

Implementing Evidence-Based Nursing Practice

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Within the nursing profession, it is expected that new information in the form of research findings will be incorporated constantly and knowledgeably into nursing practice. The staff nurse is a critical link in bringing research-based changes into clinical practice. Depending on the environment, a health care organization may or may not have the resources to ensure critical, succinct, reasonable evaluation and application of research findings as they relate to the point-of-care delivery. Health care organizations are beginning to create

A methodology for establishing and supporting evidence-based nursing practice is examined. Description of a clinical and administrative scenario serves as an example of a systematic appraisal of the relevant literature that had implications for clinical practice.

mechanisms to facilitate the process of information translation from the literature to practice.

Introduction

The purpose of this article is to describe a methodology for establishing and supporting evidence-based nursing practice (EBNP). After establishing the background for this project, authors describe a clinical and administrative scenario in which an issue was identified that warranted a systematic appraisal of the relevant literature to inform clinicians. An operational definition for EBNP is presented, and a conceptual framework for translating evidence into practice is outlined. Next, a case study is presented to describe the process of critically appraising the evidence and translating the findings into nursing practice, education, and administration. The clinical and administrative outcomes are highlighted and the roles of EBNP team members explained.

The hospital described in this article has 205 licensed beds, 15 operating rooms, and a level II emergency department. Inpatient specialty units include critical and intermediate care as well as

several medical/surgical units serving various specialties (orthopedics, neurology and neurosurgery, hematology and oncology, bone marrow transplant, solid organ transplant, cardiology, and cardiac surgery). The environment is technology based, with an electronic medical record for all nursing documentation, telemetry available to each inpatient bed, an epilepsy monitoring unit, electronic supply charging, filmless radiology, wireless phones for each nurse, and a robotic surgical system. The hospital staff members are registered nurses assisted by patient care assistants. Staff participation in nursing committees is encouraged. Support staff include unit-based educators and specialty-based clinical nurse specialists (CNSs). Participation in nursing and other clinical research studies is encouraged.

In examining the issue of translating research-based evidence into practice, authors focused on collaboration, service, and integration. Each of these components figures prominently in the work performed at the medical center. The approach selected to use research in practice reflects the structure and mission of the organization,

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which is to provide the best care for the patient using the three “shields” of practice, education, and research. The themes of collaboration, service, and integration were used to weave together the expertise of library sciences and nursing services as well as collaboration among the nursing practice subcommittee (NPS), the nursing education subcommittee (NES), and the nursing research subcommittee (NRS). This project is an example of the integration of the work of these three subcommittees that was presented to the nursing staff in an attempt to identify the best possible service for patients.

Evidence-Based Nursing Practice

Nursing has a strong tradition of focusing on various ways of knowing to provide excellent care. Carper (1978) identified four fundamental patterns of knowing in nursing: empiric, ethics, personal, and aesthetic patterns. More recently, Fawcett, Watson, Neuman, Walker, and Fitzpatrick (2001) updated and applied Carper's theory. *Empirical knowing* relates to factual descriptions, explanations, and predictions. *Ethics* refers to moral obligations, values, and desired ends. *Personal knowing* pertains to the genuine transpersonal relation between each nurse and each patient. *Aesthetic knowing* shows the nurse's perception of what is significant in the patient's behavior and also addresses the artful performance of nursing skills and ways of being. All these ways of acquiring, processing, reflecting, and evaluating nursing knowledge are important in developing a comprehensive clinical perspective. Evidence-based practice explores the empiric way of knowing, focusing on methods of critically appraising and applying available data and research to understand and inform clinical decision-making better. Although it clearly is not the only way of knowing, evidence-based practice provides a way to frame and address questions about how

to provide the best patient care. For the purpose of this article, the following definition of *evidence-based practice* has been selected: “the integration of best research evidence with clinical expertise, and patient values” (Sackett, Straus, Richardson, Rosenberg, & Haynes, 2000, p. 1). This definition highlights the importance of combining the best available evidence with clinical judgment, and emphasizes a pivotal role for patient-centered care.

Nurses face a real challenge when translating best evidence into clinical practice. For example, the relevant research-based databases are not comprehensive in many areas. Also, there is an ongoing explosion in the amount and type of information available. Time constraints are inherent in clinical practice, and they are exacerbated by increasing demands for nursing care. A need also exists for accurate and systematic ways to make inferences from the research as applied to particular patient populations (Craig & Smyth, 2002).

