



## Evidence-Based Practice: A Primer for Action

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To cite this article: Jane Bliss-Holtz (2007) Evidence-Based Practice: A Primer for Action, Issues in Comprehensive Pediatric Nursing, 30:4, 165-182, DOI: [10.1080/01460860701738336](https://doi.org/10.1080/01460860701738336)

To link to this article: <https://doi.org/10.1080/01460860701738336>



Published online: 10 Jul 2009.



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## EVIDENCE-BASED PRACTICE: A PRIMER FOR ACTION

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*Although evidence-based practice (EBP) began as a challenge to the medical profession in the early 1970s, the concept has since been embraced by nursing and other health care professions. Although it is clear that the process of placing evidence into practice will continue to be refined, the mandate to do so is clear. The purpose of this article is to present a brief history of the definition of EBP, describe some of the more well-known models of knowledge translation, discuss some of the commonly agreed-upon steps in the EBP process, and present some resources that might be useful for readers.*

**Keywords:** evidence-based practice, nursing

### **INTRODUCTION**

As mentioned in an editorial in this journal (Bliss-Holtz, 2007), *Issues in Comprehensive Pediatric Nursing* will be taking an expanded direction as it marks its 30<sup>th</sup> year of publication and shifts its focus to include issues in pediatric evidence-based practice (EBP). From the first chastisement of healthcare professionals by Cochrane in 1979 for the years-long gap in translating evidence into practice to current mandates placed on institutions through accrediting and licensing agencies, the call becomes increasingly clear: organizational processes must be put into place that will effectively and efficiently translate the best existing evidence into clinical practice.

The purpose of this article is to present a brief history of the definition of EBP, describe some of the more well-known models of knowledge translation, discuss some of the commonly agreed-upon steps in the EBP

Accepted 4 October 2007.

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process, and present some resources that might be useful for readers in their quest to make EBP “happen.” It is clear that the process of placing evidence into practice will continue to be refined. The mandate also is clear that the gap between research and practice can no longer be measured in years, but that “rapid-cycle” processes must be formulated that assure quality patient outcomes.

Obviously, many books have been published on the subject of EBP, and the author’s intent in this article is not to present a lengthy discussion on any one aspect of EBP, but to present a broad overview of where healthcare has been, what currently is “out there,” and where to find more on the subject. It is hoped that this article will be useful as a way of presenting “the big picture” to those readers who have, perhaps, lost their way in what can be the minutia of the process.

### ***THE CALL FOR EVIDENCE-BASED PRACTICE: AN EVOLUTION STILL ONGOING***

#### ***The Support Structure***

Since the first clinical observation about cause and effect set into motion the first rudimentary research project, healthcare professionals have strived to base their practice on evidence. However, until sufficient health care research became available, processes for basing clinical practice on existing evidence were slow and haphazard. This state of affairs first was brought to the public’s attention by Dr. Archie Cochrane in 1972 in his report to the Nuffield Provincial Hospitals Trust. A strong advocate for using the results of randomized controlled clinical trials (RCTs), Cochrane criticized the medical profession for not practicing according to the increasing strength of existing evidence (Cochrane, 1979). His challenge led to the establishment of the first electronic database of clinical trials in 1988, the *Oxford Database of Perinatal Trials* (The Cochrane Collaboration).

In 1992, the National Health Service in the United Kingdom funded the Cochrane Centre to facilitate systematic reviews related to all areas of healthcare in a manner similar to that of the *Oxford Database of Perinatal Trials* (Dickersin & Manheimer, 1998). Within the next year, illustrating that this was an “idea whose time had come,” the Cochrane Collaboration, an international endeavor, was launched. The Collaboration is devoted to generating systematic reviews of randomized controlled clinical trials and communicating healthcare research findings. By 1995, the British Medical Journal Group (BMJ Group) began publication of *Evidence-based Medicine for Primary Care and Internal*

