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A Practical Definition of Evidence-Based Practice for Nursing

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THE PERIANESTHESIA NURSING STAN-DARDS, Practice Recommendations, and Interpretive Statements published by the American Society of PeriAnesthesia Nurses (ASPAN)[1] have a dedicated standard for research and clinical inquiry (Standard V) and a resource for appraisal and synthesis of evidence (Resource 1) using guidance from the Joanna Briggs Institute. ASPAN has defined clinical inquiry as a constellation of research and research-related activities, including primary and secondary research, evidence-based practice (EBP), and quality improvement initiatives.[1] In addition, the standard states that perianesthesia nurses participate in clinical inquiry. At a minimum, the clinician is expected to use an evidence-based approach to practice. The purpose of this guest editorial is to unpack EBP in practical terms and to illustrate how a curious and clinically engaged perianesthesia nurse can meet that challenge on a daily basis as part of routine nursing practice.

EBP is a more inclusive offshoot of evidence-based medicine, a movement that started in the 1990s and has been largely attributed to David Sackett. In 1995, Sackett and Rosenberg described what are now considered the iconic five steps of EBP: (1) identify the problem; (2) access the best evidence; (3) critically appraise the evidence; (4) apply the change to practice; and (5) evaluate the change in practice.[2] Workflows for the various types of clinical inquiry activities and their respective steps using the clinical InQuERI model have been outlined previously.[3] The thrust of this editorial is to highlight a practical notion of EBP, as there is widespread expectation that clinicians will use EBP in their daily practice. But what does EBP mean and how is this practically achieved in a fast-paced environment with multiple and competing demands on nursing time?

There are many definitions of EBP, but the most oft cited and lasting definition comes from Sackett et al,[4] who wrote, "Evidence-based medicine is the integration of best research evidence with clinical expertise and patient values." This three-legged stool consisting of patient and family preferences, existing research evidence, and clinical knowledge is a useful definition to guide medical decision-making, but it is not clear that the classic definition meets the nursing test, namely, a definition that represents the broad and varied roles and dynamic situations in which nurses find themselves in their daily practice. As such, a more nursing-centered and pragmatic definition is proposed: EBP for nursing is a way of entering the situation with curiosity and engagement that follows the nursing process by responding to the issue or problem using the best available evidence.

The traditional nursing process originally comprised four steps as described by Ida Jean Orlando in 1958. It was a modification of the scientific method (which can be traced back to Aristotle), and the diagnosis step was added later. The five steps[5] have withstood the test of time (Figure 1); however, as Benner et al[6] have noted, not all the steps are as linear and discrete as a clinician moves through the skill acquisition continuum. Further, Benner's research on expert practice showed that the steps overlap and merge with expertise. For example, imagine a scenario in which a 60-year-old male patient complains of nausea after the administration of oral analgesics after his

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abdominal surgery. An experienced perianesthesia nurse is already considering the patient's age, gender, type of surgery and anesthetic used, postoperative trajectory including recent intake and output, recent medications, and past medical, surgical, and social history when listening to his complaint. In this example, assessment and planning become merged, as the nurse quickly grasps the central issue and immediately starts to mentally sift through other factors unique to the patient that may be contributing to his nausea. The engaged and curious stance of the experienced nurse enables attentive listening to the patient's complaint of nausea in the first instance.

As Figure 2 illustrates, the traditional nursing process can be mapped onto the five steps of EBP. Beginning with problem identification or assessment and diagnosis as was the case with the experienced perianesthesia nurse in the aforementioned scenario, the nurse responded to a problem put forth by the patient. As the nurse was actively listening and thinking through the patient's issue coupled with his history, the patient's complaint of nausea could have easily been translated into a practical PICO question:

