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Evidence-based Practice

A Practical Approach to Implementation

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Organizations often do not have processes in place to support nurses through a systematic approach for developing and evaluating nursing interventions, protocols, critical pathways, and policies that are derived from scientific evidence. The development of a framework to guide inquiry will have a positive impact on patients. This process may foster a higher level of professional engagement by nurses that may, in the long-term, help improve nurse retention and recruitment. The authors discuss a nursing evidence-based practice model and guidelines that were developed by a team of hospital and academic nurse leaders and is practical and easy to use. This model has been successfully implemented across the department of nursing as a strategic initiative. Results of the implementation have shown that staff nurses can effectively use this model with the help of knowledgeable mentors.

Like people in other professions, nurses operate in an "age of accountability" where quality and cost issues drive the direction of healthcare.^{1,2} Public expectations that healthcare investments should consistently lead to high-quality results are characteristic of a populace that carries personal digital assistants (eg, palm pilots), surfs the Internet, and joins coalitions that each have their own office close to Capital

Hill. It is within this context that nurses, physicians, public health scientists, and others explore what works and does not work. The rise of evidence-based practice (EBP) can be seen as both a response to the broader societal forces with which nurses and other professionals must contend and the logical progression in the long-term effort to close the gap between research and practice.³⁻⁵

Evidence-based practice integrates the providers' clinical expertise with the best external clinical evidence.⁶ Nurses are seeking a guide that will help them structure how to make decisions that are accurate and timely and apply evidence in the practice setting. The use of an EBP process provides a systematic approach to rational decision making that facilitates achievement of best practices and thus demonstrates accountability. Since it is intuitive that the odds of doing the right thing at the right time for the right patient are potentially improved when the strongest available evidence is systematically considered using a framework, it is not surprising that many nurses are choosing to apply the concepts surrounding EBP.

Because of the significance of EBP, multiple resources have emerged for systematic reviews.⁷⁻⁹ There are relatively few models developed for organizational application to nursing, thus creating a need for an EBP model within nursing to support clinical decision making.¹⁰⁻¹³ The pros and cons of EBP models for nursing must be reviewed, debated, and a broad comprehensive format must be developed that can be adapted for different practice settings. Toward this end, emphasis should not be placed on agreement of the specific definitions and concepts associated with EBP. Consensus will come in time.

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Barriers to a nurse's use of research in everyday practice have often been cited.¹⁴⁻¹⁶ Despite these barriers, multiple successful evidence-based projects have been implemented.¹⁷⁻²⁰ It is imperative that nurse administrators create structures and processes that reduce organizational barriers to enable research use within care settings, building the infrastructure needed for research translation.²¹ The creation of a model framework for EBP to guide clinical nursing inquiry is a prime example of an organizational support that fosters the implementation of research into practice.

As the field of nursing evolves, it can serve patients and the profession by exploring translation processes and struggling, like other professions, with how to promote the use of evidence in routine decisions. Nurse scholars, specifically, need to think not only about the definition and politics associated with EBP but also need to apply research skills to the processes associated with translation.

Model Development

Basing practice decisions on sound scientific research and the best available evidence is the optimal approach for developing and evaluating policies, protocols, interventions, pathways, and clinical practice guidelines. To make this a reality, an EBP process that can be successfully used by nurses at the bedside is required. The use of EBP has been shown to produce better patient outcomes because patient care decisions are based on the best scientific evidence.²²⁻²⁴ At the Johns Hopkins Hospital (JHH), an EBP model and guidelines assist the nursing staff through a systematic approach to evaluate their practice.

The Johns Hopkins Nursing EBP Model (Figure 1) and Guidelines were the result of a collaborative effort between the JHH Department of Nursing and the Johns Hopkins University School



Figure 1. The Johns Hopkins Nursing Evidence-Based Practice Model. Reprinted with permission. Copyright 2003, JHH/JHU.

of Nursing (JHUSON). According to Dickenson-Hazard, collaboration occurs when time, talents, resources, and knowledge blend together to create the infrastructure required for achieving desired outcomes.²⁵ By combining the expertise of both hospital nursing staff and school of nursing faculty in the development and testing of the EBP process, the scope of the infrastructure was broadened.