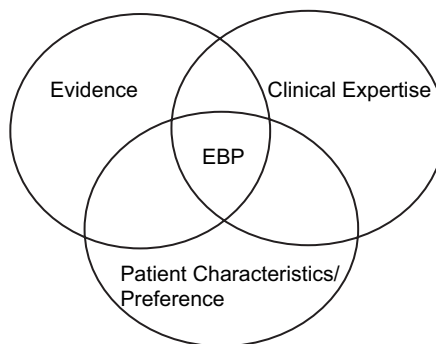
*Medicine*, followed by *Evidence-Based Nursing* in 1998. In 2004, Blackwell Publishing, in association with Sigma Theta Tau International, the Honor Society of Nursing, launched *Worldviews on Evidence-Based Nursing*.

### ***Defining the Term***

Sackett and colleagues generally are credited with defining the term “evidence-based medicine” in an editorial entitled “Evidence-based medicine: what it is and what it isn’t,” which was published in the *British Medical Journal* in 1996. The authors addressed using clinical expertise to apply the best available external clinical evidence coming from systematic research in a “conscientious, explicit and judicious” (p. 71) manner to clinical practice (Sackett, Rosenberg, Gray, Haynes, & Richardson, 1996). Patient demographics and preferences soon were added to the equation, with EBP becoming the intersection point where these three components meet (Melnik & Fineout-Overholt, 2005). (See Figure 1).

### ***Evidence-Based Practice and Research Utilization***

One caveat about the terminology used is that evidence-based practice differs from research utilization in that the term “research utilization” implies using the results from single research studies. Careful consideration was given both to the generalizability of study results, and also to the fit between the original study’s population and the setting in which the



**Figure 1. Evidence-Based Practice as the Intersection of Systematically Generated Evidence, Practitioner Expertise, and Patient Characteristics and Preferences.**

original intervention would be replicated. Evidence-based practice refers to using evidence from a *body* of studies from which conclusions about an intervention can be drawn. Models of research utilization such as Stetler's model (Stetler, 1983; 1985) were vital in preparing the way for the time when nursing developed its own critical mass of research on which to base practice.

### ***A Word on "Evidence"***

An interesting continuing debate has been on the question of what constitutes evidence. The original concept, as brought forward by Cochrane (1979), was based on the use, or rather, the non-use, of the results of randomized controlled trials in healthcare. Because of the high internal validity inherent in well-executed RCTs, it cannot be disputed that these constitute the "gold standard" of scientific evidence. However, it must be remembered that this paradigm of EBP came from medicine, and the testing of some nursing interventions do not lend themselves readily to being tested by randomized controlled trial. To quote Titler et al (2001), "the work of medicine is different from the work of nursing" (p. 502). There is evidence that this line has "softened"; for example, many current EBP references now include case reports and clinical examples in the lowest level of evidence (Craig & Smyth, 2007; DiCenso, Guyatt, & Ciliska, 2005; Melnyk & Fineout-Overholt, 2005; Straus, Richardson, Glasziou, & Haynes, 2005).

### ***The "State of the Art"***

An example of the failure to "yield to the data" is illustrated by the logo of the Cochrane Collaboration. The Collaboration logo represents the results of a systematic review of seven RCTs related to the effect of corticosteroid use in preterm labor on preterm infants' lungs. Although the first RCT was performed in 1972, followed by six others, it was not until 1989 that the first systematic review was performed. The logo pictorially indicates that although five of the seven RCTs did not demonstrate a significant difference in preterm lung maturity with corticosteroid use, the effects of two of the trials were so strong that the overall effect of the intervention was significant. Unfortunately, almost 20 years passed, at the probable cost of thousands of infant lives and millions in healthcare dollars, before the results significantly impacted practice (Australasia Cochrane Centre, 1997).

