



BRING SCIENCE TO THE BEDSIDE

BY BETH A. COLLINS SHARP, PH.D., RN

In our daily activities, we accomplish many of our routine tasks without thinking much about them. We follow personal protocols or routines while paying little attention to what we are doing and even less attention to why. This isn't a bad thing. If we spent all our time answering "why," we would never get anything done — as every parent with an inquisitive child knows.

However, sometimes the "why" can be an important reminder to challenge long-held assumptions.

Consider your last trip to work or church. You may have gotten in your car, turned left out of your driveway toward the neighborhood entrance, then turned on the main road. You have made that drive hundreds of times. However, every so often it is worth asking, why take that particular route?

A. It's faster

B. It's a prettier drive, with many trees and flowers

C. There's a good coffee shop on the way

D. Habit — that's the way I always go

Of these answers, the first three are fact-based (and **A** through **C** informs **D**). Facts or evidence support **A**, **B**, and **C**. But are they accurate facts? Are they the most salient facts? Is there evidence that could contradict them or render them irrelevant? For instance, is there construction on the main road that could slow down your commute? Has a new coffee shop opened on the city streets, unbeknownst to you? Could you

take the new light-rail line in the same amount of time for less money?

For your morning drive, these are easy questions to answer. Once in a while, you can test your hypothesis (that the main road is the best way) by taking an alternate route. Turn right out of your driveway instead of left. You may find the way you have been driving all along is fine — or you may discover a new route that is faster, or prettier or more relaxing, or is simply a nice change of pace. Then, armed with the latest evidence, you can alter or maintain your protocol accordingly.

This is how we make decisions in our daily lives. We sort through evidence and choose among options based on what we have known for a long time, new developments and our individual preferences.

So it is in health care.

Today, we are concerned with implementing and advancing "evidence-based" practice. It is more than a catchphrase. Evidence-based practice considers research evidence thoughtfully and strategically in order to inform de-

cision-making.

It can't be done haphazardly. On a personal level, just think about the number of decisions we make every day. Add to that the profes-

sional and family-care decisions. The number is staggering, and when we add thoughtful consideration of evidence to our decision-making, it increases the complexity of implementing them. We face an evidence base that is growing at a rate unprecedented in human history. It is literally impossible to keep up with all the latest studies even in fairly narrow fields of practice. Thus, accessing and synthesizing evidence becomes its own full-time job.

EVIDENCE LEADING TO PROTOCOLS AND GUIDELINES

Evidence (in the form of published studies such as randomized controlled trials) often leads to clinical guidelines, which in turn lead to protocols — prescribed methods of action under certain circumstances (e.g., diagnosis, patient condition). Guidelines, professional policies and protocols are extraordinarily important because they serve as a road map to care.

However, in evidence-based practice, nurses and other providers don't simply follow guidelines the same way

every time. Often, the patient has a preference or special circumstance. Sometimes the available information doesn't point to a clear answer. Unfortunately, not all evidence is created equal.

In a criminal trial, a jury may weigh observational data — testimony from an eyewitness. This evidence may be outweighed by crime scene photos or an autopsy report. This evidence, in turn, may be trumped by DNA evidence. Clearly, evidence has a hierarchy.

Similarly, there is a hierarchy of research evidence in health care, ranging from expert opinion to observational research data to the highest level of evidence, the randomized controlled trial. Such trials are designed to minimize bias and maximize objectivity with a specific protocol that includes randomly assigning patients to a treatment.

But even properly conducted randomized controlled trials don't tell the whole story. Consider another hypothetical situation, this one focused on health care. Imagine you have recently

moved and need to find a pediatrician for your 8-year-old son who has asthma. Assume your insurance plan would cover any pediatrician. Which of the following do you pick?

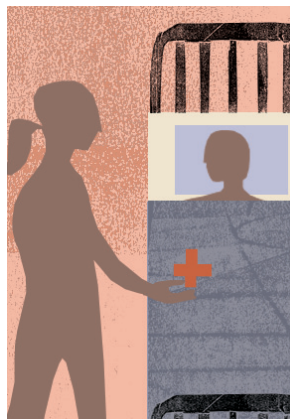
A. The one your neighbor's daughter likes

B. The one recommended by the school nurse

C. The one named "Top Pediatrician of the Year" in a local newspaper or magazine

D. The one whose website declares a specialty in asthma and describes a positive outcome for pediatric asthma patients

Each of these choices is informed by evidence — **A** by observational data, **B** by informed or expert opinion, **C** by informed or expert opinion provided by peers, and **D** by medium quality, de-



scriptive data. So what should you as the parent do?

You don't have to choose just yet. You don't have enough information. The evidence so far doesn't address whether you'd prefer a practice that has evening and weekend hours, proximity to your house or workplace, whether you or your son prefer a male or female doctor.

This is where it gets tricky. We must consider the risks and benefits for each choice and incorporate personal preferences and beliefs into our decision.

THE ROLE OF COMPARATIVE EFFECTIVENESS RESEARCH

Comparative effectiveness research can help us make these decisions. This type of research compares health care interventions to determine which work best for which patients and which pose the greatest benefits and harms. The patient is the nexus for all decisions, so this research is also known as patient-centered health research. The evidence from this research underpins the real-life and often complex decisions that patients and their clinicians make every day.