Bridging the gap from research to clinical practice can be accomplished by multiple means. One of the most common is incorporating evidence-based research into an organization's policies and procedures (Craig & Smyth, 2002). However, several operational issues arise. First, numerous small studies have been published in the nursing literature, and evaluating studies for scientific merit can be a large task. In some cases, published guidelines can help reflect national standards and minimize this task. Second, although policies can be changed to reflect current guidelines (developed from the evidence), the critical issue becomes the actual change in nursing practice to reflect evidence-based research. For example, the traditional method for verifying the placement of a nasogastric tube was air insufflation. However, according to current nursing research, the accurate method for verifying placement is radiologic examination (Metheny & Titler, 2001).

Presentation of the Clinical Question

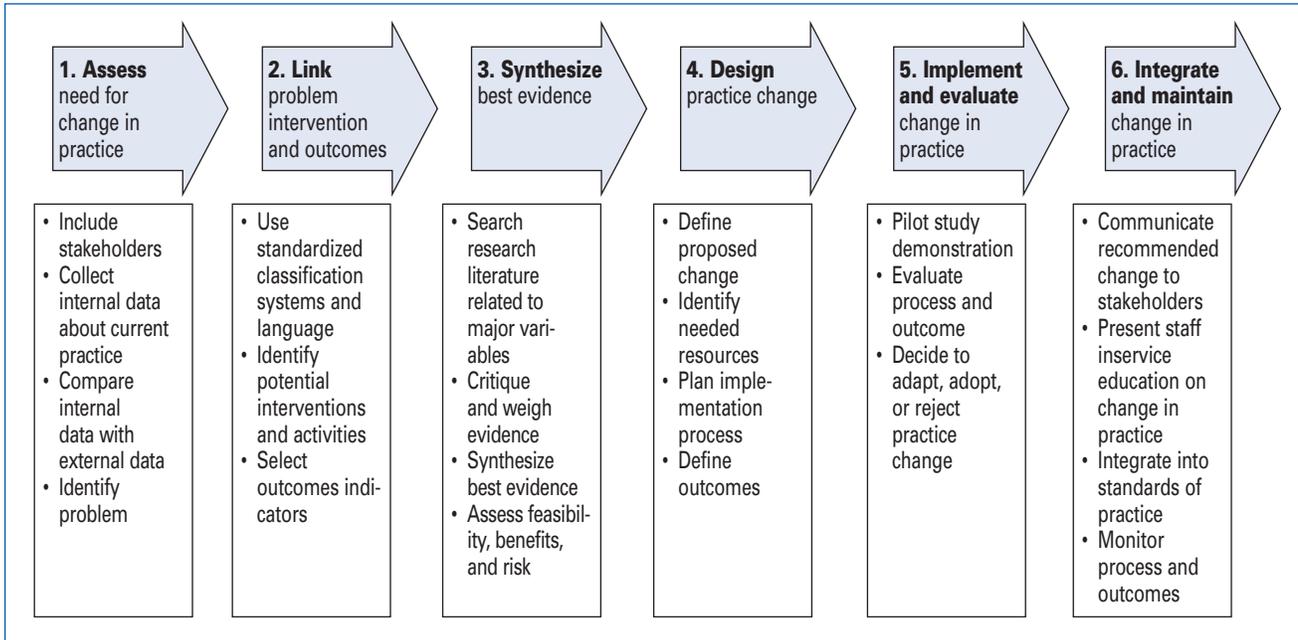
A question was posed to the NPS about the feasibility of using a method of scoring patient physiologic data to detect early development of the deterioration of a patient's status in the general medical-surgical areas. The belief was that early detection could allow earlier intervention to avert deterioration and perhaps prevent the need for a higher level of care for the patient. After a recognized change in a patient's status, communication among disciplines needs to be timely, accurate, and conveyed so that the patient's actual need and the information provided by the reporter are congruent. The concept was that a screening instrument might facilitate communication between disciplines.

The clinical question to be explored was, “Is there evidence to support the use of an early warning scoring system and communication triggers to guide nurses in clinical decision making in the medical-surgical environment?” The NPS elected to approach the question in a scholarly, systematic fashion and contacted the NRS to use an evidence-based nursing practice framework. The subcommittees worked together with representatives from nursing education to ensure a balanced and comprehensive approach.

