



EU*US eHealth Work Project H2020-SC1-HCO13-2016

Mapping Skills and Competencies; Providing Access to Knowledge, Tools and Platforms; and Strengthening, Disseminating and Exploiting Success Outcomes for a Skilled Transatlantic eHealth Workforce

Case Study: Advancing Informatics Competencies Amongst Canadian Nurses

Canadian Association of Schools of Nursing

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TITLE Advancing Informatics Competencies Amongst Canadian Nurses

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ORGANIZATION

The Canadian Association of Schools of Nursing (CASN) is the national voice for nursing education, research, and scholarship and represents baccalaureate and graduate nursing programs in Canada [1].

The objective of **CASN** is:

To lead nursing education and nursing scholarship in the interest of healthier Canadians.

CASN:

- Speaks for Canadian nursing education and scholarship
- Establishes and promotes national standards of excellence for nursing education
- Promotes the advancement of nursing knowledge
- Facilitates the integration of theory, research and practice
- Contributes to public policy
- Provides a national forum for issues in nursing education and research
- Oversees the accreditation of schools of nursing and provides support for cross-country networking of nursing school leaders and faculty in both education and research

BACKGROUND

Similar to most developed countries, Canada's health sector has been focused on the adoption and use of electronic health records (EHRs) in all settings. Although nursing students and graduates are being exposed to the use of information and communication technologies (ICT) in practice settings, nursing schools have only recently begun to integrate informatics/eHealth content into undergraduate nursing curricula. While some nursing schools have incorporated informatics content into their basic curricula, others offer elective courses at the graduate and undergraduate levels, still others provide little to no content in any of their nursing programs. Additionally, there is a limited number of nurse educators who have the requisite knowledge, skills and confidence to address students' learning needs associated with informatics. At this time, there are approximately 9,000 full and part-time nursing faculty in Canada with less than 10% having nursing informatics (NI) experience and/or expertise.

STATUS/CURRENT DEVELOPMENTS

A study conducted in 2002 demonstrated the lack of nursing faculty expertise in informatics, limited curricular content and technological infrastructure to support education in ICT use and informatics concepts [2]. Efforts are currently underway to replicate this study in order to ascertain the impact of the initiatives reported in this case study. Additionally, discussions regarding the inclusion of informatics content in undergraduate nursing education and the creation of associated accreditation requirements are currently underway.

ACTIVITIES/MEASURES

See above regarding the pending national school of nursing study. Faculty peer network initiatives (described below) have been evaluated by faculty participating in each activity within each phase.

CHANGES

Several initiatives have been funded by Canada Health Infoway and delivered in partnership with CASN since 2011. ***Note:** Parallel initiatives were funded and supported for the Canadian schools of medicine and pharmacy.

The nursing initiatives were designed to achieve the following outcomes:

- Nursing faculty will have increased understanding of digital health and the future directions of nursing care in technology enabled environments;
- There will be a greater readiness among faculty in Canadian schools of nursing to integrate informatics content into undergraduate curricula; and,
- Nursing education programs in schools across Canada will include learning opportunities for students in relation to digital health.

These initiatives have been supported in three phases of work as described below.

PHASE ONE

Over the course of several months, through the efforts of NI experts and faculty from across Canada, entry-to-practice informatics competencies for registered nurses were developed. These competencies were published and widely disseminated in 2012 (Available at: <http://www.casn.ca/2014/12/nursing-informatics-entry-practice-competencies-registered-nurses-2/>) [3].

In conjunction with these competencies, a Faculty Toolkit was developed to support the integration of informatics content associated with the competencies into undergraduate curricula (Available at: <http://casn.ca/wp-content/uploads/2014/12/2013ENNursingInformaticsTeachingToolkit.pdf>).