The nursing administrative leadership at the JHH identified the development of an EBP model as a strategic initiative. A 5-member leadership team, composed of 3 JHH nurse administrators in partnership with 2 JHUSON academic faculty, began work on the project by reviewing the literature, consulting experts, and discussing ideas and recommendations with staff nurses through the Research and the Standards of Care Committees. The collaborative team completed the model development and the accompanying prescriptive guidelines in 2002.

The model incorporates the use of "best available evidence" as the core component necessary for making decisions that affect professional nursing in the domains of nursing practice, education, and research. The EBP guidelines stress a multidisciplinary approach and provide nurses with the structure and tools necessary to acquire EBP knowledge and skills, implement EBP changes in practice, and foster a stimulating, energizing, and rewarding practice environment.

Pilot Testing

The model and guidelines (Figure 2) were pilot tested in spring 2003 using a mentored educational experience. The pilot participants included 15 JHH Post Anesthesia Care Unit (PACU) nurses, representing various levels of education and practice. These nurses were invited to participate in this experience by their nurse manager because they were experienced PACU nurses who were regarded as experts by peers. They did not have specific experience with the research process.

The pilot project began with the PACU nurses identifying a clinical question of great interest to the PACU practice environment: *Should ambulatory surgery patients void prior to discharge from the Post Anesthesia Care Unit?* (Table 1). This question had both clinical and administrative significance for the nursing staff. The nurses attended five 1to 2-hour sessions over an 8-week period of time. They were each given a guidebook with step-bystep instructions on how to use the EBP model and guidelines. The guidebook also included specially designed tools in how to select an important clinical topic, assemble a team, gather and rate the available evidence, and implement findings from the review.



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Practice que	estion
Step 1:	Identify an EBP question
Step 2:	Define scope of practice question
Step 3:	Assign responsibility for leadership
Step 4:	Recruit multidisciplinary team
Step 5:	Schedule team conference
Evidence	
Step 6:	Conduct internal and external search for evidence
Step 7:	Critique all types of evidence
Step 8:	Summarize evidence
Step 9:	Rate strength of evidence
Step 10:	Develop recommendations for change in processes of care or
	systems on the basis of strength of evidence
Translation	
Step 11:	Determine appropriateness and feasibility of translating
	recommendations into the specific practice setting
Step 12:	Create action plan
Step 13:	Implement change
Step 14:	Evaluate outcomes
Step 15:	Report results of preliminary evaluation to decision makers
Step 16:	Secure support from decision makers to implement recommended
	change internally
Step 17:	Identify next steps
Step 18:	Communicate findings

Figure 2. Guidelines for implementation of evidence-based practice model.

In the educational sessions, the nurses received mentored support from the leadership team to identify the clinical practice problem, conduct the literature search, rate the evidence, and create recommendations for practice. The nurses completed an evaluation at the end of each session. They were asked to rate the clarity, usefulness, adequacy, and feasibility of the model contents and satisfaction with the EBP process and outcomes. Narrative comments were also collected. The results of this pilot were used to make revisions to the model and guidelines. Once the model was refined, training then focused on broader nursing leadership, including nursing standards of care, nursing research, and nursing quality committee members in a train-the-trainer approach to begin a wider dissemination of the model and the guidelines throughout the hospital.

Implementation of the EBP Model Through a Train-the-Trainer Approach

To implement the model on a larger scale, 2-day educational sessions were provided for the Nursing Standards of Care and Nursing Research Committee members. These unit-based nursing leaders were chosen to serve as change agents and EBP champions within their clinical areas/departments.

The educational sessions used an active format that enabled the participants to gain knowledge of the EBP model and guidelines, and to develop skills to use the model, guidelines, and tools to answer a question important to their practice. The same educational format was then implemented for nurses who were members of the Nursing Clinical Performance Improvement Committee and the Staff Education Committee. A fifth session developed for nurse managers was held recently and included a shortened educational program that introduced the nurse manager group to the EBP model and guidelines, told the group memebrs how to use the tools and discussed how to increase management support and infrastructure to facilitate the EBP process, implement practice changes, and disseminate results.