Historical Context: Use of Clinical Scoring Instruments

Medical physiologic scoring models have been developed for use in intensive care units (ICUs). The goal of these models has been to use physiologic data to stratify the patient's risk of hospital mortality while in the ICU and provide quality data about resource utilization and efficacy of ICUs (Knaus, Draper, Wagner, & Zimmerman, 1985; Le Gall, Lemeshow, & Saulnier, 1993; Lemeshow et al., 1993). In the critical care environment, use of data is time-driven. Each system requires a substantial commitment of resources (human and technologic). No document-

Figure 1.
A Model for Evidence-Based Practice



From Rosswurm & Larrabee (1999). By permission of Sigma Theta Tau International Honor Society of Nursing.

ed trials of these systems have been attempted in medical-surgical care areas for identifying early deterioration of a patient's status. When outcomes from medical ICUs were investigated, differences in the quality of care (mortality) could be linked specifically to communications and coordination of care by the unit staff (Knaus, Draper, Wagner, & Zimmerman, 1986).

McArthur-Rouse (2001) evaluated the feasibility of using a scoring system on general wards in England for early identification of patient deterioration. Providing resources by way of an ICU outreach team was investigated, acknowledging that current staffing levels also affected timely care. The author concluded that the use of early warning scoring systems and specific criteria for notifying physicians required further discussion. The importance of the ward staff making sense of patient data and communicating the findings to the appropriate person was also emphasized.

In another study in the critical care environment, the meaning of time also was important in evaluating the changes in a

patient's condition (Peden-McAlpine & Clark, 2002). Coupling the knowledge of the patient's specific situation with the patient's status over time facilitated early recognition of changes. The subsequent "time to act" became clear when the patient-specific data did not fit the pattern expected for the patient. Being familiar with the pattern of change of the patient's condition over time was important for providing good nursing care.

Conceptual Model for Translating Evidence Into Clinical Practice

Rosswurm and Larrabee (1999) proposed a model for guiding nurses through a systematic process for the change to evidence-based practice (see Figure 1). This model recognized that translation of research into practice requires a solid grounding in change theory, principles of research utilization, and use of standardized nomenclature. The model has the following six phases:

1. Assess the need for change in practice.
2. Link the problem with inter-

ventions and outcomes.

3. Synthesize the best evidence.
4. Design a change in practice.
5. Implement and evaluate the practice.
6. Integrate and maintain the practice change.

The model provides a pragmatic, theory-driven framework for empowering clinicians in the process of evidence-based practice.

The Rosswurm and Larrabee conceptual framework (1999) was used to adapt the existing medical evidence-based practice conferences to an approach that incorporated a focus on nursing phenomena with the goal of teaching nurses the EBNP model, while also evaluating the possibility of changing clinical practice. The application of the model is as follows:

1. *Assess the need for change in practice.* Is there evidence to support the use of an early warning scoring system and communication triggers to guide nurses in clinical decision making in the medical setting? The issue came to the NPS as part of an examination of current practice. Stakeholders were involved

intentionally by asking a staff nurse (who serves as team leader) and a CNS to lead the literature search.

2. *Link the problem, interventions, and outcomes.* Standardized nursing classification systems and nomenclature were used to identify the problem, and the desired outcomes of recognition of early warning signs and prevention of clinical deterioration in medical-surgical patients.
3. *Synthesize the best evidence.* The director of library services used a systematic, organized strategy to guide the nursing literature search using the Cumulative Index to Nursing and Allied Health Literature (CINAHL) database. The team read and critically reviewed the literature, and weighed the evidence in conjunction with the clinical nurse researcher.
4. *Design practice change.* A roundtable discussion was conducted at the EBNP conference, followed by several other focused discussions about practice changes. Several strategies were identified to explore the original issue further and to implement it into practice. For instance, programs have been implemented educating and mentoring nurses in strategies of detecting early warning signs and communicating these effectively to other members of the health care team.
5. *Implement and evaluate the change in practice.* Currently, the evidence does not support changing practice, but rather building and fortifying systems of knowing the patient, identifying problems early, and communicating and managing changes in patient status in a timely manner.
6. *Integrate and maintain the change in practice.* This step of the model is pending further evaluation and consideration. As a start, the article

by Minick and Harvey (2003) and information from the conference have been included in the Advanced Preceptor Workshop.

