CJNR 2013, Vol. 45 N° 1, 6–8

GUEST EDITORIAL

Nursing Informatics in the 21st Century

Elizabeth M. Borycki, Noreen Cavan Frisch

In the call for papers for this issue of *CJNR* we asked for contributions from the nursing informatics research community on the topic of Nursing Informatics in the 21st Century. Today, health information systems are being implemented throughout the world in an effort to modernize health care. These health information systems, including nursing information systems, nursing decision-support systems, electronic health record systems, personal health record systems, and telehealth/telenursing systems, are improving the quality, efficiency, and safety of patient care. Over the past several years we have seen nurses lead the way in introducing these technologies in health-care settings across the care continuum. Nurses not only are proactive users of such electronic systems but are becoming increasingly involved in their design, development, implementation, evaluation, and maintenance. This work by nurses has become essential in ensuring that the new technologies support patient-centred care, nursing practice, nursing education, and the work of other health professionals such as physicians, occupational therapists, physiotherapists, and pharmacists.

This issue of the Journal features contributions by researchers in Canada, the United States, and the Caribbean. For example, Robert J. Lucero and Suzanne Bakken from the United States describe the Knowledge Discovery Through Informatics for Comparative Effectiveness Research (KDI-CER) framework and how it can be applied to the prevention of hospital acquired pressure ulcers (HAPU) (this article is published in the online edition only). Their work helps nurses and nurse administrators use data from electronic clinical databases to discover relationships between nursing interventions and clinical outcomes. The Canadian researchers Barbara L. Cross and Marjorie MacDonald have developed a theory of how nurses develop a relationship with the computer in their practice (published in the online edition). The authors interviewed 12 nurses to learn about how nurses integrate computers into their practice and the factors that influence the speed with which nurses take up the new technology. This grounded theory study provides

an empirically derived theory of how nurses adopt computer technology. We also go to the Caribbean region in this issue of *CJNR*. Pammla Petrucka and colleagues were able to facilitate nurses' practice in m-enabled health-care settings at five Caribbean sites. From an implementation perspective, the authors describe valuable information about the challenges, opportunities, and key lessons that have arisen from this work. More importantly, their article addresses the use of new tools (e.g., the personal digital assistant, or PDA, a software application that can be run on mobile devices) in supporting nurses' clinical practice and patient care. Internationally, in both the developed and the developing world, mobile devices and the health-care software applications that are associated with them are being recognized for their role in supporting nurses' work. More research is needed to identify evidence-based implementation approaches at the intersection of nursing and m-health.

For this focus issue of the Journal, we were open to empirical research (e.g., qualitative, quantitative, and mixed-method). The work of Diane M. Doran and colleagues illustrates the value of employing mixed-method (i.e., qualitative and quantitative) approaches to the study of clinical information systems deployed via a BlackBerry device for use by nurses practising in the community. The researchers used qualitative methods such as interviews and focus groups while at the same time employing a quantitative method (surveys). Qualitative findings arising from the interviews revealed that nurse, contextual, device, and assessment-tool characteristics influenced nurses' use of the clinical information system. In addition, quantitative findings revealed that user satisfaction had a positive association with social capital as well as structural and electronic resources. In another study, Selena M. Santi and colleagues employed a mixed-method design to learn more about the sharing of health information in home care. The researchers used a survey approach to obtain data on barriers to and facilitators of the use of electronic health information systems. The results of the survey were presented at a workshop and a "world café." Participants at these events were asked to develop strategies and interventions for facilitating the exchange of health information. Such mixed-method work is crucial to the development of an in-depth understanding of the uptake of a technology and the factors that influence that uptake.

In putting together this issue of the Journal, we have observed an increasing focus on nursing informatics in educational settings. Manal Kleib and colleagues outline the need for a new approach to integrating informatics into undergraduate nursing education (published in the online edition) — an approach that is more focused and consistent in terms of duration and educational strategies. As these authors point out, we need to continue specifying the core informatics content required in

baccalaureate nursing education. As well, Marjorie McIntyre and colleagues report on their critical analysis of online nursing education. This is one of the few studies in the field of health informatics to employ a hermeneutic methodological approach — a significant extension of research methods in the domain. These authors critically examine some of the challenges and issues that are part of online learning and highlight a number of the key questions that nurses need to address when working with online educational tools. Lastly, June Kaminski reviews *Informatics and Nursing: Opportunities and Challenges* by Jeanne Sewell and Linda Thede. This book defines, documents, and discusses nursing and informatics within the context of information management, computer competency, and information literacy.

Nursing informatics research, as exemplified by the articles published in this issue of the Journal, is needed in order to move health care into the future. We have highlighted some of the advances being made in nursing informatics in Canada and internationally. As illustrated by the range of topics explored and the range of approaches taken by the work reported herein, we need to adopt an open perspective on both the type of problems that can be successfully addressed and the type of approaches that can be taken to deepen our understanding and resolve complex nursing problems through the use of technology.

Elizabeth M. Borycki, RN, PhD, is Associate Professor, School of Health Information Science, University of Victoria, British Columbia, Canada. Noreen Cavan Frisch, RN, PhD, FAAN, is Professor and Director, School of Nursing, University of Victoria.