Moving to a Culture of Nurse as Knowledge Worker and a New Way of Knowing in Nursing

Lynn M. NAGLE[a] and Linda YETMAN[b]

[a]*L.S. Bloomberg, Faculty of Nursing, University of Toronto*
[b]*Healthtech Consultants, Toronto, Ontario CANADA*

Abstract. In this paper, the authors speculate on the future of nursing practice as it will be informed by emerging technologies for the management of clinical information and knowledge and the generation of new understandings. It is postulated that without a concomitant effort to transform nursing practice, the fulsome benefits of electronic health records and associated tools will not be realized for nurses, other clinicians and patients. The path to creating a nursing practice culture of integrated knowledge management necessitates new thinking about clinical care delivery and an expansion of the ways of knowing in nursing. For the purpose of this paper, clinical practice transformation is defined as: *moving beyond the form and function of nursing practice as we know it today by boldly advancing the redesign of clinical processes and being open to emerging transformative possibilities within society and healthcare through the use of technology.*

Keywords. Knowledge management, clinical wisdom, practice transformation, nursing knowledge

Introduction

The increasingly pervasive use of information and communication technologies (ICTs), particularly electronic health record (EHR) solutions, is compelling nurse leaders to consider: a) possibilities for transforming nursing practice, b) new ways to manage and deliver knowledge and evidence to the point of care, and c) the generation of new understandings about nurses' contributions to clinical outcomes. What does the transformation of clinical practice look like and how should it be defined? In this paper, the authors will speculate on the necessity of practice transformation with the integration of ICTs, the prospect of technologies yet to be developed, and the potential benefits to be gained by nurses and patients alike.

1. Information and Communication Technology in Nursing Practice

1.1 Current State

World-wide, ICTs are being used to support the processes of clinical care delivery. Nonetheless, the successful design and deployment of solutions that effectively support the processes associated with nursing practice and clinical decision-making have not been widely publicized. Most notable is the dearth of published literature describing the transformation of nursing practice relative to the implementation of EHR solutions.

1.1.1 Fundamental Opportunities for Redesign

The use of EHRs to support nursing documentation, monitor clinical outcomes, and enhance clinical decision-making is just beginning to emerge as a primary focus in many clinical settings. With the introduction of the functions associated

with computerized provider order entry (CPOE) and online clinical documentation, nurses are facing an unprecedented challenge to adopt and integrate ICTs into clinical care environments. Concomitant to determining how to effectively introduce tools to enhance nursing practice, there is a need to examine how practice can be transformed with the integration of ICTs. EHRs in particular, present an opportunity for organizations to adopt clinical data standards and streamline clinical documentation. It would be interesting to know how many have successfully resisted the temptation to simply replicate existing manual documentation tools within the EHR. Sadly, it is probable that many organizations implementing EHRs have missed the opportunity to rethink documentation tools and the processes associated with information and knowledge management in clinical settings. In so doing, they will have denied nurses and patients the optimal benefits of using an EHR.

1.1.2 Shifting Culture

Integrating knowledge resources and access to evidence through clinical ICTs requires careful consideration and nurses themselves can inform how this might be most effectively delivered. Changing the culture of nursing practice such that the integration and use of knowledge and evidence becomes second nature, must begin in the education of nurses. Nurses in practice and students of nursing require direction and support in the use of knowledge and available evidence to enhance clinical decisions. A collective cultural shift in thinking about nurses as knowledge workers will accelerate our capacity to contemplate the generation of new knowledge and wisdom as by-products of EHR utilization [1].

1.1.3 Practice Transformation

The transformation of clinical care processes is inherently the most difficult facet of EHR implementations, but potentially offers the most promise for achieving effective and efficient care delivery. Simply introducing EHR functions without rethinking the processes of care often leads to potentially dangerous work arounds, devised by clinicians to compensate for the lack of flow and fit with how they deliver care. The lack of clinical process redesign is cited frequently as a key point of failure in achieving success in EHR implementations [2,3,4]. It is our premise that without a redesign of care delivery processes, attaining a culture of integrated knowledge management in practice settings will remain elusive and the fulsome benefits of an EHR will be unrealized. What is the transformation of nursing practice? In our view, nursing practice transformation is:

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In general, the current state of EHR use by nurses does not commonly reflect a shift in thinking about being knowledge workers or a recognition that a degree of reliance on technology to augment their ways of knowing (as described by Carper three decades ago) is necessary [5]. The ways of knowing - personal, esthetic, empirical, and ethical – in nursing are being expanded to include a new dimension

which we suggest might be described as *technological knowing*. Current and emerging technologies can and will provide important informational and supportive adjuncts to nursing care delivery. However, in order to realize the effective use of these tools, organizations need to examine the fit with nurses work and identify opportunities to modify the traditional mechanics of work and information flow.

1.2 Future State

With the advent of clinical computing, knowledge generation is accelerating at an unprecedented rate. Kilbridge and Classen suggest that "only through the use of EHRs will it be possible to track courses of illnesses and the beneficial and adverse effects of therapy at the individual patient and general population levels" [6, p. 400]. Access to aggregate clinical information, particularly outcomes of nursing practice, will provide the profession with clinical evidence and support for clinical decision-making heretofore unknown. Using decision support tools and taking advantage of technological capabilities that exceed our human capacity are becoming essential to safe, quality care delivery.

