012	Pre-posttest Quasi Experimental	282	Evaluated online EBP learning module & was ineffective in improving 282 healthcare providers' attitude, knowledge, & skill level related to EBP. Staff needed more time to practice knowledge & skills learned from the EBP module	Lack of knowledge testing; one hospital; convenience sample	II	A	
2	League et al, 2012	Pre-posttest Quasi Experimental	Survey I 744; Survey II 1164	Developed a centralized web-based resource including EBP toolkit, monthly EBP project highlights & electronic site nurses could formulate an EBP question to seek guidance. Nurses had favorable attitudes toward EBP & more likely to access EBP resources	Single academic medical center; threat of history	II	A	
3	Levin et al, 2011	Two-group randomized controlled	46	Evaluated an EBP model in a community & home health setting. Intervention ($n = 22$) included a 4-week didactic training (4-one hour classes), EBP toolkit, posters to encourage EBP participation, & 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, & less attrition & turnover compared to the control group. An EBP mentor was critical to enhancing nurses EBP beliefs & implementation	Generalizability of findings (limited home care settings); PI was also mentor to experimental group	I	B	

Evidence Table Example

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

Evidence Table: Visual Presentation of Available Comparisons

Table 4. Comparison of antibiotics/placebo in the randomized controlled trials: each trial contributes 1 or more comparisons to the table

		Penicillins			Cephalosporins				Macrolides / Azalides / Ketolides					Quinolones					Others		Number of Comparisons for Each Drug			
		Amoxicillin	Amoxicillin clavulanate	Penicillin	Cefprozil	Cefdinir	Ceftibuten	Cefuroxime axetil	Azithromycin	Clarithromycin	Erythromycin	Roxithromycin	Telithromycin	Gatifloxacin	Gemifloxacin	Ciprofloxacin	Moxifloxacin	Levofloxacin	Sparfloxacin	Trovaflaxacin		Faropenem	Doxycycline	Placebo
Penicillins	Amoxicillin			2																	1	2	5	
	Amoxicillin clavulanate		2		1	2	2	2	4			1	2	2			1	2					1	22
	Penicillin																					1	3	6
Cephalosporins	Cefprozil																							1
	Cefdinir					2																		4
	Ceftibuten						4			3														9
	Cefuroxime axetil									1		1			3	2					1			10
Macrolides / Azalides / Ketolides	Azithromycin								1														1	6
	Clarithromycin								1						1		2	1						6
	Erythromycin																							3
	Roxithromycin																							1
	Telithromycin												2											7
Quinolones	Gatifloxacin												1											6
	Gemifloxacin													1										1
	Ciprofloxacin																							4
	Moxifloxacin																			1				4
	Levofloxacin																							4
	Sparfloxacin																							1
	Trovaflaxacin																							1
Others	Faropenem																							1
	Doxycycline																						1	3
Placebo	Placebo																						7	

Ip et al., 2005

Evidence Synthesis & Recommendation

Evidence Table Example

Question: What interventions exist to improve nurses' awareness of EBP & implementation of EBP into clinical practice?			
Category (Level Type)	Total # of Sources/ Level	Overall Quality Rating	Synthesis of Findings Evidence that Answers the EBP Question
Level I Experimental, Randomized Controlled Trial (RCT), Systematic review RCTs with or without meta-analysis	1	B	Intervention group had stronger EBP beliefs, higher EBP implementation behaviors, higher group cohesion, & less attrition and turnover compared to the control group. An EBP mentor was key to enhance nurses EBP beliefs & implementation.
Level II Quasi-experimental studies, Systematic review of a combination of RCTs and quasi-experimental studies, or quasi-experimental studies only, with or without meta-analysis	6	4 with A 1 with B 1 with C	<p>Knowledge, self-efficacy & attitude improved post-intervention for 10 nurses.</p> <p>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.</p> <p>Online EBP learning module was ineffective in improving 282 healthcare providers' attitude, knowledge, & skill level related to EBP. Staff needed more time to practice knowledge & skills learned from the EBP module.</p> <p>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, & electronic site to formulate an EBP question to seek guidance.</p> <p>488 nurses retrieved drug and medical references, practice guidelines, and nursing evidence several times per week. Nurses' attitudes & values toward research & communication significantly improved over time.</p> <p>PDA users had higher improvement in quality of care and job satisfaction than tablet users.</p> <p>Significant differences in nurses' knowledge, attitude, skill level, & organizational readiness post-computer based education intervention. Nurses had positive attitudes about using research to support best nursing practice, but knowledge & skill gaps in research utilization & EBP were evident.</p>
Level III Non-experimental, systematic review of RCTs, quasi-experimental, with/without meta-analysis, Qualitative, qualitative systematic review with/without meta-synthesis	2	C	<p>Comfort and EBP skills increased post-training but not sustained due to scheduling & staffing conflicts.</p> <p>Nurses need more time for EBP involvement & continued support in their role.</p> <p>2-hour packet included reading, hands on literature search, written & content application. Post-intervention nurses met criteria for clinical ladder advancement.</p>
Level IV Respected authorities' opinions, nationally recognized expert committee/consensus panel reports based on scientific evidence			N/A
Level V Literature reviews, QI, program evaluation, financial evaluation, case reports, nationally recognized expert(s) opinion based on experiential evidence	1	A	3 frameworks described to plan, implement, & translate evidence to practice

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.

Next Steps

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

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

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

- Agency for Healthcare Research and Evidence for Patient Safety Practices (March 2013). Making health care safer II: An updated critical analysis of the evidence for patient safety practices. Rockville, MD Available at: <http://ahrq.gov/research/findings/evidence-based-reports/ptsafetyuptp.html>
- Balas, E.A., & Boren, S.A.(2000). Managing clinical knowledge for healthcare improvement. In J. Bemmel & A.T. McCrary (eds). *Yearbook of Medical Informatics* (pp. 65-70). Bethesda, MD: National Library of Medicine.
- Dearholt, S.L., & Dang, D. (2012). *Johns Hopkins Nursing Evidence-Based Practice Model and Guidelines* (2nd ed.). Sigma Theta Tau International, Indianapolis, Indiana.
- Ip, S., Fu, L., Balk, E., et al. (2005). *Update on Acute Bacterial Rhinosinusitis*. Evidence Report/Technology Assessment No. 124. (Prepared by Tufts–New England Medical Center Evidence-based Practice Center under Contract No. 290-02-0022). Rockville, MD: Agency for Healthcare Research and Quality. AHRQ Publication No. 05-E020-2. Available at: <http://www.ahrq.gov/downloads/pub/evidence/pdf/rhinoupdate/rhinoup.pdf>.
- Polit, D. F., & Beck, C. (2011). *Nursing Research: Generating and Assessing Evidence for Nursing Practice* (9th ed.). Philadelphia: Lippincott.