

Guest Editorial and Discourse

Nursing Care Effectiveness: Here to Stay

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Is it just me, or are we living at a time when words beginning with the letter “e” are pre-eminent in health-care discourse? Four words in particular come to mind, three of which are *effectiveness*, *efficacy*, and *efficiency*. On close inspection, these words all have the same Latin root, “effectus.” Webster’s dictionary provides eight definitions for the noun *effect*, the first being “something that is produced by an agency or cause; result; consequence” (Braham, 1996). Other definitions connote purpose or intent and the power to produce results. Note that these definitions are neutral or value-free; that is, the “something that is produced” could be either positive or negative, intended or unintended. However, when *effect* is used in the adjectival form, it is no longer neutral but takes on a positive value. In the context of health care, *effective* is applied to something that produces an expected effect under everyday conditions, *efficacious* refers to something capable of achieving a desired end or purpose under ideal conditions (often in the context of randomized clinical trials [RCTs]), and *efficient* implies skilful accomplishment of a purpose with little waste of effort or resources (Mark & Salyer, 1999).

There are other important gems to be gleaned from the multiple meanings of *effect*. Of the eight definitions, three have more nebulous meanings: a mental or emotional impression produced, for example, by a painting or a speech; the making of a desired impression — “The expensive car was only for effect”; and lastly, an illusory phenomenon — a three-dimensional effect. So not all effects are easy to categorize or measure (how do we capture the effect of a caring gesture, or of being in the presence of a dying child?), nor are they all real, genuine, or necessarily long-lasting.

Which brings me to the final “e” word: *evidence*. If effects are contingent on a number of parameters such as agency, strength, and intention, then we need evidence to confirm the relationships of these parameters with the effect. Likewise, if effects are not always what they seem, then

we need evidence that the produced effects are the intended effects and that they are “real” and genuine.

What, then, is nursing care effectiveness (NCE), the focus of this issue of the Journal? If we look at the first definition, it is “something that is produced” (the desired effect, result, or consequence) by an agency (e.g., a model or system of nursing care) or cause (e.g., specific nursing intervention). It also implies intent or purpose (goal-directed) and the power or strength to effect the desired outcome. To summarize, NCE is about the power or strength of nursing care to produce intended and desired health outcomes for patients, families, and communities. The move to evidence is a logical and necessary extension of NCE. We need evidence to build our knowledge base so that we can provide quality care. We need evidence that professional nurses are effective agents in producing desired outcomes through systems of care delivery and processes of care and by their presence and discrete actions or interventions. Of course, the logical extension of evidence of NCE is using that evidence appropriately in decision-making both in practice and in policy-making. Evidence is needed not only at the bedside but also in the boardroom where decisions about the health-care system and the nursing workforce that ultimately impact on the health of Canadians are made.

How Far Have We Come?

Many of the ideas related to NCE are embedded or implied in the definition of *effect*. For some reason, I find it reassuring that our current apparent obsession with effectiveness is based on a long-standing idea. However, it is only relatively recently that ideas about effectiveness have come into sharp focus for nursing. The question is, why did it take so long, given the rich legacy of Florence Nightingale (McDonald, 2001)?

In a seminal paper on the history of nursing knowledge development in the United States, Gortner (2000) reports that the first case studies of nursing interventions and their effects appeared in the 1920s. However, with the Depression and the move of nurses to hospitals from the traditional home setting, such studies took a back seat to studies of delivery of nursing services from an organizational perspective (as opposed to a patient outcomes perspective). In a guest editorial in *Nursing Research* titled “Research in Nursing Practice — When?,” Virginia Henderson (1956) reported that studies of the nurse outnumbered studies of practice by 10 to 1. It was not until the early 1960s that grants for nursing practice studies, especially those related to nursing acts and their outcomes, were established. Only in 1967 did reports of controlled attempts to study the impact of nursing interventions begin to appear in the literature (Gortner).

