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Evidence-Based Policy and Procedures

An Algorithm for Success

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Evidence-based practice is defined as the use of current best evidence by clinicians when making patient care decisions. Barriers to an evidence-based practice are well identified in the literature and significantly impact the use of research findings in practice. A key feature of a practice environment that supports and promotes the use of best evidence is requiring clinical practice policies and procedures to be evidence-based. The authors describe the structure and process developed to facilitate evidence-based policies and the outcomes of the initiative.

Evidence-based practice (EBP) has become the cornerstone of nursing practice worldwide. Defined as the use of current best evidence by clinicians when making patient care decisions, it entails finding the best evidence, critically evaluating it, integrating it with clinical expertise and patient preferences, and applying the results to clinical practice.^{1,2} Data have existed since the 1980s, demonstrating that patients who receive care based on the best evidence have improved outcomes, yet only a small percentage of healthcare professionals incorporate research evidence into clinical decision making.³⁻⁵ Although nurses value the use of scientific evidence to guide practice and improve outcomes, it can be challenging to incorporate evidence into daily nursing practice.

Barriers to EBP include lack of access to relevant research evidence, inadequate database

searching skills, difficulty understanding research articles, time and resource constraints, lack of mentoring and organizational support, and lack of authority to change practice.⁶⁻¹⁵ The gap between publishing research and translating findings into clinical practice, which can take up to 17 years, must be addressed in the healthcare environment.¹⁶ Creating structures and support for hospital-based nurses to use evidence in their clinical practice will help narrow the evidence-practice gap and promote excellent patient outcomes.

University of Colorado Hospital is recognized nationwide as an innovator of EBP. Using evidence to guide clinical practice is embedded in our culture and internalized in our practice standards and governance structures. Some examples of the EBP structure include the following:

- EBP council and champions of change group
- Research nurse scientists who provide mentorship and oversight to research and EBP initiatives
- A yearly nursing research competency requirement for clinical nurses
- Incorporation of research and EBP expectations into the clinical ladder credentialing program
- Unit-based journal club activity
- Research Grand Rounds and quarterly EBP newsletter
- Sponsorship of an annual National Research and EBP 2-day symposium

University of Colorado Hospital was awarded the Magnet Hospital prize for evidence-based nursing practice in 2005 for developing and integrating a system of EBP to improve clinical and management outcomes. One key feature of our

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practice environment that supports and promotes the use of best evidence is the requirement to have our clinical practice policies and procedures evidence based. References are included with each policy with an assessment of the strength of the evidence.

What Is Considered Evidence?

The Evidence-Based Multidisciplinary Practice Model (Figure 1) developed by the EBP council at the University of Colorado Hospital¹⁷ depicts the various sources of evidence clinicians use to make practice decisions. Valid and current research forms the core of the model, and the circle indicates that evidence is connected from the other sources to establish the evidence base. Although research is the preferred type of evidence, not every practice lends itself to a true research design and not all evidence has a research base. The more sources of evidence that are added to the research core, the stronger the evidence.

This model suggests that clinicians should search for additional evidence to support the research core. All types of research should be evaluated for its contribution to the evidence. Results from experimental, nonexperimental, and qualitative studies may be synthesized to establish the research base. When research evidence is not available, the best evidence comes from one or more of the nonresearch evidence sources: pathophysiology, chart review, quality and risk data, standards, infection control data, clinical expertise, benchmarking data, cost-effectiveness analysis, and

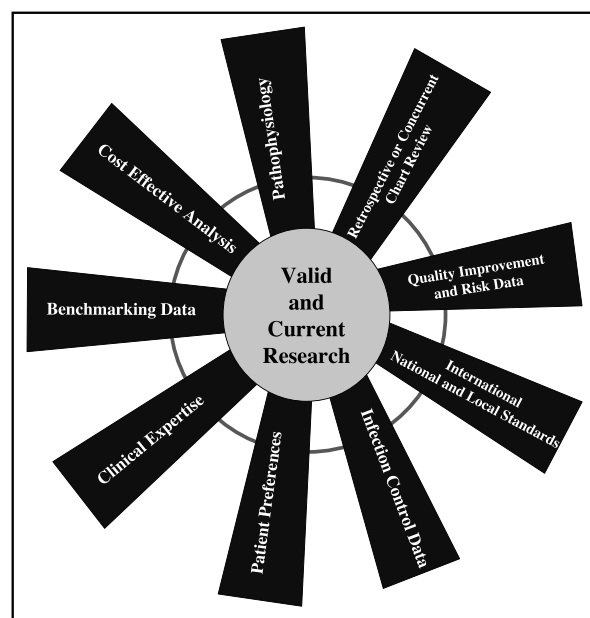


Figure 1. Evidence-Based Multidisciplinary Practice Model.

