



EVIDENCE-BASED PRACTICE

Step by Step

Asking the Clinical Question: A Key Step in Evidence-Based Practice

A successful search strategy starts with a well-formulated question.

This is the third article in a series from the Arizona State University College of Nursing and Health Innovation's Center for the Advancement of Evidence-Based Practice. Evidence-based practice (EBP) is a problem-solving approach to the delivery of health care that integrates the best evidence from studies and patient care data with clinician expertise and patient preferences and values. When delivered in a context of caring and in a supportive organizational culture, the highest quality of care and best patient outcomes can be achieved.

The purpose of this series is to give nurses the knowledge and skills they need to implement EBP consistently, one step at a time. Articles will appear every two months to allow you time to incorporate information as you work toward implementing EBP at your institution. Also, we've scheduled "Ask the Authors" call-ins every few months to provide a direct line to the experts to help you resolve questions. Details about how to participate in the next call will be published with May's *Evidence-Based Practice, Step by Step*.

To fully implement evidence-based practice (EBP), nurses need to have both a spirit of inquiry and a culture that supports it. In our first article in this series ("Igniting a Spirit of Inquiry: An Essential Foundation for Evidence-Based Practice," November 2009), we defined a spirit of inquiry as "an ongoing curiosity about the best evidence to guide clinical decision making." A spirit of inquiry is the foundation of EBP, and once nurses possess it, it's easier to take the next step—to ask the clinical question.¹ Formulating a clinical question in a systematic way makes it possible to find an answer more quickly and efficiently, leading to improved processes and patient outcomes.

In the last installment, we gave an overview of the multistep EBP process ("The Seven Steps of Evidence-Based Practice," January). This month we'll discuss step one, *asking the clinical question*. As a context for this discussion we'll use the same

scenario we used in the previous articles (see *Case Scenario for EBP: Rapid Response Teams*).

In this scenario, a staff nurse, let's call her Rebecca R., noted that patients on her medical-surgical unit had a high acuity level that may have led to an increase in cardiac arrests and in the

number of patients transferred to the ICU. Of the patients who had a cardiac arrest, four died. Rebecca shared with her nurse manager a recently published study on how the use of a rapid response team resulted in reduced in-hospital cardiac arrests and unplanned admissions to the critical

Case Scenario for EBP: Rapid Response Teams

You're a staff nurse on a busy medical-surgical unit. Over the past three months, you've noticed that the patients on your unit seem to have a higher acuity level than usual, with at least three cardiac arrests per month, and of those patients who arrested, four died. Today, you saw a report about a recently published study in *Critical Care Medicine* on the use of rapid response teams to decrease rates of in-hospital cardiac arrests and unplanned ICU admissions. The study found a significant decrease in both outcomes after implementation of a rapid response team led by physician assistants with specialized skills.² You're so impressed with these findings that you bring the report to your nurse manager, believing that a rapid response team would be a great idea for your hospital. The nurse manager is excited that you have come to her with these findings and encourages you to search for more evidence to support this practice and for research on whether rapid response teams are valid and reliable.

care unit.² She believed this could be a great idea for her hospital. Based on her nurse manager's suggestion to search for more evidence to support the use of a rapid response team, Rebecca's spirit of inquiry led her to take the next step in the EBP process: asking

be answered by searching the current literature for studies comparing these two interventions.

Background questions are considerably broader and when answered, provide general knowledge. For example, a background

guides her in formulating a foreground question using PICOT format.

PICOT is an acronym for the elements of the clinical question: patient population (P), intervention or issue of interest (I), comparison intervention or issue of interest (C), outcome(s) of interest (O), and time it takes for the intervention to achieve the outcome(s) (T). When Rebecca asks why the PICOT question is so important, Carlos explains that it's a consistent, systematic way to identify the components of a clinical issue. Using the PICOT format to structure the clinical question helps to clarify these components, which will guide the search for the evidence.^{6,7} A well-built PICOT question increases the likelihood that the best evidence to inform practice will be found quickly and efficiently.^{5,8}

To help Rebecca learn to formulate a PICOT question, Carlos uses the earlier example of a foreground question: "In adult patients undergoing surgery, how does guided imagery compared

The PICOT question is a consistent, systematic way to identify the components of a clinical issue.

the clinical question. Let's follow Rebecca as she meets with Carlos A., one of the expert EBP mentors from the hospital's EBP and research council, whose role is to assist point of care providers in enhancing their EBP knowledge and skills.