PHASE TWO

Establishment of the Phase I Digital Health Faculty Peer Network was designed to engage nursing faculty in learning activities to develop their informatics expertise and capacity for integrating informatics content into undergraduate nursing curricula. This initiative included 12 nursing faculty peer leaders across four regions in Canada including 10 provinces. The reach of this network extended to include approximately 90 faculty from 49 schools of nursing across the country. The peer leaders engaged in a wide variety of activities within their local regions including: workshops, seminars, faculty meetings, webinars, and more than 130 hours of mentoring. Additionally, the peer leaders developed additional faculty resources including a whiteboard animation on the use of social media in practice for use with nursing students (Available at: <http://www.casn.ca/2016/03/whiteboard-animation-student-nurses-story-social-media-use/>) and a reference document for the inclusion of content related to Consumer Health Solutions into nursing curricula (Available at: <http://www.casn.ca/2016/04/consumer-health-solutions-resource/>).

PHASE THREE

In 2016-17, the Digital Health Faculty Peer Network continued their work with a focus on the delivery of three regional workshops and three national webinars directed at undergraduate nursing faculty. The workshops were conducted by the peer leaders and were attended by 20-35 nursing faculty from each

region and focused on entry-to-practice competencies, teaching and learning activities, and teaching resources. The foci of the webinars included the following topics:

- Digitized Clinical Documentation
- Empowering Patients in a Digitally Connected Health System – Implications for Nursing Education & Practice
- Social Media & Professionalism

In addition to these activities, the faculty peer leaders developed another whiteboard animation focused on the importance of clinical data standards for nursing (Available at:

<https://www.youtube.com/watch?v=vOhdlsm3j2Y&t=26s>)

RESULTS

As discussed previously, the impact of these initiatives will be further understood with the completion of a national survey of schools of nursing and nursing faculty.

The goals of the survey will be to:

- Assess the current state of informatics content integration into undergraduate nursing curricula in Canada
- Assess the current state of informatics competency among nursing faculty in Canadian schools of nursing

OUTLOOK/LESSONS LEARNT

Lessons learned to date include the following:

1. Nurse educators in schools of nursing are willing and eager to expand their understanding and competency to integrate informatics into undergraduate nursing education.
2. The creation of toolkits and other teaching/learning resources need to be supplemented with strategies that actively engage faculty (e.g., workshops) and provide opportunities to discuss their use.
3. Time and resources need to be provided to make any meaningful impact.
4. Consideration of sustainable strategies are important to continue the evolution and integration of informatics into core curricula.
5. There is still much work to be done to further integrate informatics teaching and learning activities into undergraduate nursing programs.

References

- [1] Canadian Association of Schools of Nursing (CASN), <http://www.casn.ca/about-casn/casnacesi-mission/>
- [2] Nagle, L.M. (2004). Assessing informatics in Canadian schools of nursing. Paper presented at the 11th World Congress on Medical Informatics, San Francisco, CA.
- [3] Nagle, L.M., Crosby, K., Frisch, N., Borycki, E., Donelle, L., Hannah, K., Harris, A., Jetté, S., & Shaben, T. (2014). Developing entry-to-practice competencies for registered nurses. Proceedings 12th International Congress on Nursing Informatics (NI2014), Taipei, Taiwan.

Case Study Checklists

Checklist of eHealth topics (competencies)	Apply? Yes/No	Describe how topic applies to your organization/case study
<i>Role of “Peopleware”:</i> human factors, awareness, satisfaction and acceptance of health IT, usability measurements, evaluation of health IT, communication, leadership, change management, ethics and IT and similar topics	Yes	<i>See relevant entry-to-practice competency indicators.</i>
<i>Role of inter-professional approaches:</i> inter-professional versus mono-professional training and learning activities. What subjects lend themselves to inter-professional vs. mono-professional classes, learning environments and similar topics	Yes	<i>As above.</i>
<i>Role of healthcare data sciences:</i> data and information acquisition including documentation, data quality, data, information and knowledge management, data analysis and statistics, clinical decision making instruments, reporting and similar topics	Yes	<i>As above</i>
<i>Fusion of medical technology & informatics:</i> software as a device, smart devices, automatic data acquisition via devices, risk and safety management	Yes	<i>As above</i>
<i>Role of process and workflow management:</i> clinical and administrative processes, information continuity and information logistics, management of processes, workflow management systems and similar topics	Yes	<i>Limited to the extent of understanding how technologies integrate with nursing practice. Much of this work is conducted by clinical informatics personnel as opposed to nurses.</i>
<i>Role of ethics, legal and data protection issues:</i> ethics and IT, legal requirements, data protection and information self-determination, data safety and similar topics	Yes	<i>As per entry-to-practice competencies.</i>
<i>Role of learning and teaching:</i> learning techniques (“learn how to learn”), learning and	Yes	<i>All applicable to working with nursing faculty.</i>