Table 1. Levels of Evidence

Level and Quality of Evidence	Type of Evidence
Level I (strongest evidence)	Meta-analysis or systematic review of multiple controlled studies or clinical trials
Level II	Individual experimental studies with randomization
Level III	Quasi-experimental studies such as nonrandomized controlled single-group pre-post, cohort, time series, or matched case-controlled studies
Level IV	Nonexperimental studies, such as comparative and correlational descriptive research as well as qualitative studies
Level V	Program evaluation, research utilization, quality improvement projects, case reports (JCAHO Sentinel Event Reports) or benchmarking studies (NDNQI, UHC reports)
Level VI (weakest evidence)	Opinions of respected authorities; or the opinions of expert committee, including their interpretation of non-research-based information. This includes textbooks and clinical product guidelines.

Bolded items reflect the revisions described in this article.
Adapted from Stetler et al.¹⁸

patient preferences. This model is used to guide EBP projects and evidence reviews.

Critiquing and Rating the Evidence

After gathering the evidence, it must be systematically and critically reviewed. A standardized critique form can be used for reviewing literature. Using a consistent approach for critiquing a research article provides a structured format that helps improve critical appraisal skills.

The strength of the evidence is rated or graded by the team developing or updating the policy. Many rating schemes exist. The Evidence-Based Practice Council reviewed various models and adapted the Levels of Evidence of Stetler et al¹⁸ as the model to guide the process. This model is logical and includes a variety of levels that are consistent with evidence sources used by nurses. In all models, evidence ranges from rigorous to weak. Levels are assigned to rate the strength of the evidence to help assess the quality of the body of evidence. The rating scheme of Stetler et al includes 6 levels of evidence (Table 1). Level I is the strongest evidence and is an analysis of many well-conducted, controlled studies (meta-analysis or integrative review). Level VI is the

weakest; usually nonresearch-based opinions of experts or published clinical articles that are not research based. High levels of evidence may not exist for many clinical questions because of the nature of nursing problems and research and ethical limitations.

Algorithm Development

After finding nothing addressing evidence-based policy and procedure in the literature, members of the EBP Council identified the steps involved in evidence-based policy development and created an algorithm to describe this process. Table 2 describes the 10 major steps in the algorithm with accompanying detail.

Algorithm Pilot

To pilot the algorithm, a subgroup (6 nurses) of the EBP champions, a group of staff nurses who champion the use of evidence on their units, mentored by a research nurse scientist, were selected to

review the Orthostatic Vital Sign policy that was scheduled for routine update. During an online library and Web-based search facilitated by the research nurse scientist and EBP champion chairperson, 12 research-based articles, 8 clinical articles, 1 national guideline, and anecdotal recommendations were obtained. Two research reports were assigned to each member of the subgroup to be critically reviewed using our standard critique form. Each nurse was responsible for reading the articles, completing the critique form, and presenting their findings at a journal club session. The reviews were shared and discussed; the nonresearch literature was considered and incorporated into the overall review. After group discussion and consensus, the strength of the evidence was assessed and levels of evidence were assigned to the published reports. Most of the research reports were level IV studies (usually descriptive studies); one was an experimental crossover-designed study (level II). It was difficult to

Table 2. Policy and Procedure Algorithm Steps

Review Steps	Suggested Actions
1. Select the policy for revision	Routine review or changes in practice; this process is also applicable for new policies
2. Search for evidence	Suggested approaches and sites: Research based evidence: • CINAHL and Medline databases • Cochrane Library • American College of Physicians Pier • National Guideline Clearinghouse (www.guideline.gov) • Turning Research Into Practice (www.tripdatabase.com) Professional Association Guidelines/Standards of Care University Health Consortium for other academic hospital policies/procedures Local standards or policies Expert opinion/clinical expertise • Clinical articles • Web search • Clinical experts
3. Systematic evaluation of the evidence	Critically appraise research evidence • Assign level of evidence: a method of evaluating the strength of the evidence using the 6-level scheme of Stetler et al • Consider a mechanism for organization of evidence, eg, an evidence table may be constructed
4. Compare evidence to current policy and make a decision	Decision point • Make no changes • Make language more precise or update references • Revise policy to incorporate new evidence • Develop new policy or procedure based on evidence if indicated • Retire or delete policy if no longer effective for quality patient care
5. Policy review by stakeholders/experts	Send revised policy to stakeholders who have reviewed prior versions of the policy or determine who is appropriate to review a new policy
6. Make revisions based on stakeholder/experts' comments	
7. Obtain approval signatures	E-mail signature is accepted at UCH
8. Submit policy to Patient Care Policy and Procedure Subcommittee	Final recommendations and approval by the committee
9. Staff education as needed	Present to Nurse Educator Council if needed
10. Web submission	Hospital-wide policies are located on the hospital's intranet

Abbreviation: UCH, University of Colorado Hospital.