Types of clinical questions.

Carlos explains to Rebecca that finding evidence to improve patient outcomes and support a practice change depends upon how the question is formulated. Clinical practice that's informed by evidence is based on well-formulated clinical questions that guide us to search for the most current literature.

There are two types of clinical questions: background questions and foreground questions.^{3,5} *Foreground questions* are specific and relevant to the clinical issue. Foreground questions must be asked in order to determine which of two interventions is the most effective in improving patient outcomes. For example, "In adult patients undergoing surgery, how does guided imagery compared with music therapy affect analgesia use within the first 24 hours post-op?" is a specific, well-defined question that can only

question such as, "What therapies reduce postoperative pain?" can generally be answered by looking in a textbook. For more information on the two types of clinical questions, see *Comparison of Background and Foreground Questions*.^{4,6}

Ask the question in PICOT format. Now that Rebecca has an understanding of foreground and background questions, Carlos

Comparison of Background and Foreground Questions^{4,6}

Question type	Description	Examples
Background question	A broad, basic-knowledge question commonly answered in textbooks. May begin with <i>what</i> or <i>when</i> .	1) What is the best method to prevent pressure ulcers? 2) What is sepsis? 3) When do the effects of furosemide peak?
Foreground question	A specific question that, when answered, provides evidence for clinical decision making. A foreground question includes the following elements: population (P), intervention or issue of interest (I), comparison intervention or issue of interest (C), outcome (O), and, when appropriate, time (T).	1) In mechanically ventilated patients (P), how does a weaning protocol (I) compared with no weaning protocol (C) affect ventilator days (O) during ICU length of stay (T)? 2) In hospitalized adults (P), how does hourly rounding (I) compared with no rounding (C) affect fall rates (O)?

Templates and Definitions for PICOT Questions^{5,6}

Question type	Definition	Template
Intervention or therapy	To determine which treatment leads to the best outcome	In _____ (P), how does _____ (I) compared with _____ (C) affect _____ (O) within _____ (T)?
Etiology	To determine the greatest risk factors or causes of a condition	Are _____ (P) who have _____ (I), compared with those without _____ (C), at _____ risk for _____ (O) over _____ (T)?
Diagnosis or diagnostic test	To determine which test is more accurate and precise in diagnosing a condition	In _____ (P), are/is _____ (I) compared with _____ (C) more accurate in diagnosing _____ (O)?
Prognosis or prediction	To determine the clinical course over time and likely complications of a condition	In _____ (P), how does _____ (I) compared with _____ (C), influence _____ (O) over _____ (T)?
Meaning	To understand the meaning of an experience for a particular individual, group, or community	How do _____ (P) with _____ (I) perceive _____ (O) during _____ (T)?

with music therapy affect analgesia use within the first 24 hours post-op?” In this example, “adult patients undergoing surgery” is the population (P), “guided imagery” is the intervention of interest (I), “music therapy” is the comparison intervention of interest (C), “pain” is the outcome of interest (O), and “the first 24 hours post-op” is the time it takes for the intervention to achieve the outcome (T). In this example, music therapy or guided imagery is expected to affect the amount of analgesia used by the patient within the first 24 hours after surgery. Note that a comparison may not be pertinent in some PICOT questions, such as in “meaning questions,” which are designed to uncover the meaning of a particular experience.^{3,6} Time is

also not always required. But population, intervention or issue of interest, and outcome are essential to developing any PICOT question.

Carlos asks Rebecca to reflect on the clinical situation on her

ical issue to use in formulating the clinical question.³ Rebecca and Carlos revisit aspects of the clinical issue to see which may become components of the PICOT question: the high acuity of patients on the unit, the number of

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unit in order to determine the unit’s current intervention for addressing acuity. *Reflection* is a strategy to help clinicians extract critical components from the clin-

cardiac arrests, the unplanned ICU admissions, and the research article on rapid response teams. Once the issue is clarified, the PICOT question can be written.