2. Benefits to Be Realized

A complete realization of the benefits of ICTs to generate clinical knowledge is yet unknown. However, the adoption of such technologies as enablers to practice is becoming recognized as a necessity in clinical settings [7,8] and supporting health care practitioners to spend more time with patients and improve the overall quality of care [9]. Leveraging emerging technologies to guide knowledge generation and knowledge management will impact clinical outcomes for patients and lead to practice transformation in nursing.

2.1 Clinical Outcomes for Patients

Using technology to manage clinical information provides nurses with immediate value in the identification of clinical outcomes. Technology can support the measurement of outcomes to inform practice and provide knowledge guiding the development of evidence for the delivery of best practice. Information can be trended to support understandings of disease specific interventions, prevention, and outcomes on a population and geographic basis. For example, if diabetes nurse educators were contributing client information to a regional data base, aggregate information could provide insights into why patients from one area might have more complex clinical problems than patients from another area. Hence nurses with access to input and retrieve clinical information have the ability to affect not only the clinical outcomes of patients in their own practice but to provide information that may impact care outcomes for many patients. Information technology has the capacity to bring to light new discoveries and inform policy makers with "grass root" information about clinical care – information that can support appropriate health care program planning.

2.2 *Practice Outcomes for Nurses*

While there is much value to be derived from ICTs by nurses in practice settings, there are two potential consequences to be considered and studied further: 1) clinical outcome changes related to the provision of clinical decision support and 2) effects on the therapeutic relationship between nurse and patient. Nurses face incredible pressures in patient care delivery in today's chaotic clinical settings. Creating systems that maximize support at the point of care could help nurses cope with these pressures in countless ways. Access to current and relevant clinical data will permit nurses to provide information to patients (and families) in a timely manner, guide practice, and promote patient safety. Information may include diagnostic test results or information related to patient/family specific clinical concerns. Not only can the provision of this information help patients make more informed decisions about their care and promote true partnerships in care, it can also help to decrease the anxiety in patients who often tread alone in the foreign territory of our health care system. Nurses providing information in a timely manner allows patients to weigh options/choices for care and share their decisions with care givers. This notion of dialogue and reciprocity in the context of information technology cannot be underestimated as a key benefit for nursing practice and the recipients of care.

2.3 Practice Transformation

Nurse leaders have an opportunity to guide how technologies will be adopted, how clinical information will be managed and generated into knowledge and how that knowledge will be subsequently transformed into clinical wisdom – wisdom that can be accessed by any nurse, any where. Practice transformation entails the adoption of new processes to improve clinical workflow and patient outcomes [10]. Understanding that the implementation of information technologies is costly, resource intensive and complex, and leads one to contemplate whether we can draw upon some fundamental nursing practices to guide the transformation process. Middaugh [11] discusses the concept of "foreseeability" in relation to keeping patients safe. She draws on the "5 Rights of Medication Delivery"(right medication, right dose, right patient, right time, and right route) and suggests that "anticipation is the key to foreseeability", [p. 277]. Nurse leaders have an opportunity to involve nurses at all levels to guide the *foreseeability* of required information technologies and identify what is needed in a given clinical setting in order for transformation to occur. Further, an extrapolation of the 5 rights of medication delivery is the identification of the 5 rights of clinical information management. These rights imply that there is a requisite practice transformation needed to achieve the desired benefits including the following elements: a) right information technology; b) right clinical information; c) right time and date of clinical information entry; d) right nurse entering clinical information and e) right outcome measurement attached to clinical information entry. Nurses manage most patient information and co-ordinate the interdisciplinary care within the health care team [12]. Consequently, nurses are in a pivotal position to guide the management of clinical information that will achieve practice transformation with net benefits of improved quality and safety of care, partnerships with patients and families, and efficient care coordination.

3. Will the Work of Nurses Change?

Nursing practice requires intricate cognitive, behavioural and emotional processes in the context of a relationship between patients, their families and nurses. Nurses integrate and use knowledge from a variety of sources to make clinical judgments that generate new clinical knowledge which is subsequently be applied to particular patients as required. It is this clinical wisdom that is essential for the practice of nursing.

Nursing has weathered many changes since its inception as a practice discipline. Its capacity to stand fast is related to many factors, however, the most compelling impetus is related to a common purpose – the care of patients and their families. No matter the specialty – the patient and family needs remain the raişon d'être of nursing practice. With the introduction of information technology nursing will continue to maintain this raişon d'être and hold steady through the practice transformation that will most certainly and of necessity transpire. The challenges and changes in the health care system are forcing policy makers to rethink the "coordination and continuity" of care. The role of nurses will definitely change in order to respond to but also contribute to the development of the knowledge required for those changes. The introduction of information technologies combined with a more sophisticated management of clinical information will force changes in the health care system – changes for which nurses must be ready. There is no question that we are in the midst of a health "information era" and it has definitively penetrated the practice of nursing. The question at hand is whether the practice of nursing will effectively adapt to this new world order and continue to meet the needs of patients and their families.

Conclusion

All nurses, practitioners, researchers, educators, and administrators must consider the possibilities of practice transformation in the face of ICTs. Participating in the work of integrating these tools will serve nurses and citizens equally well in the long term – acknowledging all nurses as purveyors of information and managers of knowledge is the first step to realizing a culture which transcends that which we know today.

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Email address for correspondence: l.nagle@utoronto.ca