The nursing evidence-based practice conference had the following objectives, which were adapted from the original medically focused program:

1. Develop knowledge and skills in assembling critically appraised topics based on relevant clinical nursing questions.
2. Recognize knowledge gaps and articulate well-formulated, answerable clinical questions.
3. Search and evaluate the nursing and health sciences literature with guidance and in collaboration with library sciences. An initial review of the citations retrieved indicated a variety of indexing terms of potential interest. The original combination of "medical-surgical nursing" and "decision making, clinical" yielded more than 400 articles. These were narrowed using other key indexing terms. Finally, approximately 20 articles were reviewed and one exemplar article was chosen to represent the state of current literature on the topic.
4. Present evidence-based conclusions with applications to nursing practice.
5. Use group discussion as a vehicle for education on the EBNP process and for organizational learning.
6. Develop a culture to allow self-perpetuation of the EBNP seminar.
 - Progress learners (staff nurses and CNSs) into facilitators (teachers).
 - Promote continuous self-directed learning as a professional value.
 - Establish a library of electronic and paper EBNP resources.
 - Promote the concept of using best evidence in daily clinical practice.
 - Study and overcome gaps

between research and practice.

- Improve use of informatics and library resources by staff nurses.
- Encourage clinician use of published critically appraised topics (products of the curriculum).
- Encourage study of changes in clinician practice patterns.

The strategy to accomplish these objectives was planned by representatives from nursing administration, research, and practice, with input from nursing education. The conference was implemented by designing educational sessions in which a staff nurse teamed with a CNS based on self-expressed interest in the topic, and the director of library services helped to search and review the relevant literature. One article was chosen as an exemplar and reviewed in further detail. The article and critique guidelines were distributed electronically to nurses (Minick & Harvey, 2003). Next, the staff nurse and CNS consulted with the clinical nurse researcher to weigh the evidence and to discuss the research methodology used. Team members described their search and the findings in a 1-hour conference, with continuing education credit awarded. The nurse researcher presented a short discussion on the research methodology used in the article. A small group discussion (30 to 40 attendees) format was used to critique the article and to provide feedback on the clinical usefulness of the findings. The chair of the NPS described how the specific evidence presented in the conference pertained to institutional practice.

The Specific Search Strategy

A crucial step in the Rosswurm and Larrabee (1999) model is the synthesis of research findings from the relevant literature. After the clinical problem has been identified, it has to be stated as a clinical question that was focused and answerable by searching the

appropriate literature. A focused question is instrumental in selecting components to convert into subject headings, keywords, and limits (publication types, research methodologies, age groups, etc.) to build a precise search strategy.

The CINAHL and MEDLINE databases in Ovid were searched. The initial search was conducted in the CINAHL database because the indexing practices and features are designed to meet the unique needs of nursing and allied health professionals (Allen & Levy, 2002). The indexing and other features of searching differ between CINAHL and MEDLINE. Relevant terms and limits must be selected for each database. For example, "research" is an option for limiting retrieval in CINAHL and indicates a research study containing data collection, methodology, and discussion of results. This limit is not available in MEDLINE and must be addressed through the use of Medical Subject Headings (MeSH) and limiting by publication type. Unlike studies in therapeutic interventions that are answered by randomized controlled trials or systematic reviews, this question would most likely be found in qualitative research publications using the research limit feature in CINAHL.

An initial review of the retrieved citations indicated various terms used to index articles of potential interest. The additional terms were added to the original search strategy to answer more effectively the clinical question. A comparable search was conducted in MEDLINE. No additional studies were identified. The search retrieval was reviewed and the article by Minick and Harvey (2003) was selected for the group discussion because it mirrored the medical-surgical practice setting of the medical center.

Review of the Exemplar Article

The article used as an exemplar of the evidence-based nursing

literature search strategy was "The Early Recognition of Patient Problems Among Medical-Surgical Nurses" (Minick & Harvey, 2003). It was selected because of its scientific rigor and its focus on the medical-surgical environment rather than on critical care. The study used interpretive phenomenology to describe the process of early recognition of problems by medical-surgical nurses. The sample comprised medical-surgical nurses employed in an urban hospital who were identified by their nurse managers to be skillful in the early detection of patient problems. In-depth, audiotaped interviews were conducted with groups of 2 to 4 nurses, who were asked to describe a clinical scenario in which they thought that they had made a difference by early recognition of a clinical problem.

When the data were coded and analyzed, three themes emerged: *knowing the patient directly*, *knowing the patient through the family*, and *knowing that a change in status is not as expected*. Minick and Harvey (2003) concluded that "nurses learn subtle patterns from individual patients...as well as groups of patients...learning the subtle patterns of differences from patients is crucial to the early recognition of patient problems" (p. 296). Furthermore, they stated: "When the nurses in this study recognized patient changes indicating a problem, the nurses felt compelled to consult with the physician even without corroborating objective data. The nurses were willing to risk a negative response from physician colleagues, but when they were direct about the treatment response they expected, then physicians tended to respond positively even without objective data" (p. 297).

