Evidence-Based Practice Methodology

Use the Correct Approach

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Evidence-based practice (EBP) is discussed and displayed as a desirable hallmark of excellent professional practice in health care. Published literature in nursing and medicine often reinforces the notion that EBP contributes to attaining the best health outcomes by improving care processes, enhancing clinical decision-making, or changing practice in ways that are solidly supported by robust evidence. Systematic reviews, meta-analyses, and randomized control trials are positioned at the pinnacle of the EBP pyramid and, when well done, offer findings that should be incorporated into practice.

The push for practice informed by evidence has been mounting for decades and the EBP process has concurrently become more structured and refined. EBP steps include a sequential, step-wise process that nurses and other clinicians should follow to capture a comprehensive search yield that provides reasonable answers to practice problems so that quality care delivery is assured, as measured by patient care outcomes or other metrics. Nurses are typically taught to begin the EBP process by articulating the population, intervention, comparator, outcome, and time frame specific to the practice or clinical problem of note. These components comprise the PICOT (population, intervention, comparator, outcome, and time) question, commonly referred to as a “burning clinical question.”

Despite a rich array of tutorials, conferences, texts, and other resources that offer EBP process guidance, PICOT question construction challenges persist. Just as the well-crafted research question informs subsequent steps of the process, the focused and correct PICOT question provides the context, topic, and boundaries of the evidentiary search, appraisal, and application. Some nurses are challenged by the PICOT question model and some confuse this specific type of question with a research question. As a result, nurses interested in finding evidence sometimes stray into domains that are more accurately described as research studies rather than EBP projects. Given these high-frequency mishaps, spending time considering the nature of an EBP question is a useful activity for nurses interested in looking for evidence that answers practice-related questions.

Research questions are posed with the intention of generating new knowledge or verifying that published study findings are reproducible. EBP questions are generated in an effort to improve a process or outcome by using findings generated by well-done research or by following recommendations proffered by experts or professional groups. There are times when nurses and other health care professionals demonstrate confusion between knowledge generation versus the appraisal of available evidence and subsequent decisions about whether or not the selected evidence offers a strategy for responding to the identified practice problem or clinical need.

Examples provide opportunities for learning and the following scenario illustrates important aspects of EBP. A nurse practitioner (NP) expressed interest in seeking evidence to determine whether or not aromatherapy could be used as an intervention for...
postoperative nausea and vomiting (PONV). Several colleagues had mentioned the possibility of aromatherapy as adjunctive or primary therapy and the NP had recently read information about the potential effectiveness of a variety of substances including isopropyl alcohol vapor.

The NP began the process by identifying the patient population of interest as adults who were experiencing PONV. The intervention of interest was aromatherapy. The comparison was antinausea/antiemetic pharmaceuticals. The outcome was noted as absence or reduction of nausea within a time frame of 12 hours postsurgical procedure. A literature search was conducted and several studies concluded that aromatherapy, particularly isopropyl alcohol vapor, could benefit those experiencing PONV. The NP considered these individual studies and determined that the best approach to this practice problem would be to randomly assign surgical patients that met certain inclusion and exclusion criteria to 1 of 2 groups; specifically, one group receiving an aromatherapy intervention and the other group receiving antiemetic medication therapy. The plan was to collect data specific to PONV severity, incidence, and duration and compare between the 2 groups. The NP described this project to interprofessional colleagues as an EBP activity and began to develop a written project proposal.

While there are some EBP elements incorporated into this project plan, this approach shifted to a research study comparing the effects of isopropyl alcohol vapor versus medication on PONV as the dependent variable. With coaching and conversation from a colleague with EBP experience, the NP began to reconsider the project with a clearer focus on using available evidence to potentially address the PONV practice problem rather than conducting research to validate previous studies’ results. The advanced nurse stepped back and reconsidered the question in the following way using the PICOT query approach: In adult patients who are postoperative and received general anesthesia (P), does aromatherapy (I) when compared with allopathic remedies (medications) (C) have a positive effect on PONV within the first 12 hours of postoperative recovery (T)?

This PICOT question was used to frame a search for evidence involving several key databases, Internet search tools, professional associations’ guidelines and recommendations, available standards of care and expert opinions. Some search limits were established including results from only the past 10 years, research studies, and other parameters that reflected the NP’s population of interest. A research librarian was consulted to verify the comprehensiveness of the search strategy, particularly the selected key words and the chosen databases.

The NP selected inclusion and exclusion criteria against which the retrieved studies’ abstracts were compared. There were approximately 15 studies that satisfied these criteria. A Cochrane Review was also retrieved that examined aromatherapy as a treatment for PONV immediately following surgery.1 The NP reviewed the references of the remaining studies to determine whether there might be other resources that should be examined. These studies were carefully appraised using critical appraisal tools (CATs) recommended by her practice site. The NP recognized the powerful value of the Cochrane Review but wanted to have a richer understanding of the individual studies that were included in the review.

After appraising the evidence composite, the NP concluded that there was currently insufficient scientific support for using isopropyl alcohol vapor as an aroma intervention to treat PONV. The NP was disappointed given her initial impression that there was evidence supporting this treatment approach; however, she recognized that correct application of EBP steps saved her team from potentially initiating an aromatherapy program that was not yet supported by rigorously designed research studies. The NP planned to meet with a nurse researcher to consider how a future well-designed study might contribute to better evaluating the effects of aromatherapy on PONV.

This practice scenario illustrates a few important ideas about EBP. The PICOT question drives the carefully constructed search for evidence. This search should include relevant databases as well as gray literature, a term used to denote various resources that are not commercially published but that may be valuable and relevant to the practice question. Gray literature includes, but is not limited to, conference proceedings; professional associations’ newsletters; dissertations; government reports; and, business, academic, and industry reports. Once a thorough search strategy has been conducted and implemented, the abstracts of the search yield should be examined and considered against thoughtfully developed inclusion and exclusion criteria. The final collection of published and gray materials should be carefully appraised. CATs may be very helpful during appraisals. There is an array available on the web and readily retrieved with a simple search; alternatively,
published literature offers overviews of various CATs and supplies additional guidance.2 Appraisals should include consideration of the rigor of each study and its design. Keep in mind that the most valuable study designs include meta-analyses, systematic reviews, and randomized control trials. Other designs are also valuable but professionals need to take into account the level of evidence that each study provides based on a recognized hierarchy of evidence. Once the final group of resources has been appraised, the health care professional should consider how this evidence answers the PICOT question. The nurse will then need to make decisions about what has been revealed via the evidence appraisal and how this information might be used to respond to the practice problem that triggered the PICOT question.

These key components of the EBP process need to be understood and followed in consistent fashion if nurses want to correctly apply the standard approaches to evidence-driven practice. Understanding EBP and differentiating it from research is very important. Learning to correctly use EBP strategies may minimize the number of unnecessary research studies that may be poorly designed, insufficiently powered, or inadequately resourced. When evidence is available, it is always best for the nurse to appraise what has been done and use it whenever possible. Doing so will assist in truly moving the best of science and scholarship into clinical practice.

REFERENCES
