

## Reflections on research

# Evidence-based medicine: Half-truths?

*In dwelling upon the vital importance of sound observation, it must never be lost sight of what observation is for. It is not for the sake of piling up miscellaneous information or curious facts, but for the sake of saving life and increasing health and comfort. The caution may seem useless, but it is quite surprising how many men (some women do it too), practically behave as if the scientific end were the only one in view, or as if the sick body were but a reservoir for stowing medicines into, and the surgical disease only a curious case the sufferer has made for the attendant's special information. This is really no exaggeration (Nightingale, 1946/1859, p. 70).*

More than 150 years ago, Florence Nightingale (1946/1859) insightfully challenged the medical and nursing community to consider that empirical science\* was but one way of knowing about a patient to improve length and quality of life. In *Notes on Nursing*, Nightingale (1946/1859) went on to offer a view of patients that goes beyond the biomedical\*\* focus on curing disease, also considering the mind-body-spirit connection and its effects on health and healing. As such, Nightingale (1946/1859) was among the first nurses to write about sources of knowledge in addition to empirical science that may create a foundation for clinical decision-making.

Despite Nightingale's early writings about the importance of sources of knowledge in addition to scientific evidence\*\*\* to make practice-based decisions, the dominant influences of western scientific thought and the biomedical paradigm persists in cancer care today (Broom & Tovey, 2007; Hollenburg & Muzzin, 2010). Evidence-based medicine (EBM), which discredits traditional ways of knowing (e.g., historical, experiential) in preference of scientific evidence generated via randomized controlled trials (RCTs) that is context and value-free, is used as the major basis to inform clinical decision-making and practice in cancer care in North America (Djulgovic, Guyatt, & Ashcroft, 2009; Haylock, 2006).

EBM is defined as the conscientious, explicit, and judicious use of best evidence in making decisions about the care of individual patients (Sackett, Rosenberg, Gray, Haynes, & Richardson, 1996). Espousing a Cartesian reductionist paradigm that reduces people and objects into their smallest parts to understand the whole, similar to the parts of a clock being dismantled to understand why it is not working, EBM uses a quantitative methodological approach to develop new knowledge. By controlling for possible "confounding" variables or conditions (e.g., a person's experience of a situation, or their preferences, values,

beliefs) that might affect the variable under study, EBM provides a strategy for separating facts from values and context to find the "truth". For example, the testing of any new chemotherapy/biotherapy drug would undergo this process of separating facts from values and context to be certain of its effects, side effects, and interactions within the body. But the patient's subjective experience of taking the drug, or understanding the person's expectations of whether or not this drug may be helpful for them, largely is considered "white noise" or "interference" in the context of EBM.

There is no doubt that EBM has played an important role in improving many patient outcomes and has allowed people diagnosed with cancer to live longer than ever before. However, from a nursing perspective, it is the "white noise" and "interference", tuned out by EBM, which is of great interest and value to understand in order to fully address the needs and ensure good quality of life for people and families as they live longer with cancer. In fact, to deliver care according to the CANO/ACIO Practice Standards and Competencies for the Specialized Oncology Nurse (CANO/ACIO, 2006), one must reach beyond EBM as a singular source and type of knowledge upon which to base practice decisions.

Without delving into great detail about the various critiques of EBM, it is important to understand at least three key challenges of EBM in order to consider how other sources of knowledge may be useful to contextualize the knowledge produced via EBM for use with individuals and families experiencing cancer. I offer a very brief introduction to these three challenges, followed by suggestions to overcome these challenges when using knowledge derived from EBM in practice with patients and families.

The first challenge relates to the fact that knowledge produced via EBM allows only for the evaluation of average effects, determining intervention effects for groups or populations rather than individuals (Lambert, 2006; Rosner, 2011; Upshur, 2002). EBM gives us information about commonalities among populations, rather than insight into the complexities and critically important differences regarding the individual for whom you are currently caring. Consider the situation where a nurse uses a symptom

management guideline to support a patient experiencing nausea and vomiting. While the guideline offers evidence-based interventions to consider within a systematic nursing assessment process, the guideline cannot guide the nurse or provide knowledge to understand the unique factors that layer and intersect to create a unique set of conditions for that individual. Nor does it support nursing's social justice mandate to explore and address the structural factors (e.g., colonization, poverty, stigma) that may promote inequities within individuals/groups who experience marginalizing conditions within society (Goldenberg, 2006). Consider, for example, the young, new immigrant single mother who has English as a second language, and is experiencing nausea and vomiting post chemotherapy for her breast cancer. She holds beliefs about the use of herbal products in lieu of antiemetics, and has been unable to communicate to her health care team that she cannot afford the antiemetics or other supportive drugs. To effectively care for this woman and her family, in addition to evidence about effective interventions described in the symptom management guideline, the nurse must draw on many sources of knowledge, such as, for example, the lived experience of being a new immigrant woman facing health issues, the challenges of health illiteracy, and the nuances involved in complementary medicine decision-making in the context of cancer treatment. These latter sources of knowledge provide much-needed perspective to contextualize the population-based knowledge from EBM, to make sense and be applicable to the individual and family in front of us.

A second major challenge within EBM has to do with the tendency of RCTs (the gold standard of evidence within EBM) to include subjects that are quite unlike the population within which the transfer and uptake of findings are intended (Rosner, 2011). For example, RCTs typically require subjects to be free of other chronic health conditions, as this may interfere with the intervention under study in relation to the cancer. Further, subjects who generally are recruited into RCTs tend to be younger, female, white, have a higher socioeconomic status and have breast cancer (Jenkins et al., 2013). Consider that cancer is a disease of aging, with the majority of people diagnosed at age 60 or older, living longer with cancer and other chronic illnesses associated with aging. So, to apply evidence generated from samples with younger females without co-existing chronic health conditions may severely limit the generalizability of evidence from RCTs within the EBM paradigm.