Two nursing projects of note in the United States occurred in the 1970s and 1980s that endeavored to identify and disseminate nursing research findings into practice: the five-year Conduct and Utilization of Research in Nursing (CURN) project, which was awarded to the Michigan Nurses Association by the Division of Nursing, U.S. Department of Health, Education, and Welfare (Horsley, Crane, & Bingle, 1978; Horsley, Crane, Crabtree, & Wood, 1983); and the Western Council on Higher Education for Nursing (WCHEN) Regional Program for Nursing Research Development, which was a six-year program also funded by the Division of Nursing (Krueger, 1978; Krueger, Nelson, & Wolanin, 1978). The goal of both projects was to identify clinical areas in which research had been performed and translate the results into practice. These projects met with varying success, due in part to the lack of sufficient available research findings.

Regrettably, the lag between research and delivery of health care based on its outcomes continues into the new millennium. Balas and Boren (2000) noted that translation from research into practice still takes as long as 17 years. Cretin and colleagues (2001) noted that after evidence-based guidelines were established, they were not followed in approximately one-third of clinical encounters (Cretin, Farly, Dolter, & Nicholas, 2001). Pravikoff, Tanner, and Pierce (2005), in their national survey of 760 registered nurses in clinical settings, noted that although the majority of respondents reported needing information upon which to base patient care, the most often used source of information was not based on systematic evidence, but from consultation with their colleagues.

### ***MODELS OF EBP AND KNOWLEDGE TRANSLATION***

As nursing has moved into evidence-based practice (frequently termed “evidence-based nursing”), several models of translating knowledge into practice have been used to assist in the transition. These include the Promoting Action on Research Implementation in Health Services (PARIHS) model (Kitson, Harvey, & McCormack, 1998; Rycroft-Malone, 2004; Rycroft-Malone, Kitson, Harvey, McCormack, Seers, Titchen, et al., 2002), the Iowa Model of Evidence-Based Practice to Promote Quality Care (Iowa Model) (Titler, Kleiber, Steelman, Rakel, Budreau, & Everett, 2001; Titler, Kleiber, Steelman, Goode, Rakel, & Barry-Walker, et al., 1994), the Ottawa Model of Research Use (OMRU) (Logan & Graham, 1998; Logan, Harrison, Graham, Dunn, & Bissonnette, 1999), and the ACE Star model (Stevens, 2005; 2006).

### ***The Promoting Action on Research Implementation in Health Services (PARIHS) model***

The PARIHS model was developed based upon examining and articulating the experience of the research and practice development teams within the United Kingdom's Royal College of Nursing (RCN) Institute (Kitson, Harvey, & McCormack, 1998; Rycroft-Malone, Kitson, Harvey, McCormack, Seers, Titchen, et al., 2002). From this analysis, three major factors were identified that impact the successful implementation of research into practice: *evidence*, *context*, and *facilitation*. Each of these elements has a dynamic relationship with each other, and their relationship and strength needs to be identified prior to attempting to translate evidence into practice (Rycroft-Malone, 2004). According to Rycroft-Malone and colleagues (1998), successful implementation of evidence occurs when practice is based on scientifically robust evidence (*evidence*), when the practice change matches both healthcare professionals' expectation and patient preference (*context*), when the proposed change is made within an environment that contains strong leadership and appropriate monitoring and feedback systems are in place (*context*), and there is sufficient input from both external and internal facilitators (*facilitation*).

### ***The Iowa Model of Evidence-Based Practice to Promote Quality Care (Iowa Model)***

The Iowa model was initially used at the University of Iowa Hospitals and Clinics to diffuse the use of research into practice. The model was an outgrowth of Watson and colleagues' (1987) Quality Assurance Model of Using Research (QAMUR) model (Titler et al., 1994). The current version (Titler et al., 2001) includes two entry points into the process, which are termed *triggers*. Triggers may be *problem focused* or *knowledge focused*. Problem-focused triggers can be thought of as those generated from internal issues and data, which can range from clinical to financial outcomes. Knowledge-focused triggers are driven from external information, and include new research and recommendations from federal agencies such as the Agency for Healthcare Research and Quality (AHRQ). Decision points inherent in the model assist in driving the process forward and include such questions as whether the proposed change is a priority to the organization; whether there is sufficient evidence upon which to base a particular practice; and whether the proposed practice "fits" into the organization's climate, culture, and resources (Titler et al., 2001).