teaching styles (online, blended, face-to-face), learning management, information management for learning and teaching and similar topics		
<i>Role of management related topics in health informatics and IT:</i> principles of management, strategic management, stakeholder and change management, leadership, financial management, risk management, quality and safety management, resource planning and management and similar topics	Yes	<i>But largely focused on the aspects of risk management, quality & safety management, and change management for frontline staff.</i>
<i>Role of technology:</i> information and communication systems, telemedicine, telematics, assistive technologies, mHealth, life-cycle-management including systems development/engineering	Yes	<i>As per competencies.</i>
<i>Role of consumers and populations:</i> consumer health informatics, public health informatics	Yes	<i>As per competencies. Also note tools and webinar content provided by the Digital Health Faculty Peer Network.</i>
<i>Role of Research:</i> information management in research, data analytics	Yes	<i>More so for leadership development at the graduate level.</i>
<i>Role of interoperability:</i> systems integration, IT standards, terminologies and classifications	Yes	<i>As per competencies.</i>

Checklist of eHealth topics (gaps and deficiencies)

Teaching the teachers:

Yes – Digital Health Faculty Peer Leader initiatives as described.

Supporting participatory design and acceptance testing/research: Are there any educational activities to teach or practice participatory design? Are there any activities including research in user acceptance testing and satisfaction measurement?

NO

Integrating eHealth/health informatics into traditional curricula: Are there any activities to include eHealth/health informatics into traditional curricula of physicians, nurses and other health professionals with direct patient care?

Yes as previously described. The Digital Health faculty development efforts have also been a focus for schools of medicine and pharmacy and also funded by Canada Health Infoway.

Motivating clinicians and managers: Are there any incentives and opportunities for clinicians and healthcare managers to acquire and update digital eHealth/health informatics skills and knowledge?

NO

Engaging women: Are there any activities to attract female students in eHealth/health informatics or employ female health IT staff?

Not specifically.

Adjusting job descriptions and enable continuing education: Are there any activities to adjust job descriptions, e.g., for clinicians, that include health informatics competencies (also proper use of health IT/eHealth systems) and are there activities to support staff updating and upgrading their health IT related skills and knowledge? This topic is mainly related to provider organisation and also to IT vendors.

NO

Updating teaching and learning material: Are there any activities to ensure that the material is up-to-date and of high quality?

Not at this time.

Availability of courses including electronic courses: Are there any additional activities to improve the availability of courses such as implementation of new courses, new course formats that recognise previous experiences/training in particular for continuing education?

Not sure.

Informal caregivers: Are there any educational activities to teach health IT usage to informal caregivers, e.g. for assistive technologies?

Not that I am aware of at this time.

Shortage of health informatics specialists: Are there any programmes to attract health informatics specialists?

Yes, several certificates and graduate level programs.

eHealth Budget: Does your organization, area or region have a dedicated budget set aside for eHealth/health informatics training, education or workforce development initiatives?

The initiatives described in this case were funded by Canada Health Infoway, a national not-for-profit corporation. For more information go to: <https://www.infoway-inforoute.ca/en>

eHealth Specialty Areas: Does your organization address any of these speciality settings/areas of training or outreach for eHealth education or workforce development: ambulatory care, social medicine, geriatric/ageing medicine, rehabilitation?

Not that I am aware of at this time.