The third, and perhaps most troubling critique of EBM is the lack of patient/family voice and views included in the development of the evidence. Through solely relying on a strict hierarchy of acceptable

forms of evidence that excludes subjective perceptions or outcomes that are of interest or value to the actual recipient of care, EBM runs the risk of further marginalizing patient voice and choice (Lambert 2006; Rogers, 2002). Individualized, person-centred care, hallmarks of high-quality cancer care (CPAC, 2013) cannot occur without the inclusion of patient/family perspectives, voice and opportunities for choice.

Exploring these three challenges of EBM highlights the importance of contextualizing the population-based and values-free knowledge produced through EBM for use in the clinical setting with unique, infinitely complex and varied individuals and families. Most nurses are familiar with Carper's (1978) ways of knowing about a phenomenon (i.e., personal, empirical, aesthetic, and ethical knowledge) that encourages clinicians to draw upon knowledge in addition to empirical sources to offer a more well-rounded and holistic approach to care. Another strategy to add context and values to knowledge produced through EBM is through the use of knowledge derived from qualitative research methods. Qualitative research methods generally are based on the co-creation of subjective and experiential knowledge with patients and families in a naturalistic context that includes consideration of time and context. This approach to knowledge generation allows for multiple realities to co-exist (i.e., there may be many right ways to do something depending on the situation, rather than just one single "truth", as per quantitative studies), and for interventions and outcomes of value to the patient be included and explored. In this way, knowledge about the differences and uniqueness of individuals may be considered within qualitative approaches.

Nursing's practice mandate involves "particularizing the general" (Reed, 2006; Rolfe, 2011; Thorne, 2013; Thorne & Sawatsky, 2007), referring to the need to consider how population-based practice recommendations (generalities) may be applied to unique and complex individuals. It is essential that nurses consider how to combine evidence from quantitative RCTs, such as standardized protocols or practice guidelines generated through EBM, with qualitative research that captures patients' and families' subjective experiences, preferences and values related to the uptake of those standardized, evidence-based interventions. In this way, qualitative research findings may inform the interpretation of the evidence generated via EBM strategies, thereby promoting high-quality, person-centred cancer care. Let's remember Nightingale's sage advice, and consider that the scientific end (i.e., EBM) is not the only view, or the whole truth, when caring for people who are complex, unique beings. ■

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## Réflexions sur la recherche

# La médecine fondée sur des données probantes : des demi-vérités?

par Tracy Truant

*Lorsqu'on examine l'importance vitale d'une observation approfondie, il ne faut jamais perdre de vue l'objectif de l'observation. Elle ne vise pas à engranger des renseignements divers ou des faits curieux et doit plutôt servir à sauver des vies et à rehausser l'état de santé et le confort. Cet avertissement peut paraître inutile mais il est assez étonnant de savoir combien d'hommes (et même de femmes) se comportent pratiquement comme si l'aspect scientifique est le seul qui existe ou comme si l'organisme malade n'est qu'un réservoir qu'on remplit de médicaments et comme si le problème chirurgical est tout simplement un fait curieux que la personne qui le subit vient présenter pour l'information du médecin. Et il ne s'agit pas là d'une exagération (Nightingale, 1946/1859, p. 70 [traduction libre]).*

Il y a plus de 150 ans, Florence Nightingale (1946/1859) invitait judicieusement le milieu

médical et infirmier à réfléchir au fait que la science empirique\* constituait seulement une des façons de connaître le patient afin d'améliorer sa durée et sa qualité de vie. Dans son ouvrage *Notes on Nursing*, Nightingale (1946/1859) poursuit sa pensée en offrant un point de vue sur les patients qui dépasse l'orientation biomédicale\*\* de la guérison de la maladie et s'étend également sur la relation corps, esprit et psychisme et sur ses effets sur la santé et la guérison. Cela fait que Nightingale (1946/1859) a été l'une des toutes premières infirmières à aborder des sources de savoir en plus des sciences empiriques constituant les assises de la prise de décision clinique.

Malgré les écrits déjà anciens de Nightingale sur l'importance des sources de savoir qui complètent les preuves scientifiques\*\*\* dans la prise de décisions axées sur la pratique, les influences de la pensée scientifique et le paradigme biomédical occidentaux continuent de prédominer dans le domaine des soins de cancérologie

actuels (Broom & Tovey, 2007; Hollenburg & Muzzin, 2010). La médecine fondée sur des données probantes (MFD), laquelle met en doute les modes de connaissance traditionnels (p. ex. historiques, expérimentaux) pour accorder toute la préférence aux preuves scientifiques obtenues par le biais d'essais cliniques aléatoires à la fois objectives et acontextuelles, est, en Amérique du Nord, le principal fondement de la prise de décision et de la pratique cliniques dans le domaine des soins de cancérologie (Djulgovic, Guyatt & Ashcroft, 2009; Haylock, 2006).

La MFD est définie comme étant «l'utilisation consciencieuse, explicite et judicieuse de la meilleure preuve actuelle dans le processus décisionnel concernant les soins aux patients» (Sackett, Rosenberg, Gray, Haynes & Richardson, 1996, [traduction libre]). La MFD utilise une approche méthodologique quantitative afin de développer de nouvelles connaissances en adoptant un paradigme réductionniste cartésien visant à réduire les individus et les objets à leurs parties les plus infimes dans le but de comprendre l'ensemble, un peu comme on démonte une horloge afin de comprendre pourquoi elle est en panne. En contrôlant les variables ou facteurs de confusion éventuels (p. ex. l'expérience individuelle d'une situation, ou les

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