- P for Population
- I for Intervention
- C for Comparator
- O for Outcome

The PICO format is a convention used in EBP to enable the clinician to deconstruct the problem into searchable elements for the second step of EBP, namely, that of accessing the best evidence. This can be thought of as planning in the nursing process. The experienced perianesthesia nurse may know of other analgesics based on clinical experience that cause less postoperative nausea and vomiting (PONV) and may contact the physician for an alternative prescription. By relying on clinical experience, the nurse is still practicing in an evidence-based fashion, as clinical knowledge is a legitimate source of evidence.[7] A less seasoned perianesthesia nurse may need to search an online formulary for alternatives. In both cases, an alternative analgesic would be the intervention for the practical PICO question, and the current, unsatisfactory analgesic that is causing PONV serves as the comparator. Both nurses are attempting to locate an alternative analgesic that will provide similar pain control as the existing treatment but

Figure 1.   Traditional steps to the nursing process. Adapted from the American Nurses Association, 2019.

without the unintended side effects. In this scenario, pain control without PONV would be the outcome. It is worth noting that, in reality, neither nurse would take the time to formally complete the PICO question, but by thinking through the PICO elements, the nurses are better able to communicate more readily to colleagues using the key elements that form the problem at hand or construct keyword searches for online databases.
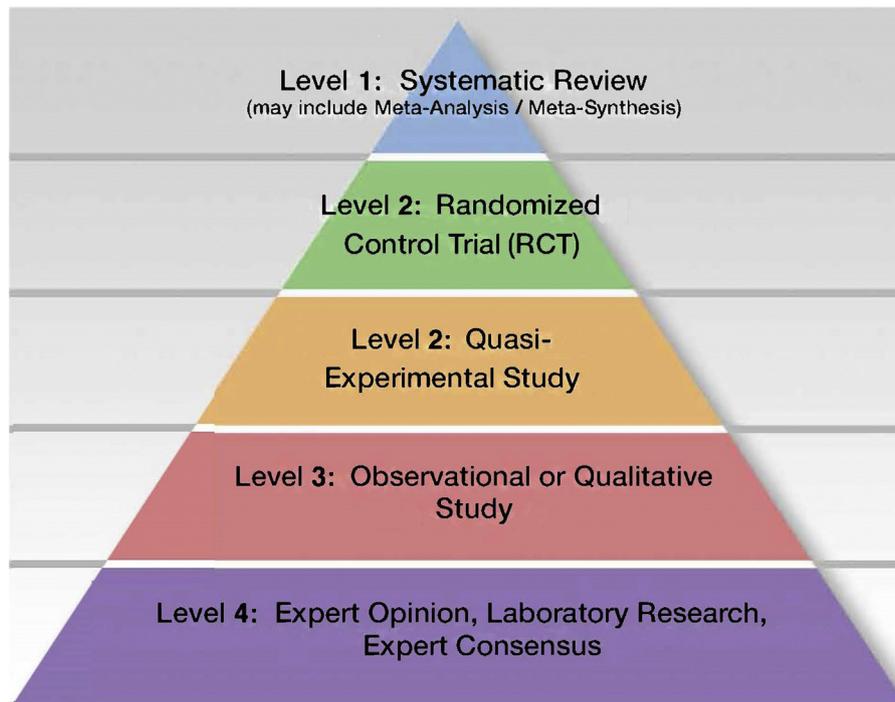

Figure 2.   Practical evidence-based practice.

Figure 3.   ASPAN hierarchy of evidence. ASPAN, American Society of PeriAnesthesia Nurses. © Laura Olson, MSLIS, Clinical Research Librarian, Fishbon Library, UCSF Institute for Nursing Excellence.

Clinicians typically have access to an abundance of data sources, providing various forms of evidence from which to make clinical decisions and judgments, including access to full-text databases, Internet search engines, and other clinicians. Given the high stakes and time-pressured environment of contemporary clinical nursing, what evidence should clinicians use? The experienced nurse in the scenario used the vast repository of clinical expertise and the resultant expert opinion is a form of legitimate evidence. Assuming that the online database is vetted by the organization as a reliable source of pharmacological information, the less seasoned nurse is also using a legitimate form of evidence. But are these two types of evidence equal?

