

The Value of the Chief Nursing Informatics Officer role for Healthcare Organizations in Canada

Introduction

With the increased focus on optimizing information technology use in healthcare settings, the physician role of Chief Medical Informatics Officer has been widely accepted across Canada; however, there has been less recognition of the potential value of a complementary Chief Nursing Informatics Officer (CNIO) role in Canadian healthcare organizations. The CNIO role was first recognized in 1992 by the American Nursing Association, years after the term “informatics” was applied to the transformation of clinical information into knowledgeⁱ. A 2016 US survey reported on a growing presence of the CNIO role in acute care settingsⁱⁱ and a recent study by HIMSS reported that 41% of organizations surveyed had a CNIO/Senior Nursing Informatics Officerⁱⁱⁱ in their organization. In 2019 the Australian College of Nursing acknowledged the growing recognition of the value of the CNIO role and encouraged Australian hospitals to create this position^{iv}. In Canada, the Canadian Nursing Informatics Association has and continues to advocate for the addition of this role to the senior executive team of healthcare organizations.

Why the Focus on CNIOs and Why Now?

In Canada, there are currently more than 430,000 nurses practicing across all sectors of the healthcare system^v. Nurses are the predominant users of electronic health records given the very nature of their work (e.g., 24/7 care, longitudinal care, numerous settings). With the introduction of clinical information systems (CIS), nurses have experienced a transformation in how they document, collect data, and communicate and use clinical information to drive decision-making to support safe, quality care. Practice changes will continue to evolve as EHRs enabled by artificial intelligence gather data from across the healthcare system; mining, automating, and predicting practices to improve the clinical decision-making of nurses and other health providers. It is presently unknown as to whether the nursing workforce is adequately prepared to respond to these transformative changes. Furthermore, the Canadian nursing workforce has a generational distribution such that many organizations today are seeing a critical mass of generational nurses who are fully digitally acclimatized in their upbringing. As such this changing workforce has new expectations for the utility of technology in practice.

Clinical information systems and clinical technologies such as workload measurement systems, scheduling and monitoring systems are ubiquitous in healthcare and while they have changed the delivery of healthcare, they have also fallen short of clinician expectations. Increased workloads, documentation burden and inefficient workflows have resulted from information systems designed without the benefit of nursing input. Given nurses’ significant roles within and across healthcare it is vital that clinical information systems support their work.

One of the unintended consequences of EHR use has been a growing recognition of their contribution to documentation burden, which is posited to be a contributor to burnout among healthcare providers^{vi}. Prior to the COVID-19 pandemic, there was considerable attention paid to addressing the burden of EHR use among nurses as a potential way of addressing some of the causes of burnout^{vii}. Unfortunately, burnout has increased significantly since the start of the pandemic given several workplace and personal contributing factors, with nurses being hit the hardest amongst healthcare providers^{viii}. CNIOs play can

significant role in addressing organizational and system level workplace contributors to burnout for nurses and other healthcare providers related to documentation and digital health. The current health human resource crisis in nursing demands the effective and efficient implementation and use of EHRs to reduce clutter and ensure that information is entered in the most efficient way possible, and that knowledge is readily available to nurses in a format conducive to them using this information to inform patient care decisions. If this is not done, then there is a risk to patient safety as well as adding to the already burdensome workload of nurses.

The Canadian Institute for Health Information recognizes the value of standardizing data pertaining to health outcomes to allow information to be compared across practice settings^{ix}. In addition, the Canadian Nurses Association and the Canadian Nursing Informatics Association have long advocated for the nursing profession to adopt standardized assessment methodologies and documentation tools, such as C-HOBIC for nursing^x. As one of the key professions that practice in all sectors of healthcare it is vital that information that adds value to nursing practice is embedded in CIS and that this information is standardized. Nursing leadership with both clinical and informatics expertise is essential to making this a reality in healthcare organizations to guarantee that investments in CIS add value to clinicians, patients and their families and the healthcare system.