Because Rebecca's issue of interest is the rapid response team—an intervention—Carlos provides her with an “intervention or therapy” template to use in formulating the PICOT question. (For other types of templates, see *Templates and Definitions for PICOT Questions*.^{5,6}) Since the hospital doesn't have a rapid response team and doesn't have a plan for addressing acuity issues before a crisis occurs, the comparison, or (C) element, in the PICOT question is “no rapid response team.” “Cardiac arrests” and “unplanned admissions to the ICU” are the outcomes in the question. Other potential outcomes of interest to the hospital could be “lengths of stay” or “deaths.”

Rebecca proposes the following PICOT question: “In *hospitalized adults* (P), how does a *rapid response team* (I) compared with *no rapid response team* (C)

affect the *number of cardiac arrests* (O) and *unplanned admissions to the ICU* (O) during a *three-month period* (T)?”

Now that Rebecca has formulated the clinical question, she's ready for the next step in the EBP process, *searching for the evidence*. Carlos congratulates Rebecca on developing a searchable, answerable question and arranges to meet with her again to mentor her in helping her find the answer to her clinical question. The fourth article in this series, to be published in the May issue of *AJN*, will focus on strategies for searching the literature to find the evidence to answer the clinical question.

Now that you've learned to formulate a successful clinical question, try this exercise: after reading the two clinical scenarios in *Practice Creating a PICOT Question*, select the type of

clinical question that's most appropriate for each scenario, and choose a template to guide you. Then formulate one PICOT question for each scenario. Suggested PICOT questions will be provided in the next column. ▼

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REFERENCES

1. Melnyk BM, et al. Igniting a spirit of inquiry: an essential foundation for evidence-based practice. *Am J Nurs* 2009;109(11):49-52.
2. Dacey MJ, et al. The effect of a rapid response team on major clinical outcome measures in a community hospital. *Crit Care Med* 2007;35(9):2076-82.
3. Fineout-Overholt E, Johnston L. Teaching EBP: asking searchable, answerable clinical questions. *Worldviews Evid Based Nurs* 2005;2(3):157-60.
4. Nollan R, et al. Asking compelling clinical questions. In: Melnyk BM, Fineout-Overholt E, editors. *Evidence-based practice in nursing and health-care: a guide to best practice*. Philadelphia: Lippincott Williams and Wilkins; 2005. p. 25-38.
5. Straus SE. *Evidence-based medicine: how to practice and teach EBM*. 3rd ed. Edinburgh; New York: Elsevier/Churchill Livingstone; 2005.
6. Fineout-Overholt E, Stillwell SB. Asking compelling questions. In: Melnyk BM, Fineout-Overholt E, editors. *Evidence-based practice in nursing and health-care: a guide to best practice* [forthcoming]. 2nd ed. Philadelphia: Wolters Kluwer Health/Lippincott Williams and Wilkins.
7. McKibbon KA, Marks S. Posing clinical questions: framing the question for scientific inquiry. *AACN Clin Issues* 2001;12(4):477-81.
8. Fineout-Overholt E, et al. Teaching EBP: getting to the gold: how to search for the best evidence. *Worldviews Evid Based Nurs* 2005;2(4):207-11.

Practice Creating a PICOT Question

Scenario 1: You're a recent graduate with two years' experience in an acute care setting. You've taken a position as a home health care nurse and you have several adult patients with various medical conditions. However, you've recently been assigned to care for hospice patients. You don't have experience in this area, and you haven't experienced a loved one at the end of life who's received hospice care. You notice that some of the family members or caregivers of patients in hospice care are withdrawn. You're wondering what the family caregivers are going through, so that you might better understand the situation and provide quality care.

Scenario 2: You're a new graduate who's accepted a position on a gerontology unit. A number of the patients have dementia and are showing aggressive behavior. You recall a clinical experience you had as a first-year nursing student in a long-term care unit and remember seeing many of the patients in a specialty unit for dementia walking around holding baby dolls. You're wondering if giving baby dolls to your patients with dementia would be helpful.

What type of PICOT question would you create for each of these scenarios? Select the appropriate templates and formulate your questions.