Since then, and particularly in the past two decades, there has been an explosion in nursing knowledge development (Fitzpatrick & Stevenson, 2003; Gortner, 2000; Hinshaw, 2000), with more than 400 nursing journals publishing at least some research (Droogan & Cullum, 1998). In large part, these gains can be attributed to the development of doctoral programs in nursing and more stable support for nursing research (Gortner; Wood, 2001). The call for more and better studies on the impact or effectiveness of nursing interventions and studies of patient outcomes related to nursing care are at the forefront of research priorities in many jurisdictions (Canadian Nurses Association, 2001; DiCenso, Cullum, & Ciliska, 2002; Gortner; Hinshaw; Pringle & White, 2002). The emphasis on effectiveness studies has been bolstered by the evidence-based practice (EBP) movement spearheaded by the Cochrane Collaboration and the Cochrane Library (see the paper by Forbes and Clark in this issue), other entities such as the Agency for Healthcare Research and Quality in the United States (Hubbard, Walker, Clancy, & Stryer, 2002), and the general overall shift in health-care systems to accountability and quality (National Forum on Health, 1997).

Nursing journals are publishing increasing numbers of intervention studies that use rigorous designs such as RCTs and increasing numbers of systematic reviews and meta-analyses of studies of NCE (Fitzpatrick & Stevenson, 2003; Hinshaw, 2000). The following illustrates just how far we have come. As part of an ongoing program of work exploring the evidence underpinning nursing interventions, Droogan and Cullum in 1998 identified and appraised existing systematic reviews in nursing. Using rigorous search strategies, they found 36 reviews of effectiveness. Only 19 reviews met three well-established quality criteria (clear question related to effectiveness, comprehensive search strategy, and appropriate data synthesis) and were considered to be high-quality systematic reviews of effectiveness. Although promising, the relatively small number of high-quality reviews of NCE was disappointing.

However, Droogan and Cullum (1998) predicted that there would be a dramatic increase in the number of high-quality reviews of nursing interventions. To test whether their prediction was correct, I conducted a search in July 2003 on the Database of Abstracts of Reviews of Effects (DARE), which is part of the Cochrane Library (I accessed it on a Web site affiliated with the Centre for Evidence-Based Nursing at the University of York in the United Kingdom: www.york.ac.uk/darehp.htm). Using the search terms nursing, nursing care, and nursing interventions, I located 255 high-quality systematic reviews of effectiveness from 1983 to 2003. The interventions evaluated in these reviews were wide-ranging, for example:

- interventions for at-risk populations (e.g., frail elders and their caregivers, people with mental illness)
- education and psycho-education interventions for special populations (e.g., pre-op teaching, cancer, cardiac surgery, mental health, diabetes)
- lifestyle/health promotion interventions (e.g., physical activity in the aged, school-aged children, obesity prevention)
- clinical interventions (e.g., nursing management of fever, wounds, and pressure sores, weaning patients from mechanical ventilation, vital signs, oral hydration, use of music for hospitalized patients, pain management)
- systems of care delivery (e.g., quality systems in nursing homes, palliative care delivery systems, home visiting for public health nursing interventions, models of community care for severe mental illness)
- products (e.g., for ear syringing, wound cleaning, incontinence)
- medications for common conditions (e.g., fever, joint pain, urinary tract infection)

Another 87 citations referred either to completed reviews or to proposals for Cochrane Systematic Reviews of RCTs that were in progress, many of which related directly to nursing interventions. Examples of reviews being spearheaded by Canadian nurse researchers include: psychosocial interventions for preventing postpartum depression (Dennis & Kavanagh, 2003), postnatal parental education (Gagnon & Barkun, 2003), continuous support for women during childbirth (Hodnett, Gates, Hofmeyr, & Sakala, 2003), and sucrose for analgesia in newborn infants in pain (Stevens, Yamada, & Ohlsson, 2003). So even with the relatively unsophisticated search strategy noted above, there has clearly been a substantial increase in the number of high-quality systematic reviews of nursing interventions that provide rigorous evidence for practice and policy and, just as importantly, provide direction for further research.

Just Getting Started

Despite these considerable improvements in the volume and quality of nursing intervention studies and systematic reviews of effectiveness, we are just getting started. The following illustration helps to put our progress in perspective. In November 1999 the Registered Nurses Association of Ontario (RNAO) initiated the Nursing Best Practice Guidelines Project (www.rnao.org/bestpractices/about/bestPractice). The goal of the project is to support nurses by providing them with best practice guidelines for client care. Best practice generally refers to practices that result in the best possible client outcomes, and in some cases lower

costs, and are based on the best available evidence, although what counts as evidence may be quite variable (Youngblut & Brooten, 2001). As of July 2003, RNAO expert project teams had completed 11 guidelines and four additional guidelines are in development.