### ***The Ottawa Model of Research Use (OMRU)***

The Ottawa Model of Research Use (Logan & Graham, 1998), like the PARIHS model, is concerned with assessing the climate for instituting practice changes based on existing evidence. This model identifies six components that need to be assessed, including the practice environment; the individuals who will be responsible for the change; the nature of the innovation itself; the strategies that will be used to transfer the innovation into practice; how the innovation will be used; and measuring the expected outcomes (Logan, Harrison, Graham, Dunn, & Bissonnette, 1999). The authors recommend that assessment of these areas be performed before, during, and after implementation of the innovation to determine the barriers and facilitators present prior to the change, to offer direction during implementation, and to evaluate the outcome.

### ***The ACE Star Model***

The ACE Star Model was developed through the Academic Center of Evidence-Based Practice at the University of Texas Health Science Center at San Antonio, Texas (UTHSCSA). The Center was established by the UTHSCSA in 2000 as a center of excellence to collaborate with local healthcare entities in bridging the gap between research and practice. (Stevens, 2005).

The Model represents the cycle of knowledge as it is transformed through the various stages of the EBP cycle. Depicted as a five-pointed star, the stages include:

- 1) the *Discovery* phase, in which systematic research is generated;
- 2) the *Summary* phase, in which the body of research on a particular topic is summarized into a meaningful statement of the state of the science;
- 3) the *Translation* phase, in which the knowledge is translated into practice recommendations or guidelines;
- 4) the *Integration* phase, in which both organizational and individual practice changes occur and;
- 5) the *Evaluation* phase, in which the change in practice is evaluated (Stevens, 2005; 2006).

After completion of the fifth point, the first point may be re-entered if new knowledge about the practice has been generated.



## **COMMON STEPS IN THE EBP PROCESS**

Although there are several models of EBP, most of them contain at least some common steps in the process of translating evidence into practice. These include: a) formulating the appropriate question; b) finding the evidence; c) evaluating the level and strength of the evidence; d) guideline development/adaptation; and e) implementing and evaluating the result.

### ***Formulating the Appropriate Question***

Whether approaching the literature to guide practice or to use as a base for research, formulating the appropriate question prior to performing a literature search is essential. If the question is too broad, the results of the literature search can be overwhelming and nonproductive. If the question is too narrow, then key results could be missed. For the purposes of formulating an appropriate question in the EBP process, the *PICO* format commonly is used, which represents:

P = Population

I = Intervention

C = Comparison

O = Outcome

*Population.* The population of interest needs to be carefully defined, usually considering two general categories: a) the disease (e.g., diabetes) or condition (e.g., pregnancy); and b) the population (e.g., sex, age) and setting (e.g., outpatient surgery, intensive care, community) (Cochrane Reviewer's Handbook, 2006).

*Intervention.* The type of intervention or clinical action then needs to be defined. For example, the question of assessment of pain in the neonate or young child calls into question what the best assessment tool might be (clinical action) or what the best way to approach drawing blood from a young child might be (intervention). The Neonatal/Infant Pain Scale (NIPS) (clinical action) or specific intervention (distraction through sucking on a pacifier) would be the term placed into the PICO question.

*Comparison.* In many cases, there are choices of what intervention to use. These are placed into the PICO question as well. For example, the NIPS may be compared to the Premature Infant Pain Profile (PIPP) in preterm infants, or distraction by feeding and by pacifier may be compared. In some cases, the comparison may be the “usual treatment” (which may be “nothing”).

*Outcome.* All possible outcomes should be explored and placed into the PICO question. For example, if decreased length of stay is an outcome, then the attendant results, such as reduced cost, also should be included.

