



EDUCATION NEWS

John J. McFadden, CRNA, PhD

Lisa J. Thiemann, CRNA, MNA

Evidence-Based Practice for Lifelong Learning

The Institute of Medicine's landmark report titled "To Err is Human: Building a Safer Health System," wherein upward of 98,000 deaths annually were attributed to medical error, began to introduce the concept of evidence-based practice (EBP) to the American public and its practitioners. Since this report, clinicians have been struggling to implement and realign healthcare delivery to an evidence-based

framework. This column will add to a nurse anesthetist's foundational knowledge regarding the importance of EBP, its characteristics, and the critical steps for engaging in EBP, as well as discuss the necessary intersection of EBP with student clinical instruction.

Keywords: Evidence-based practice, evidence-based process.

Each day, nurse anesthetists make decisions that are complex and require consideration of many factors. Some of the variables that influence a clinical decision include previously obtained knowledge, prior experiences, the events at hand, bias, and even logic. The skill sets involved during clinical decision making, specifically those related to seeking and judging information sources, parallel those skills needed to implement an evidence-based approach to practice. Nurse anesthetists, therefore, are able to easily transfer their previous skills as they begin to engage in evidence-based practice or EBP.

Even with transferable skills, the novice evidence-based practitioner may still entertain many unanswered questions. What exactly is EBP? What is needed to learn the EBP process? How does one find the resources—and time—necessary for EBP? How do experienced clinicians transition their traditional practice, and that of their colleagues and students, to one that is steeped in current evidence? Although EBP involves steps that are not difficult

to learn or teach, even the veteran nurse anesthetist may feel somewhat challenged until the new taxonomy is learned and the process has been used successfully several times.

What is Evidence-Based Practice?

There is not one single, universal definition for EBP. The concept has evolved over the past several decades to include 3 key concepts: the best available research evidence, patient values (or preferences), and clinical expertise. A practitioner that adheres to an evidence-based approach seeks the most current and best evidence associated with a given topic, reflects on previous clinical experiences and expertise to make judgments about the best actions associated with the topic, and integrates the patient's values and beliefs into the decisions about care.

What Evidence-Based Practice is Not

Certainly, identifying and wanting to employ current clinical practice guidelines and cutting-edge research

is commendable, but simply knowing and implementing current clinical practice guidelines while discounting the patient's desires or the clinician's expertise is not EBP. For example, if the best available evidence for a specific procedure points to improved outcomes with the use of a regional anesthetic over a general anesthetic, it would be prudent to consider using the regional technique. It would be a return to the antiquated model of paternalism, however, to determine what is in the patient's best interest without a frank, open discussion with the patient. If the patient refuses to accept a regional block, it would violate the highly regarded principle of patient autonomy, or the right to self-direction, to force acceptance of the technique. It is the ethical responsibility of the clinician to enter into a discussion with the patient so the benefits and risks associated with a particular anesthetic approach are shared. A clinician should never be forced to engage in an unsafe practice; but neither should a patient be forced to

accept care he or she does not desire.

What else is *not* EBP in its truest sense? Simply asking another colleague's opinions concerning appropriate care is not EBP. Expert opinion falls on the continuum of available evidence. However, as Choudry et al¹ reported, simply having more clinical practice experience did not necessarily equate to higher quality patient care. In their systematic review, as experience increased, clinical performance decreased. This calls to question the commonly held belief that clinicians with extensive experiences always deliver a higher quality of care. This discovery is not surprising when taking into consideration Lysaght and Altschuld's² definition concerning a profession's half-life. As described, professional half-life is the time in which beginning knowledge has been reduced by one-half. With such a rapidly changing profession as nursing, this time period may be as little as 2 to 5 years. What does this mean in the context of EBP? Unless that more experienced and trusted practitioner has maintained his or her currency associated with a topic, he or she may not be the best resource for the most current information. Seeking input from all available resources, including but not limited to one's colleagues, is an important consideration for clinicians engaged in EBP. Validate those recommenda-

tions that are obtained from colleagues. Asking someone's professional opinion may be one part of the search for evidence, but not the only part.