A review of the most recent nursing best practice guidelines published in 2002 on pain and pressure ulcers is instructive in relation to the strength of evidence found to support best practice. The guidelines related to the Assessment and Management of Pain (Registered Nurses Association of Ontario [RNAO], 2002a) list 66 recommended practices to improve the care of those in pain. Each recommendation has been graded in terms of the strength of the evidence found to support the recommendation using a hierarchy of evidence (Scottish Intercollegiate Guidelines Network, 2000).

Grade A indicates at least one RCT as part of a body of literature of overall good quality and consistency addressing the specific recommendation. It may include a systematic review and/or meta-analysis of RCTs. *Grade B* indicates well-conducted clinical studies but no RCT on the topic. It includes evidence from well-designed controlled studies without randomization, quasi-experimental designs, and non-experimental studies such as comparative, correlational, and case studies. The RNAO panel also supported the inclusion of well-designed qualitative studies. *Grade C* indicates that the evidence comes from expert committee reports and expert opinion. It indicates absence of directly applicable clinical studies of good quality.

Somewhat surprisingly, of the 66 recommendations for best practices for pain care, 44 had a “C” designation (that is, no research evidence of good quality), 10 had a “B” rating, and only 12 had an “A” rating.

Evidence ratings for best practices for pressure ulcers fared somewhat better. The expert panel for the Assessment and Management of Grade I to IV Pressure Sores (RNAO, 2002b) used a modified version of the evidence hierarchy noted above (Agency for Health Care Policy and Research, 1994). The major differences were that an “A” grade needed at least two RCTs and there was no mention of evidence from qualitative studies in the “B” category. Of the 47 recommendations for best practices for pressure sores, 24 had a “C” rating (no research evidence of good quality), 13 had a “B” rating, and eight had an “A” rating.

Thus, according to the RNAO best practice guidelines, one half to two thirds of recommended nursing care related to assessment and management of pressure ulcers and pain, respectively, lack any good-quality research evidence to support these practices. This is alarming given that pain and pressure ulcers are well studied compared to other areas of practice (Cullum, 2001; Gordon et al., 2002). While it may be true that not all of nursing care will require research evidence, these findings should

make us take a long, hard look at the state of our science and what we know about how effective our care really is. Clearly we still have a long way to go.

Questions, Some Answers, and Several Challenges

The papers in this issue of the Journal raise questions, provide some answers, and pose important challenges for researchers and users of research related to NCE. The paper by Forbes and Clark is a primer on using the Cochrane Library to answer questions about NCE. The authors review the benefits of systematic reviews of NCE studies compared to individual studies and provide the rationale for using results of systematic reviews along with contextual information when making clinical decisions. They describe the Cochrane Collaboration and the Cochrane Library and indicate the content of reviews of interest to nurses. Finally, they encourage all of us to participate in this exciting international collaboration of researchers and clinicians.

From a methods perspective, the paper by Sidani and Epstein challenges researchers to rethink how they evaluate NCE. These authors argue that many studies of nursing interventions are really efficacy studies (conducted under ideal conditions) as opposed to effectiveness studies that evaluate the outcomes of care in the real world of practice. Client outcomes are influenced by many factors and seldom, if ever, exhibit a direct cause-effect relationship. Knowledge is needed about which subgroups of patients benefit most from interventions, from which component of care, given at what dose or strength, and under what circumstances. In studies evaluating systems of nursing care, greater attention needs to be given to the actual processes of care provided in relation to the nature, quality, and safety of care and their contribution to nursing-sensitive patient outcomes.

Following up on the idea of complexity in patient-care situations, Paterson and Thorne present an articulate, thoughtful discussion of the potential for meta-synthesis of qualitative studies to inform our understanding of the complexity of health outcomes and the manner in which nursing care might influence them. Like Sidani and Epstein, they argue that we need to see beyond direct cause-and-effect interpretations of nursing interventions and outcomes and recognize the wide range of personal and contextual variables that impact on health. They argue that both qualitative and quantitative studies together will provide better understanding and evidence of care processes to inform practice and policy.