- Patient-Controlled Analgesia: Adult and Pediatric
- Epidural, Intrathecal, and Nerve Sheath Analgesia
- Aseptic Practices for Invasive and Operative Procedures Performed in Operating Rooms and Invasive Procedure Suites
- Nonstress Test of Fetus
- Management of Anticoagulation Therapy in the Ambulatory Setting
- Pressure Line Management
- Fall Prevention
- Wound Care Using the Vacuum-Assisted Closure System
- Heartmate XVE Ventricular Assist Device
- Care and Use of Dialysis Access by Dialysis Staff

Figure 2. Policies included in evaluation audit.

assign a level to most clinical articles, raising questions about what exactly an expert committee or a respected authority was. In our deliberations, we concluded that the recent literature was congruent with the hospital policy and that no significant changes were needed. To demonstrate this process of policy revision to clinical nurses, educators, managers, and directors, a nursing grand rounds was held, highlighting the use of the algorithm and the process for assessing the strength of evidence. In addition, the yearly EBP competency (completion required by all clinical nurses) detailed this policy review process in a self-learning module and posttest that was completed by nurses who did not attend grand rounds.

The Patient Care and Assessment Policy and Procedure Committee adopted the algorithm to guide the review and development process in November to December 2005. The algorithm is attached with the policy being sent out for review, and a discussion of assigning the levels of evidence occurs when the policy is presented to the committee.

Algorithm Evaluation

An evaluation of the process was performed to determine if policies included references and if the assignment of levels was accurate. Ten policies (Figure 2), approved by the policy committee after implementing the algorithm, were selected and reviewed by 2 research nurse scientists. Only clinical patient care policies were chosen for review. The references were obtained, reviewed, and assigned an appropriate level. The levels were then compared with the levels assigned by the clinical nurse who revised or wrote the policy. Percent agreement and other descriptive analyses were conducted.

Results

The 10 policies reviewed included 49 references. Most of the references were journal articles or textbooks. Some were clinical guidelines, sentinel event alerts, and procedure manuals. Of the 49 references,

37 were available online for the research nurse scientists to review. These references were compared independently with levels assigned. Table 3 displays the results of the comparisons. Company product guidelines, textbooks, the Joint Commission on Accreditation of Healthcare Organizations sentinel event reports, and Web sites were the sources of the most disagreement between raters. The 2 nurse scientists agreed with each other 89% of the time.

These results were presented to the policy and procedure committee. The finding of overrating the evidence by the author of the policy was discussed. Because many of the sources of evidence that were overrated were either textbooks or product guidelines, it was decided to revise the levels of evidence table to include these in the level VI category. For additional clarity, examples of case reports and benchmarking studies were added to level V. These revisions are reflected in boldface text in Table 1. No decision was made about Web sites because there are so many of such varied quality.

Clinical Implications

Using evidence to guide clinical practice is important to patient outcomes yet can be challenging in a healthcare environment burdened with competing demands on time and resources. Having tools and

Table 3. Comparisons of Level of Evidence

Number of references n (%)	% Agreement Between Policy Author and Research Nurse Scientists (RNS)
17 (46%)	100% agreement
18 (49%)	66.6% agreement • RNS assigned lower level than policy author (12) • RNS assigned higher level than policy author (2) • RNS disagree on level (4)
2 (5%)	0% agreement

guidelines available for busy professionals may be helpful in promoting the use of research findings in practice.

One of the Magnet recognition program requirements asks for evidence that demonstrates the integration of research and EBP into clinical and operational processes (Magnet Force 6: Quality of Care). This EBP approach to policy development is an organizational model that demonstrates how EBP is integrated into clinical processes. Our magnet redesignation occurred in 2005, before the full implementation of this model, but it has been viewed as an important strength to our overall EBP program.

The policy and procedure committee members value having a more systematic and evidence-based

approach to policy development and report that nurses involved in writing or revising policies are using the algorithm and appreciate the guidance it provides them. Nurses are able to use the tool to review evidence-based policies, evaluate the strength of the evidence, and consequently, have more confidence about the evidence supporting their practice.

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