Lessons Learned

An unexpected outcome of the EBNP nursing program was the effect it had on staff nurses. The following quotation aptly summarizes the perspective of

staff nurses: "It was immediately clear to me as a registered nurse team leader that because the goal of the evidence-based practice seminar is to teach nurses how to apply the principles of evidence-based practice, the program had far-reaching professional implications."

Application of Findings to Practice

The Evidence-Based Nursing Practice Seminar participants determined several implications for nursing practice based on the review of the literature. Participants included staff nurses, nurse educators, team leaders, and nursing leadership. Clinical conclusions from this project include the following:

1. Education for the new graduate nurse must include the value of knowing the patient and how to develop the "knowing of the patient."
2. Preceptors can assist the new graduate in the application of general nursing knowledge in specific patient situations and the integration of new patient information as it unfolds in the clinical environment.
3. Explore how nurses' work shifts should be scheduled to allow for continuity of patient assignments (and to enhance knowing the patient).
4. Early communication of the patient's unexpected change in pattern to other members of the health team is essential to facilitate early intervention (sometimes before objective signs, such as vital signs, change).
5. Professional collaboration has the potential to facilitate the best patient care.

One of the goals of the process outlined above was a summary statement that would reflect the literature search and critical appraisal of the research. The process was summarized and appears as follows on the authors' internal Web site so that clinicians can quickly access the results:

A systematic search of the

nursing literature revealed little support for use of an early warning clinical screening instrument in the adult medical-surgical milieu. Rather, the literature suggests that detecting early warning signs in the medical-surgical setting requires an in-depth knowledge of the patient that cannot be adequately captured in a short scoring instrument. The emphasis is also on accurate, timely, and effective patient management, including communication between nurses and physicians.

Conclusion

A model for systemically asking a clinical question, searching the relevant literature, critically evaluating the evidence, and applying the results to the practice setting was described. The purpose was to educate and mentor nurses in this process, with the overarching goal of enhancing professional nursing care. ■

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Evidence-based practice (EBP) is a crucial tool for delivering high-quality care in numerous nursing specialties. EBP enables nurses to make data-backed solutions that incorporate clinical expertise and current research into the decision-making process. Prospective advanced practice registered nurses (APRNs), such as nurse practitioners and nurse anesthetists, must understand the importance of evidence-based practice in nursing.

Defining Evidence-Based Practice. EBP combines clinical expertise, scientific evidence, and the patient-professional perspective to build well-rounded health care strategies that can optimize care delivery on a patient-by-patient basis. According to the American Association of Nurse Anesthetists, these are the five steps of the EBP process:

1. Describe strategies for implementing evidence-based practice changes.
2. Identify steps for

Evidence-based health care practices are available for a number of conditions. However, these practices are not always implemented in care delivery settings. Variation in practices abound, and availability of high-quality research does not ensure that the findings will be used to affect patient outcomes (Centers for Medicare and Medicaid Services, 2008; Institute of Medicine, 2001). Evidence-based nursing (EBN) is an approach to making quality decisions and providing nursing care based upon personal clinical expertise in combination with the most current, relevant research available on the topic. This approach is using evidence-based practice (EBP) as a foundation. EBN implements the most up to date methods of providing care, which have been proven through appraisal of high quality studies and statistically significant research findings. The goal of EBN is to improve the health...

From a critical perspective, evidence based practice underpins the advancement and development across the continuum of clinical practice. In the Australian context, healthcare professionals are involved in the assessment and implementation of EBP. However, nurses are expected to play integral roles in implementing EBP in the clinical setting. The Nursing and Midwifery Board of Australia [NMBA] 2016 standards of nursing practice require nurses to adopt evidence based interventions, in order to improve the safety and quality of practice. Evidence-based practice (EBP) is a lifelong problem-solving approach that incorporates the best evidence resulted from series or multiple well-designed studies and researches.

The seven steps of evidence-based practice which must be implemented meticulously in sequential order with conscientious full engagement to accomplish the target goals of improved patient, health provider, and system outcomes (Melnyk & Fineout-Overholt, 2019; Melnyk, et al., 2010) includes the following:

1. Cultivate a spirit of inquiry within an evidence-based practice (EBP) culture and environment.
2. Ask the burning clinical question in PICOT format.
3. Search for and collect the most relevant best evidence.
4. Critically appraise the evidence.