Beginning with the First Step

As EBP has become more common in the clinical arena, all nurse anesthetists—those newly educated and the more “seasoned” practitioners—should be familiar with the steps necessary to provide EBP. These steps are summarized in the Table. The first step a clinician must take is to clearly articulate the patient care problem in need of an intervention. This entails framing a question that needs answering. This question will guide the clinician's discovery of evidence. Without a well-defined question, clinicians may become frustrated when they proceed to the discovery step of the EB process. The key to framing a question is making it specific enough so it uncovers related evidence, yet not too broad so as to uncover anything and everything that may or may not apply to the question at hand. One popular acronym that clinicians may use to frame a searchable question is PICOT,³ which means population, intervention, comparison, outcome, and time frame. One example of a PICOT-framed question is: In the pediatric patient (P), does intranasal midazolam (I) when compared to

oral midazolam (C) produce a more rapid onset of sedation (O) preoperatively (T)?

Searching for Evidence

Once a question has been developed, the clinician then begins to search the available resources for the best evidence. This period of discovery requires knowing where to locate available resources, having access to various databases (eg, a computer with Internet access), possessing computer skills to navigate the databases using keywords, and a method to obtain or view the literature search results that are conducted within the databases (eg, subscriptions to peer reviewed journals indexed in the various databases). For those clinicians working within a large healthcare center, a medical librarian may be able to provide assistance with locating the evidence. Unfortunately, a busy clinical schedule that imposes access or time constraints may prevent a consultation with a librarian. Each clinician, therefore, should become familiar with this process to find the answer to the posed question. It is also important to remember that evidence comes in all shapes and sizes. Especially in anesthesia, not all clinical questions will be answered with the strongest types of evidence.

One resource that is frequently used to identify peer reviewed litera-

Step	Description
Ask the appropriate question.	Use the PICO or PICOT structure.
Search for the best evidence that answers your question.	Use such resources as PubMed or The Cochrane Collaboration to identify the evidence.
Review and assess the evidence.	Look for highly rigorous studies with clinical applicability rather than opinions.
Integrate the results of the literature assessment into practice, taking into consideration the patient preferences and your clinical expertise.	Assess your personal clinical expertise and the patient's preferences, and combine these with the evidence to determine the best action to take when delivering care.
Evaluate effectiveness of the intervention.	This is critical to assessing whether or not this was the best action and if it improved patient outcomes.

Table. Evidence-Based Process Steps

PICO indicates population, intervention, comparison, outcome; PICOT, population, intervention, comparison, outcome, timeframe.

ture is PubMed, a service provided by the US National Library of Medicine and the National Institutes of Health, which includes millions of MEDLINE and other citations. PubMed is located at <http://www.ncbi.nlm.nih.gov/pubmed/>. Other valuable resources available on the Internet for free are The Cochrane Collaboration, Cochrane Reviews, and the National Guideline Clearinghouse (NGC). The Cochrane Collaboration was founded in 1993 and named after Archie Cochrane, the noted British epidemiologist who helped lead the EBP movement more than 3 decades ago. The Collaboration produces systematic reviews of healthcare-related interventions that clinicians may access and use. Of particular interest is the site's ability to search by topic, with "anaesthesia" being one of the topic groups. The Collaboration's website is located at <http://www.cochrane.org/index.htm>. The NGC is an initiative of the Agency for Healthcare Research and Quality (AHRQ) and contains evidence-based clinical practice guidelines. The NGC website is located at <http://www.guidelines.gov/>. Facilities are more frequently subscribing to externally produced clinical decision support systems that provide continually updated reviews on various healthcare topics. There are several currently on the market. Clinicians should explore whether a clinical decision support system may be beneficial for their individual practice setting and the patient populations for whom they care.

Once a search for the available evidence has been conducted, it is vital to assess the evidence for its quality and applicability. Published articles frequently serve as the best evidence; however, just because an article has been published does not automatically mean that it must be applied to the clinical setting. Each article must be assessed individually for its validity, reliability, and the level of rigor maintained during the investigation. In addition, it is

important to consider whether that piece of evidence is generalizable to the patient receiving care. Once each item has been reviewed, the entire body of evidence should be considered to analyze what is known about the question under review. Those studies that are more rigorous (eg, a well-designed randomized control trial) should have more weight than simply an opinion article on the topic. There are various tools available that help a clinician assign a ranking to an individual report. Some examples of these tools include the Oxford Centre for Evidence Based Medicine – Levels of Evidence located at <http://www.cebm.net/index.aspx?o=1025> or the Strength of Recommendation Taxonomy developed by the American Academy of Family Physicians and available at <http://www.aafp.org/afp/20040201/548.html>.