An example of a completed PICO question is: “In hospitalized infants aged 1 to 2 months [population and setting], what is the effect on pain [outcome] of distraction by a small glucose and water feeding [intervention] when compared to pacifier use [comparison] during a blood draw?” As can be seen, the PICO question is not as specific as a research question, which would define such things as the type of pain scale used to measure the outcome and the exact amount of solution and percentage of glucose used for the intervention. Once the PICO question is formulated, then the search for evidence can begin.

### ***Finding the Evidence***

Four potential sources of evidence are the Cochrane Library, the National Guidelines Clearinghouse, PubMed, and the Cumulated Index of Nursing and Allied Health Literature (CINAHL). Additional resources for finding evidence are given at the end of this article.

*Cochrane Library.* The Cochrane Library (<http://www.cochrane.org/index.htm>) includes the Cochrane Database of Systematic Reviews (COCH) and the Cochrane Register of Controlled Trials (CCTR). The COCH contains full-text systematic reviews of healthcare interventions and their effects. The reviews are produced by the Cochrane Collaboration, which is an international network of both individuals and institutions committed to improving healthcare. The CCTR is a bibliographic database of controlled trials which is produced by the Cochrane Collaboration in association with National Library of Medicine in Washington, DC (producers of MEDLINE) and Reed-Elsevier of Amsterdam, the Netherlands (producers of EMBASE). Cochrane Collaboration contributors follow quality-control standards to ensure that only reports of randomized controlled trials or controlled clinical trials are included (Cochrane Collaboration, <http://www.cochrane.org/index.htm>).

*National Guidelines Clearinghouse.* The National Guidelines Clearinghouse (NGC) (<http://www.guidelines.gov>) is supported by the Agency for Healthcare Research and Quality (AHRQ), U.S. Department of Health and Human Services. The NGC originally was created by AHRQ in partnership with the American Medical Association and the former American Association of Health Plans (now America's Health Insurance Plans [AHIP]), and contains a database of evidence-based clinical practice guidelines and related documents. The mission of the NGC is to "provide physicians, nurses, and other health professionals, health care providers, health plans, integrated delivery systems, purchasers and others an accessible mechanism for obtaining objective, detailed information on clinical practice guidelines and to further their dissemination, implementation and use" (<http://www.guidelines.gov/about/about.aspx>).

Features of the NGC includes a search engine and also a browsing feature that allows the user to select from guidelines related to diseases or conditions, treatments or interventions, and measures or tools. Outdated guidelines are available, for comparison purposes, housed under a "Guideline Archive" feature. Guidelines that are in progress or revision can be viewed as well. Once guidelines are located, summaries that give key points about the guideline and its development are available, as well as the full guideline. Additionally, a guideline comparison utility allows the user to perform a side-by-side comparison of two or more guidelines. The NGC also includes an annotated bibliography database where users can search for publications about guideline development, methodologies, structure, implementation, and evaluation (<http://www.guidelines.gov>).

*PubMed.* PubMed (access through: <http://www.nlm.nih.gov>), houses MEDLINE, an online database of biomedical journal citations and abstracts. The database records are indexed with the National Library of Medicine's controlled vocabulary (Medical Subject Headings [MeSH®]) and contain material from approximately 5,000 journals published in the United States and 80 other countries. PubMed was created and administered by the U.S. National Library of Medicine (NLM®), and can be accessed at no charge (United States National Library of Medicine, 2006).

*Index of Nursing and Allied Health Literature (CINAHL).* The CINAHL database is a commercial enterprise of CINAHL Information Systems that contains article citations from nursing and allied health literature, including journals, textbooks, monographs, and dissertations (<http://>

www.cinahl.com). The database started as a print publication in 1951, grew to a CD-ROM service, and presently is a Web-based service to healthcare and educational institutions.