Classifying types of evidence falls under the third step of EBP, namely, that of critical appraisal, which aligns with planning in the nursing process. Critical appraisal is used for all types of clinical inquiry.[3] Simply put, critical appraisal is the process one uses to evaluate evidence. In terms of equivalence, one must evaluate the two types of evidence

at play in the scenario using the ASPAN hierarchy of evidence based on the work from the Joanna Briggs Institute[7] and found in Resource 1 of the ASPAN standards.[1] (see Figure 3). The highest level of evidence—systematic reviews—are found at the top of the pyramid. A systematic review is a form of secondary research designed to synthesize the extant evidence on a focused topic and provides the most valid evidence base to inform clinical decision-making. Systematic reviews follow a structured research process that requires rigorous methods to ensure reliable results.[8]

It is possible that the less seasoned nurse was able to review information from the online formulary derived from randomized controlled trials or quasi-experimental studies. These types of study designs are considered level 2 evidence for the ASPAN hierarchy. Level 3 evidence is still based on research findings, but the study design of observational and qualitative research is significantly less controlled than that of the research designs found on the upper rungs of the hierarchy. Level 4 of the ASPAN hierarchy is where expert opinion,

laboratory research, and expert consensus evidence fall. The experienced perianesthesia nurse drew upon clinical experience to derive a suggested alternative analgesic. This is considered expert opinion and is level 4 evidence for the ASPAN hierarchy. It is important to point out that EBP relies on the best available evidence. In this scenario, the less seasoned nurse who used the online formulary and was able to review information based on randomized controlled trials is using a higher level of evidence than the more experienced nurse who is relying on clinical experience. It is occasionally the case that emerging clinical conditions, rare or orphan diseases, and leading-edge interventions, among others, have a scarce literature base. In these types of situations, to practice from an evidence-based perspective, one must use best available evidence, which is often expert opinion, until such time that the research literature catches up with practice. Appraisal can range from a rigorous and systematic process to a more pragmatic approach when a clinician makes a practical evaluation of evidence by asking, "Does this evidence make sense and does it apply to this situation?" In this scenario, the two nurses must ask these questions in relation to the alternative analgesics they located for use in this patient situation.

Nurses are action-oriented health care professionals. Once appraised and determined to make sense for the situation, nurses can readily apply the evidence, which is the fourth step of EBP and aligns with the implementation phase of the nursing process. However, health care is dynamic and team based, so there are times when, once the better intervention has been found, it is no longer applicable to the situation. In other instances, there are additional health care professionals to consult, so an immediate application of the evidence to the situation is not warranted. And, there are still other occasions when, despite the evidence suggesting a solution to the problem, a more thoughtful implementation approach may be necessary, such as a quality improvement initiative.[9] In this scenario

and for the sake of illustration, assume that the experienced perianesthesia nurse obtained a new prescription for the alternative analgesic and administered it to the patient who was still complaining of pain.

The last step of EBP relates to evaluating the change, which is also called evaluation in the nursing process. As with problem identification, Benner et al[6] have found that highly skilled clinicians often collapse implementation and evaluation into one seamless action, especially if the results of the intervention are immediately observable.[10] For example, nurses are able to readily evaluate the outcome of their intervention when titrating intravenous vasopressors in critically ill patients. In this type of situation, implementation and evaluation can be a fused step. Evaluating the effectiveness of oral analgesics, however, is more difficult to achieve with precision, as the peak effect of any oral agent is more variable because of other physiological factors and the oral drug itself. Taking the scenario further, the experienced perianesthesia nurse waited for peak effect of the newly administered analgesic and assessed the patient's pain and presence or absence of PONV. If the alternative analgesic caused the same unintended side effect, the curious and engaged nurse would repeat the EBP process again in an attempt to achieve the desired patient outcome.

Too often, EBP is taught to students and practicing nurses as a standalone activity that requires advanced education, dedicated time to the academic task, and access to information scientists and nurse researchers. While the five steps of EBP are the foundation of all types of clinical inquiry,[3] this editorial seeks to demonstrate that nurses can and do use a pragmatic EBP approach in their daily practice. It may be invisible to the nurse and many administrators and educators, but the excellent outcomes nurses routinely achieve on behalf of the patients and families for whom they care speak for themselves.

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