Other Considerations

The next step in the EB process is to consider the practitioner's individual clinical expertise and the patient's preferences in order to decide the best course of action. Each nurse anesthetist brings to the patient's bedside a wide variety of experiences that continually inform his or her clinical decisions. This experience should be valued and should influence care decisions. It is not appropriate, however, to rely solely on that experience with the belief that something is correct "because that's how we have always done it." According to the American Association of Nurse Anesthetists' Code of Ethics, "Certified Registered Nurse Anesthetists are responsible and accountable for the services they render and the actions they take."⁴ It is the responsibility of every nurse anesthetist to assure that actions taken on behalf of a patient are correct and are the best clinical choices. Staying current with the evidence is one method to try to achieve this. Engagement of the patient is also vital to evidence-

based practice. Involving the patient in care decisions empowers him or her during the course of care, and it may strengthen the relationship between patient and provider. Involving the patient in care decisions allows for the expression of cultural nuances that a patient may bring with him or her. Being knowledgeable about the cultural differences that may exist between a caregiver and a patient is critical. Care that is delivered in a culturally sensitive manner simultaneously supports holistic care of the patient and an EB approach to care.

The final step in following an EB process for care is to evaluate the effectiveness of the care rendered. It is important to evaluate if and how an anesthesia care plan achieved its intended goal; this provides a basis of information for future decisions. Revisiting a care decision with the patient offers the provider and the patient an opportunity to alter the next care decision that may result in previously unrealized improvements in patient outcomes.

Thoughts for Clinical Instruction

Today's student nurse anesthetists should be receiving the foundational knowledge base for EBP. It is important for a clinical preceptor to understand that integrating EBP into real-life clinical situations will be very beneficial in solidifying the student's knowledge, resulting in a change of behaviors clinically.⁵ Continually integrating the EB process into clinical scenarios has a greater potential to effectuate prolonged behavioral change that may then benefit patients to a greater degree. EBP also empowers students to question those clinical behaviors that they may be uncertain about at times. Through the use of an EB framework, an enhanced dialogue between student and preceptor can occur. This results in both the student and the preceptor learning from one

another, as well as improved patient outcomes.

Conclusions

Most CRNAs find EBP to be a very learnable and teachable process. Although evidence alone will not decide a clinician's actions, the EB process provides a method for considering the best available evidence combined with the nurse anesthetist's expertise and the desires of the patient. Establishing an evidence-based nurse anesthesia practice is a means of engaging in life long learning to strengthen decision-making skills. In addition, it facilitates the quality education of the next genera-

tion of CRNAs. Ultimately, EBP strives to improve care to patients—a goal that is common to every CRNA.

REFERENCES

1. Choudry NK, Fletcher RH, Soumerai SB. Systematic review: the relationship between clinical experience and quality of health care. *Ann Intern Med.* 2005;142(4):260-273.
2. Lysaght RM, Altschuld JW. Beyond initial certification: the assessment and maintenance of competency in professions. *Eval Program Plann.* 2000;23:95-104.
3. Melnyk BM, Fineout-Overholt E. *Evidence-Based Practice in Nursing and Healthcare: A Guide to Best Practice.* Philadelphia, PA: Lippincott Williams & Wilkins; 2005.
4. American Association of Nurse Anesthetists. Website. Code of Ethics for the Certified Registered Nurse Anesthetist. http://www.aana.com/resources.aspx?ucNavMenu_TSMenuTargetID=51&ucNavMenu_TSMenuTargetType=4&ucNavMenu_TSMenuID=6&rid=665. Accessed October 19, 2009.

5. Coomarasamy A, Khan KS. What is the evidence that postgraduate teaching in evidence based medicine changes anything? A systematic review. *BMJ.* 2004;329(7473):1017-1021.

AUTHORS

John J. McFadden, CRNA, PhD, is the associate dean and chair, Division of Graduate Clinical Sciences for Barry University College of Health Sciences, Miami Shores, Florida. He serves as chair of the AANA Practice Committee. Email: JMcFaddenCRNA@comcast.net or jmcfadden@mail.barry.edu.

Lisa J. Thiemann, CRNA, MNA, is senior director, Professional Practice, for the AANA. She provides staff support for the AANA Practice Committee activities.

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