Evaluation

After each training session, an evaluation was completed. The following questions were included in the

<i>Table 1.</i>	Summary	of	Evidence-l	based	l Practice	Pro	jects
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EBP Question	Outcomes of Project
Should ambulatory surgery patients void prior to their discharge from the Post Anesthesia Care Unit?	Voiding should not be a required discharge criterion for low-risk patients. Voiding should always be required before discharge of high-risk patients. Moderate-risk patients may be discharged with instructions to return within 6 hours if they do not void. Hospital policy was revised and implemented. Postoperative phone calls now include a question about urinary retention. There have been no adverse effects. Participating nurses have submitted an article to the <i>Journal of Perianesthesia Nursing</i> . The unit is investigating use of a bladder scanner for moderate-risk patients.
For patients experiencing pain who have a history of substance abuse, what are the best nursing interventions to manage the pain?	An addendum to the existing pain protocol was developed to identify assessment strategies and effective interventions for managing patients with addictive disease. A Multidisciplinary Grand Rounds took place in May 2004.
Should a hyperthermia blanket be used for patients experiencing fever?	The Products Evaluation Committee will consider evaluating both water-filled cooling blankets and air-filled cooling blankets for future purchase. Plans for conducting additional research related to the effectiveness of cooling blankets compared to other interventions will be developed. A central protocol will be developed guiding the use of hyperthermia blankets throughout the hospital.
For patients who undergo surgery, what pressure relieving devices should be used to prevent pressure ulcers?	Project still in progress.
Should nurses be allowed to wear artificial nails in the clinical area?	Evidence clearly supports a policy change to prohibit artificial nails in the clinical areas.

evaluation: (1) Is the content in the model and 1 guidelines clear? (2) Is the content in the EBP manual adequate? (3) Is the content in the EBP manual adequate? (4) Is the EBP process feasible for practicing nurses to complete an EBP project with a team? (5) Are you satisfied with the Johns Hopkins Nursing EBP Model and Guidelines? and (6) Are you satisfied with the outcome of the process? The response format was a 4-point scale, with 4 representing a favorable response. The evaluation results from the training sessions in 2003 can be reviewed in Table 2.

Overall, means were high for all scales, showing that model was clear (3.65), the content provided

Table 2.Evaluation Summary of 2003Educational Sessions (Scale 1–4)

	Ν	М
Rate the clarity of the content of the EBP manual	51	3.65
Rate the usefulness of the content of the	51	3.69
Rate the adequacy of the content of the EBP manual	51	3.63
Rate the feasibility of using this process for the practicing nurse to complete an EBP	51	3.51
project with a team How satisfied are you with the	52	3.81
How satisfied are you with the outcome?	52	3.77

EBP, evidence-based practice.

was useful (3.69) and adequate (3.63), the EBP process was feasible for practicing nurses (3.51), and the nurses were satisfied with the EBP process (3.81) and outcomes (3.77). Qualitative responses were also collected. They included a few minor suggestions, which helped the team to make useful changes to the guidelines. But more important, the responses showed an enthusiasm for the process, a renewed sense of professionalism and accomplishment, and a confidence on the part of the staff nurses in the use of EBP.

The results of the implementation clearly demonstrated that staff nurses were able to effectively use this practical approach to EBP. In fact, their participation as the clinical experts was crucial in the process. They were able to apply and interpret which research findings could realistically translate into their clinical settings. The steady growth in enthusiasm and confidence on the part of staff nurses in the use of the EBP model far exceeded our expectations.

Overcoming Barriers

Barriers to implementation of EBP cited in the literature¹⁸⁻²⁰ were confirmed during the implementation.

Meaning to the Nurses

The first barrier that was encountered even before the initial pilot test began was the nurses' concern about possible disparity between clinical priorities and EBP. It was crucial from the beginning that each chosen EBP project be linked to the nurses' and the unit's clinical priorities. By involving the nurses in the formulation of the EBP question and counseling them to develop a question that was relevant and meaningful to their practice, we were able to gain significant "buy-in" from the group.