### ***Evaluating the Level and Strength of the Evidence***

Once evidence is found, the level and strength of the evidence needs to be assessed. The level or strength of evidence speaks to the power of the evidence to predict the cause and effect of the intervention being tested. It also speaks to how well the research design prevents threats to internal validity—that is, how well the design prevents effects other than the independent variable from affecting the dependent variable.

The level or strength of evidence also is known as the *hierarchy* of evidence. The highest level of evidence is that of systematic reviews (such as those found in the Cochrane Database of Systematic Reviews) or meta-analyses. The highest level also includes evidence-based practice guidelines based on systematic reviews of randomized controlled clinical trials (RCTs) (Guyatt & Rennie, 2002). Depending on the rating scheme, the second level usually indicates that only one well-designed randomized clinical trial was found. Subsequent levels include evidence from: a) well-designed controlled trials without randomization; b) well-designed case-control and cohort studies; c) systematic reviews of descriptive and qualitative studies; d) single descriptive or qualitative studies; and e) case studies ( $n = 1$ ), opinion from authorities, and/or reports of expert panels (Melnik & Fineout-Overholt, 2005).

### ***Development of Guidelines or Evaluation of Existing Guidelines***

When reviewing evidence-based clinical guidelines, it is important to determine which rating scheme was used to evaluate the evidence on which the guidelines were based. For example, the *Practice Alerts* published by the American Association of Critical-Care Nurses (AACN) are based on evidence rated by a scheme that ranks the strongest evidence as Level IV, and the weakest evidence as Level I (American Association of Critical-Care Nurses, 2006). In contrast, the National Association of Pediatric Nurse Practitioners (NAPNAP) used the American Academy of Pediatrics (AAP) recommendations when developing the guideline *Identifying and Preventing Overweight in Childhood*. This rating scheme ranks randomized clinical trials as Level A and expert opinion as Level D (NAPNAP, 2006).

Beyond the evidence-rating scheme, other factors need to be considered prior to developing guidelines or adopting existing ones. The

Institute of Medicine (IOM) identified eight attributes that need to be considered when developing and/or evaluating clinical guidelines for use. These include:

- validity and strength of the evidence on which the guideline was based is clearly presented;
- given the same evidence, similar guidelines would be produced by a different expert panel, and the guidelines would be consistently applied by different healthcare practitioners (reliability);
- the patient population for which the guideline is written is clearly defined (clinical applicability);
- patient/practitioner preference can be accommodated within the guideline application (clinical flexibility);
- the guideline is written in clear language and is complete;
- there is complete documentation of the processes used in the development of the guideline;
- a multidisciplinary process was used in development of the guideline; and
- plans by the developing agency to review/revise the guideline are presented (Field & Lohr, 1992).

A tool for developing or evaluating existing evidence-based clinical guidelines, the Appraisal of Guidelines Research and Evaluation (AGREE) Instrument, was developed in 2001 under the *Biomedicine and Health Research (BIOMED 2) Programme*, which was funded by the European Union. Begun as a research project in 1998, the project was coordinated by the Department of Public Health Sciences at St. George's Hospital Medical School in the United Kingdom. The AGREE Collaborative, as it was known, was an international collaboration of researchers and policy-makers whose goal it was to improve the quality and effectiveness of clinical practice guidelines (AGREE Collaboration, 2004).

The AGREE Instrument contains 23 items that represent six domains:

- *scope and purpose* of the guideline, which includes a description of the clinical issue and of the patient population for which the guideline was written;
- *stakeholder involvement*, including involvement of relevant health professionals and patients;
- *rigor of development*, including clear description of the methodology, formulation of recommendations, and risk/benefits;
- *clarity of presentation*, including treatment options;
- *application*, including identification of potential barriers and costs; and

- *editorial independence*, including identification of potential conflicts of interest of the panel members who developed the guidelines (AGREE Collaboration, 2001).