The Value of CNIOs to Organizations

Englehart and Caspers argue for the need for nurse leaders at the executive level to advance efforts to turn data into meaningful information for clinical and operational decision-making^{xi}. CIS implementations are not a project in and of themselves but rather support and drive the strategic directions of organizations. CNIOs can support organizations by making connections between teams, understanding the change management required for CIS initiatives and linking these initiatives to the organization's strategy at every level. Having a CNIO at the senior leadership tables allows for this linkage to be made readily and communicated back to the technical teams – linking their work to the clinical impact and allowing for the clinical teams to understand how EHRs can drive patient quality and safety. Additionally, understanding the potential of emerging big data technologies and augmented reality technologies is essential to achieve the quadruple aims of better care, lower cost, greater patient and caregiver satisfaction and improved worklife of providers^{xii}. Nursing leadership at the executive level will support health service organizations to realize the intended benefits of leveraging technology where seamless integration of CISs from bedside to boardroom are achieved through real-time utilization of clinical data enabling safe, quality care and improved clinical outcomes^{xiii}.

CNIOs can provide a nursing voice on strategic decisions and directions as they relate to the use of information technology that supports and optimizes clinical services delivery. CNIOs bring clinical expertise in conjunction with their knowledge of information and communication systems and offer organizations the leadership needed to drive successful implementations of new technologies and approaches to care delivery (e.g., virtual care). CNIOs can provide expert leadership by facilitating clinician input to the design of systems, the mapping of workflows, and optimizing clinician adoption and use of EHRs, the latter being an area often overlooked in healthcare. Ensuring that systems are designed to efficiently collect and report on nursing-specific data is another important area of CNIO influence. In sum, the addition of a CNIO to the senior team can support the appropriate representation of nursing practice and patient care requirements in EHRs^{xiv}.

A recent survey of nurses in Canada found that nurses believe the use of EHRs/clinical information systems has increased their access to complete patient information. They reported an increase in continuity of patient care (57%), productivity (56%) and quality of patient care (53%)^{xv}. There is however significant room for improvement, and it is important that the substantial investments that are being made in clinical information systems in healthcare deliver in these areas.

Recommendations for Canada

- Socialize the idea of the CNIO role among nursing and non-nursing groups, e.g.: Canadian Association of Schools of Nursing, Canadian College of Health Leaders, healthcare organizations, academic organizations, CMIO/CIO tables, etc.
- Connect with Canada Health Infoway to discuss the inclusion of question(s) regarding CNIOs in the next *National Survey of Canadian Nurses: Use of Digital Health Technology in Practice*.
- Work with the Canadian Association of Nursing and the Canadian Nursing Informatics Association to develop a strategy for ‘growing our own’ and mentoring new CNIOs.

Sample CNIO Job Characteristics/Responsibilities

As a member of the Executive Leadership team, CNIOs serve as a liaison with clinical operations, clinical practice, and information management/technology services to guide key priorities in support of the strategic plan, across the designated stakeholder grouping – e.g., hospital, health care organization, regional health care system etc.

The CNIO will typically:

- Act as a key change leader in the identification, development, planning, implementation, and evaluation of informatics strategies to support quality care and professional practice.
- Develop clinical informatics strategies that influence the procurement, implementation and optimization of clinical information systems.
- Provide critical analysis and optimization in the use of clinical information systems and associated processes that result in improved efficiencies and quality patient care.
- Lead the integration of education and research into practice, guiding evidence-based decisions while advocating for technologies that contribute to positive patient outcomes.
- Establish external partnerships to evaluate and leverage best solutions to knowledgeably inform the informatics strategies.
- Establish and oversee shared governance structures to ensure broad stakeholder representation in setting priorities for system upgrades and enhancements; develop and maintain principles for triaging change requests.
- Support measurement-based outcomes and data driven care, quality improvement and research initiatives.
- Advocate for standardized data collection and streamlining intra-professional documentation to reduce the clinical burden associated with electronic health records and other clinical information systems.

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- ⁱⁱ Witt/Kieffer (2016). CNIO 2.0: What's next for Nursing IT Leaders. A Witt/Kieffer Survey Report, September 2016.
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- ^v Canadian Institute of Health Information (2019). Available at: <https://www.cihi.ca/en/nursing-in-canada-2019>
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- ^x Canadian Nurses Association Nursing Informatics Position Statement (2017) Available at: https://hl-prod-ca-oc-download.s3-ca-central-1.amazonaws.com/CNA/2f975e7e-4a40-45ca-863c-5ebf0a138d5e/UploadedImages/documents/Nursing_informatics_joint_position_statement.pdf
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