Turning to how evidence of NCE is used in practice, Estabrooks describes what is known about individual- and organizational-level vari-

ables that influence research use. She offers thoughts on how these findings relate to organizations and the role of nursing service administrators in creating and sustaining practice environments that support evidence-based decision-making. One of the most intriguing aspects of Estabrooks's paper is her discussion of the importance of groups and social interaction in influencing how nurses conduct their practice. She introduces the idea that nurses are not just users of knowledge; they also produce knowledge in an epistemic community as a result of going about their everyday work. Estabrooks suggests that a better understanding of how unit-based knowledge is produced may help us to understand how nurses might use research in practice.

Demonstrating that good-quality evidence alone is not sufficient for policy change, Shamian and Griffin, from the Office of Nursing Policy at Health Canada, highlight the research evidence that links nursing care (i.e., experience of nurses, nursing staffing ratios, and skill mix) to patient outcomes, including patient safety, symptom management, patient satisfaction with care, morbidity, and mortality, as well as to system outcomes (e.g., re-admission rates and costs). They point out that although there is high-quality evidence linking the quality of nursing worklife to nursing care and patient outcomes, policy changes to improve work environments for nurses have been slow in coming. Shamian and Griffin describe the policy-making process and the policy cycle in relation to this research evidence. They discuss the newest policy developments such as linking hospital accreditation to healthy workplaces and the development of healthy workplace guidelines, including relationship and communication aspects of care, as well as new government initiatives to improve patient safety. They remind us that political acumen along with evidence is necessary to shape policy.

The last two contributions to this issue of *CJNR* illustrate two exciting developments. First, the Happenings article describes a newly funded initiative: the Montreal Inter-university Group for Nursing Research/Groupe de recherche interuniversitaire en soins infirmiers de Montréal (GRISIM). Nurse scientists from McGill University and the Université de Montréal, along with multidisciplinary and national/international collaborators, will work together to (1) develop studies on nursing interventions related to developmental transitions, health crisis episodes, and transitions through health-care environments and evaluate the impact of the interventions on health outcomes; (2) create and consolidate a critical mass of nurse scientists, including training students with regard to the development of interventions; and (3) carry out knowledge transfer activities that will influence nursing practice in clinical settings. Finally, the book *Nursing-Sensitive Outcomes: State of the Science* reviewed by Petryshen

is a much-needed resource for anyone interested in outcomes related to the effectiveness of nursing care.

Final Thoughts

Given that nursing science has come into maturity only in the past decade (Edwards, 2003; Gortner, 2000), the progress made in the volume and quality of studies of nursing care effectiveness is impressive. But we clearly have a job ahead of us. We need to expand our notion of “evidence” to include qualitative studies. Remember one of the nebulous meanings of *effect* — that of a mental impression made by a great work of art, or a caring touch? We need well-conducted qualitative studies to accurately capture all elements of an intervention or process of care that make a difference (Morse, Penrod, Kassub, & Dellasega, 2000; Sandelowski, 1996) as well as capture the complexity of the caregiving situation. We need better partnerships with clinicians if we are to take full advantage of the fertile knowledge of clinicians related to what works in everyday practice (Ducharme, 2003; Morse, 2002). Although few of the papers in this issue of the Journal discuss cost-effectiveness or efficiency, these questions will remain a central concern for the health system and will need to be addressed in effectiveness studies (Sochalski, 2001). (For an interesting evaluation of the effectiveness and efficiency of a nursing approach to communication in trauma care, I recommend the paper by Morse et al., 2000.) We need to think of the broader policy or systems implications of our work — moving from the bedside to the boardroom. Nancy Edwards (2003) describes moving from a study predicting the use of grab bars in bathrooms by older adults to working with the Canadian Standards Association, the Home Building Association, and the National Research Council to change building codes so that all new homes have bathtub grab bars installed as standard fixtures. Finally, we need to continue with research into nursing services and the impact on patient and system outcomes.

There’s no doubt about it — the “e” words are here to stay. Effectiveness, efficacy, efficiency, and evidence. I wonder what the field will look like 10 years from now.

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