### ***Implementing and Evaluating the Result***

The last steps in the EBP process are those of implementing the guidelines that either were developed or adopted, and evaluating the outcomes. Obviously, if evidence-based clinical guidelines were developed or adopted according to the IOM recommendations or the AGREE criteria, issues such as the validity and reliability of the guidelines were already taken into consideration. However, prior to implementation, an assessment of the organizational environment would need to be performed. As previously discussed, the PARIHS model can be useful in the planning phase (Rycroft-Malone, 2004). Techniques such as Force Field analysis can be helpful in identifying the potential barriers and facilitators to making the changes that are inherent within the organization's administration, management, professional staff, and present resources. Planning for the change should include identifying all stakeholders and the education, staffing, equipment, supplies, and other resources needed. Additionally, a timetable that includes all activities should be developed and critiqued by all levels of participants prior to implementation.

Exactly how and when outcomes will be measured is a vital component of planning for the implementation of EBP. Mechanisms that are already in place which measure patient and financial outcomes should be examined for their utility in providing outcome data. If data for the outcome measure needed is not already being collected, then additional strategies will need to be put into place to assure that pre- and post-intervention evaluative data are collected.

### ***CONCLUSION***

From the inception of the term "evidence-based practice," nursing has slowly embraced the concept as a useful tool by which to identify "critical masses" of evidence generated through systematic research and to build efficient and effective nursing practice. The process of EBP is one that embraces many pre-existing theories and mechanisms, including the scientific process, change theory, and quality-assurance and performance-improvement strategies. Challenges include bringing existing practitioners

“up to speed” as well as preparing the next generation to “do” EBP. It is hoped that this broad overview, and the resources listed below, will give some assistance along the way.

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## EVIDENCE-BASED PRACTICE RESOURCES

### Reference Books

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- DiCenso, A., Guyatt, G., & Ciliska, D. (2005). *Evidence-based nursing: A guide to clinical practice*. St. Louis: Elsevier Mosby.
- Field, M.J. & Lohr, K.N. (1992). *Guidelines for clinical practice: From development to use*. Washington, DC: National Academy Press. (Also available for reading free online at: [http://books.nap.edu/openbook.php?record\\_id=1863&page=R1](http://books.nap.edu/openbook.php?record_id=1863&page=R1)).
- Hamer, S., & Collinson, G. (2005). *Achieving evidence-based practice: A handbook for practitioners* (2<sup>nd</sup> ed.). Philadelphia: Elsevier.
- Melnyk, B.M., & Fineout-Overholt, E. (2005). *Evidence-based practice in nursing and healthcare: A guide to best practice*. New York: Lippincott Williams and Wilkins.
- Smith, P., James, T., Lorentzon, M., & Pope, R. (2004). *Shaping the facts: Evidence-based nursing and health care*. London: Churchill Livingstone.
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### Journals

- Evidence-Based Medicine (EBM) for Primary Care and Internal Medicine*. Journal began publication in 1995. Published bimonthly by the British Medical Journal (BMJ) Group. Available at: <http://ebm.bmj.com>
- Evidence-Based Nursing (EBN)*. Journal began publication in 1998. Published quarterly by the British Medical Journal (BMJ) Group. Available through: <http://ebn.bmj.com>.
- Worldviews on Evidence-Based Nursing*. Journal began publication in 2004. Published quarterly by Blackwell Publishing in association with Sigma Theta Tau International, the Honor Society of Nursing. Available through <http://www.blackwellpublishing.com/journal.asp?ref=1545-102X>.

### Centers for Evidence-Based Nursing Practice

- Academic Center of Evidence-Based Practice at the University of Texas Health Science Center at San Antonio, Texas (UTHSCSA). ([http://www.acestar.uthscsa.edu/Learn\\_model.htm](http://www.acestar.uthscsa.edu/Learn_model.htm)).

Center for the Advancement of Evidence-Based Practice (CAEP) at Arizona State University. (<http://nursing.asu.edu/caep/index.htm>).

Joanna Briggs Institute Royal, Adelaide Hospital, the University of Adelaide, South Australia. (<http://www.joannabriggs.edu.au/about/home.php>).