You may have read about comparative effectiveness research in the context of the American Recovery and Reinvestment Act of 2009 (www.hhs.gov/recovery/overview/index.html), commonly known as the stimulus package. The Recovery Act directs \$1.1 billion to the U.S. Department of Health and Human Services to fund comparative effectiveness research over two years. This is an unprecedented national investment in important, patient-centered research.

While the Recovery Act elevated the profile of comparative effectiveness research, it did not create it in a vacuum. The Agency for Healthcare Research and Quality has been conducting this type of research since the Medicare



RESOURCES FOR MORE INFORMATION ABOUT EVIDENCE-BASED PRACTICE

Evidence-based Practice in Nursing and Healthcare: A Guide to Best Practice, edited by Bernadette Melnyk and Ellen Fineout-Overholt. (Lippincott Williams & Wilkins, \$65.95; a new edition is expected in June 2010.)

D.L. Sackett, W. Rosenberg et al., "Evidence-based Medicine: What It Is and What It Isn't," *BMJ* 312 (13 January 1996):71-72.

Academic Center for Evidence-based Practice, the University of Texas Health Science Center at San Antonio: www.acestar.uthscsa.edu.

Effective Health Care Program, U.S. Department of Health and Human Services Agency for Healthcare Research and Quality: www.effectivehealthcare.ahrq.gov.

Center for the Advancement of Evidence-Based Practice; Arizona State University College of Nursing and Health Innovation: www.nursingandhealth.asu.edu/caep.

National Guideline Clearinghouse™, U.S. Department of Health and Human Services, Agency for Healthcare Research and Quality: www.guidelines.gov.

National Institute of Nursing Research: www.ninr.nih.gov.



Prescription Drug, Improvement, and Modernization Act of 2003 established the Effective Health Care Program. Evidence-based practice centers housed at 14 of the nation's top university, health care and research centers conduct a good deal of this research. There, they review and synthesize existing scientific research about important health care topics to help patients, physicians and policymakers make better decisions about treatments.

To date, the Effective Health Care Program has published research about more than 45 products, including guides for consumers and clinicians to help

them make important, evidence-based decisions about care. That last point deserves emphasis; the focus is on evidence to inform decision-making, not to determine the decisions.

Although we understand what comparative effectiveness research is, we must also be clear about what it is not. This kind of research should be descriptive, not prescriptive, in order to help patients (and families, as appropriate) come to their own conclusions with the assistance of their clinicians. When we review and synthesize data, we identify what we know and what we don't know. The latter is very important, as it can help inform decisions to design and fund the next research studies to fill in the gaps.

THE IMPORTANCE OF PERSONAL PREFERENCE

The notion of the individual's power to make his or her own health care decisions is growing, but what happens when personal preferences and evidence come into conflict? It is rarely that simple. A better question may be what is one's preference, given the evidence? Some individuals may prefer to rely solely on the expert opinion of their physician. Others may place



greater emphasis on faith-based decisions, gut reactions or other cultural influences. Most people consider both scientific evidence and personal preference simultaneously. Say you face two treatment options for an illness. Both are effective. One drug often causes headaches as a side effect,

the other nausea. The choice for which side effect you are more likely to tolerate is yours.

It's important, however, not to be swayed by opinion masquerading as fact. The late John M. Eisenberg, MD, M.B.A., who directed the Agency for Healthcare Research and Quality until his death in 2002, drew a distinction

between evidenced-based behavior and "eminence-based" practice. The latter term was his critique of clinicians who were more comfortable with their own impressions or routines for treatment than they were in consulting guidelines for care recommended by professional organizations.

EMPLOYING EVIDENCE IN NURSING PRACTICE

As noted, the best evidence is research-based — information from randomized controlled trials, controlled clinical studies, systematic reviews or other scientific studies that can be put into practice while still respecting the individual patient's preferences. Thus, we have evidence-based practice. Doctors often use the term "evidence-based medicine," but the principles are the same. The notion of an evidence-based approach is applicable to all health care disciplines

Nurses contribute to evidence-based practice from beginning to end. At the beginning, nurse scientists conduct research that, as described by the National Institutes of Health's National Institute of Nursing Research, develops knowledge to:

- Build the scientific foundation for clinical practice
- Prevent disease and disability
- Manage and eliminate symptoms caused by illness
- Enhance end-of-life and palliative care

Achieving evidence-based nursing practice depends on a research-based body of knowledge. Results from individual studies contribute to a body of evidence, which in turn provides a foundation for clinical practice guidelines, policies and professional protocols. The order goes:

- Multiple individual studies create new evidence
- The evidence is reviewed and synthesized
- Evidence about what is known translates into actions and tools (including clinical guidelines and consumer guides)
- Gaps in the evidence are described
- The evidence, including research gaps and tools, is disseminated and implemented

Then the evidence feeds back into more individual studies, creating an evidence loop fundamental to creating and maintaining evidence-based practice. Nurses routinely contribute to each step in this process, and evidence from nursing research takes its place with evidence from other disciplines to inform the development of evidence-based policies, professional protocols and clinical guidelines.

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JOURNAL OF THE CATHOLIC HEALTH ASSOCIATION OF THE UNITED STATES

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