Knowledge Deficit

The second barrier was the obvious knowledge deficit on the part of many staff nurses as they participated in the collection and synthesis of available scientific evidence. Several nurses voiced feelings of inadequacy when attempting to critique the various types of research studies uncovered through the literature search. In addition, there was a lack of familiarity with how to gain access to professional and community standards of care. Several strategies were used to increase the nurses' comfort levels with these processes and decrease the barrier. First, the practical, interactive educational program that was developed introduced the nurses to the concepts of EBP and evidence review and synthesis. Second, consistent mentors were provided who worked with the participants throughout the process of gathering and reviewing evidence. Finally, a set of simple and understandable rating tools specific to the types of evidence under review were developed and used by the participants. These tools are also being incorporated for use by the students in other nursing courses at the JHUSON.

Information Overload

The third barrier to using the EBP process was that the nurses were overwhelmed by the amount and variety of evidence uncovered during the evidencegathering phase. In each session, the nurses expressed feelings of "information overload" and uncertainty as to how to proceed with the synthesis of such a broad array of evidence. Again, the guidance of consistent mentors helped, and the guided interactive sessions decreased their anxiety. By the end of each session, the nurses were more comfortable determining which publications were applicable to the question under discussion and which publications would not add value, and they reported that they found themselves completing the reviews with greater ease. Mentor support is crucial to provide consistent direction and guidance as nurses continue to build the skills needed to conduct future projects independently. Without knowledgeable mentors, staff may become discouraged whenever they are unsure of how to approach a perceived "hurdle" in the EBP process. The availability and accessibility of expert mentors who can respond to questions in a timely manner significantly enhances the nurses' ability to implement EBP.

Allocating Time

The last and most compelling barrier to the implementation of the EBP process is the need for time. We are all cognizant of the current realities of practice and everyday heavy workloads. The use of an EBP approach to clinical decision making clearly needs support from nursing leadership to provide the nurses with dedicated time away from their dayto-day clinical responsibilities to allow them to participate in this type of work. The participants clearly valued this support, and commented on the fact that this dedicated time allotment was critical to the success of the project. Administrative support is essential to provide the human, financial, and material resources needed to promote EBP by nurses. EBP depends upon our collective capacity to develop cultures of critical thinking-where ongoing learning is inherently built into our organizational constructs. Nurse managers must provide the time for nurses to devote their energies to the thoughtful review and appraisal needed for implementation of EBP. In addition, the nurse manager's visible enthusiasm and support for EBP goes a long way to energize their staff who may initially be discouraged because of unfamiliarity with the process.

Future Plans

The strategic goal of implementing EBP for clinical decision making was achieved. The Johns Hopkins Nursing EBP Model and Guidelines are beginning to transform the work environment for nurses at JHH. This unique approach to implementing EBP is characteristic of innovations seen in Magnet organizations, like Johns Hopkins Hospital, and has immediate and long-term potential to improve nurses' engagement in clinical practice decisions and, ultimately, patient outcomes.

EBP goals for FY05 include continued infusion of the EBP model and guidelines throughout the organization. The goals will be actualized through continued EBP mentoring and education, the recruitment of 2 EBP fellows to lead unit projects for a 3-month period, and a pilot project to test the effect of the EBP model used in collaboration with physicians. In addition, because of the collaborative team's dissemination of this work regionally, there have been numerous requests by area hospitals for this practical approach to be implemented in their facilities. The leadership team plans to work with 2 area community hospitals to implement the EBP model and guidelines for clinical decision making. Finally, the EBP model will be implemented in the undergraduate and graduate curriculums at the JHU-SON as part of a curriculum revision planned for the upcoming academic year.

Staff nurses are eager to incorporate evidence into their practice, but they need help to do it. As the nursing staff evaluates existing practices, gathers and synthesizes current available evidence, and incorporates the best new evidence into practice, they move toward an era of informed professional practice. The success of this program seems to be the result of 3 important strategies. First, the design and implementation of a practical approach to EBP is important to assist staff nurses to evaluate the various types of scientific and experiential evidence and translate them into practice to improve the quality and safety of patient care. Second, the provision of dedicated time and resources by nursing leadership to provide the support and infrastructure to implement the EBP for clinical decision making is paramount. Last, the collaboration between hospital nursing and academic nursing ensures access to endless mentors and scholarly expertise.

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