Sarah Cole Hirsh Institute for Best Nursing Practices Based on Evidence at Case Western Reserve University Frances Payne Bolton School of Nursing (<http://fpb.case.edu/HirshInstitute/index.shtml>).

University of York Department of Health Sciences Centre for Evidence Based Nursing. (<http://www.york.ac.uk/healthsciences/centres/evidence/cebn.htm>).

### ***Guideline Databases***

American Academy of Pediatrics. [http://aappolicy.aappublications.org/practice\\_guidelines/index.dtl](http://aappolicy.aappublications.org/practice_guidelines/index.dtl).

American College of Physicians. <http://www.acponline.org/clinical/guidelines/?in>

National Guideline Clearinghouse (NGC). <http://www.guidelines.gov>

National Institute for Clinical Excellence (UK). <http://www.nice.org.uk/page.aspx?c=20034>

Primary Care Clinical Practice Guidelines. <http://www.medicine.ucsf.edu/resources/guidelines/intro.html>.

Oncology Nursing Society. <http://www.ons.org/outcomes>.

Registered Nurses Association of Ontario. [http://www.rnao.org/Page.asp?PageID=1212&SiteNodeID=155&BL\\_ExpandID=](http://www.rnao.org/Page.asp?PageID=1212&SiteNodeID=155&BL_ExpandID=).

Scottish Intercollegiate Guideline Network (SIGN) <http://www.sign.ac.uk/guidelines/published/index.html>.

### ***On-Line Resources of Interest (Annotated)***

AGREE Collaborative. <http://www.agreecollaboration.org>. (Site contains the free AGREE Instrument for download).

American College of Physicians, New York Chapter. <http://www.ebmny.org/cpg.html#obgyn>. (This site contains links to other clinical guideline databases, including a list by authoring agency).

Centre for Evidence-based Child Health. [http://www.ich.ucl.ac.uk/ich/academicunits/Centre\\_for\\_evidence\\_based\\_child\\_health/Homepage](http://www.ich.ucl.ac.uk/ich/academicunits/Centre_for_evidence_based_child_health/Homepage). (The Centre was established in 1995 by the Great Ormond Street Hospital Trust and the Institute of Child Health, London. Contains links to other EBP resources and EBP teaching resources).

Cochrane Library. <http://www.cochrane.org/index.htm>. (Information about accessing the Cochrane Library, tutorials, and helpful information related to EBP).

Cochrane Collaboration. <http://www.nihs.go.jp/dig/cochrane/cochrane/cc-broch.htm#LOGO>. (Archie Cochrane's life and works)

HSTAT (Health Services/technology/Assessment Text). <http://www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=hstat>. (Free Web-based resource of full-text documents, including all of AHRQ's Evidence Reports).

McGill University Health Centre. [http://muhc-ebn.mcgill.ca/EBN\\_tools.htm](http://muhc-ebn.mcgill.ca/EBN_tools.htm). (Contains interesting tools, tutorials, and links to other EBP sites).

MindTools. [http://www.mindtools.com/pages/article/newTED\\_06.htm](http://www.mindtools.com/pages/article/newTED_06.htm). (This is a career training site that contains free tools to develop a Force Field analysis).

Oxford Centre for Evidence-Based Medicine. <http://www.cebm.net/index.aspx?o=1025>. (This site gives some handy tips to assist with going through the EBP process. Warning: not all downloads are free).

University of Iowa Hospitals and Clinics Iowa Model. <http://www.uihealthcare.com/depts/nursing/rqom/evidencebasedpractice/iowamodel.html>. (Brief description of the IOWA Model and request-for-use form)

Value Based Management.net. [http://www.valuebasedmanagement.net/methods\\_lewin\\_force\\_field\\_analysis.html](http://www.valuebasedmanagement.net/methods_lewin_force_field_analysis.html). (This URL contains explanations of how to use Force Field diagrams while planning for change).