

Nursing Education and Informatics

A Panel Discussion:

Dr. Karen Furlong, Sherry Bowman, Maureen White, Hanqing Yang

Digital Health: Nursing Faculty Peer Network

Lynn Nagle, RN, PhD

Diane Duff, RN, PhD

Karen Furlong, RN, PhD

Nursing Informatics Conference
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Agenda

- Defining Digital Health and Nursing Informatics
- CASN and Digital Health Background & Objectives
 - Phase I
 - Phase II
- WIIFM

Digital Health

The use of information technology/electronic communication tools, services and processes to deliver health care services or to facilitate better health.

“Nursing Informatics science and practice integrates nursing, its information and knowledge and their management with information and communication technologies to promote the health of people, families and communities world wide.”

(IMIA-NI, 2009)

Phase I:

Embracing Digital Health

- In 2011 the Canadian Association of Schools of Nursing (CASN) initiated a project funded by Canada Health Infoway (Infoway) to generate a culture among nurse educators that embraces the need for digital health in nursing education.
- Focused on the development of:
 - Entry to Practice Informatics Competencies for Registered Nurses
 - Faculty Informatics Teaching Toolkit

Entry-Level Informatics Competencies for Registered Nurses

NURSING INFORMATICS

**ENTRY-TO-PRACTICE COMPETENCIES FOR
REGISTERED NURSES**

CASN
ACESI »

 **Canada Health
Infoway** **Inforoute
Santé
du Canada**

Uses information and communication technologies to support information synthesis in accordance with professional and regulatory standards in the delivery of patient/client care.



Competencies

Foundational Information and Communications Technologies (ICTs) Skills

- 1. Uses relevant information and knowledge to support the delivery of evidence-informed patient care.**
- 2. Uses ICTs in accordance with professional and regulatory standards and workplace policies.**
- 3. Uses information and communication technologies in the delivery of patient/client care.**

Uses relevant information and knowledge to support the delivery of evidence-informed patient care.

Key Concepts:

- Information Literacy
- Health Literacy
- Standardized Clinical Terminology
- Standardized Nursing Data
- Critical Appraisal

- Performs search and critical appraisal of on-line literature and resources (e.g., scholarly articles, websites, and other appropriate resources) to support clinical judgement, and evidence-informed decision making.
- Analyses, interprets, and documents pertinent nursing data and patient data using standardized nursing and other clinical terminologies (e.g., ICNP, C-HOBIC, and SNOMED-CT, etc.) to support clinical decision making and nursing practice improvements.
- Assists patients and their families to access, review and evaluate information they retrieve using ICTs (i.e., current, credible, and relevant) and with leveraging ICTs to manage their health (e.g., social media sites, smart phone applications, online support groups, etc.).
- Describes the processes of data gathering, recording and retrieval, in hybrid or homogenous health records (electronic or paper), and identifies informational risks, gaps, and inconsistencies across the healthcare system.
- Articulates the significance of information standards (i.e., messaging standards and standardized clinical terminologies) necessary for interoperable electronic health records across the healthcare system.
- Articulates the importance of standardized nursing data to reflect nursing practice, to advance nursing knowledge, and to contribute to the value and understanding of nursing.
- Critically evaluates data and information from a variety of sources (including experts, clinical applications, databases, practice guidelines, relevant websites, etc.) to inform the delivery of nursing care.

Uses ICTs in accordance with professional and regulatory standards and workplace policies.

Key Concepts:

- Protection of Health Information
- Ethical use of technology
- ICT policies and procedures
- Professional judgement and responsibilities
- Technology-induced Errors

- Complies with legal and regulatory requirements, ethical standards, and organizational policies and procedures (e.g., protection of health information, privacy, and security).
- Advocates for the use of current and innovative information and communication technologies that support the delivery of safe, quality care.
- Identifies and reports system process and functional issues (e.g., error messages, misdirections, device malfunctions, etc.) according to organizational policies and procedures.
- Maintains effective nursing practice and patient safety during any period of system unavailability by following organizational downtime and recovery policies and procedures.
- Demonstrates that professional judgement must prevail in the presence of technologies designed to support clinical assessments, interventions, and evaluation (e.g., monitoring devices, decision support tools, etc.).
- Recognizes the importance of nurses' involvement in the design, selection, implementation, and evaluation of applications and systems in health care.

Uses information and communication technologies in the delivery of patient/client care.

Key Concepts:

- Information and Communication Technologies (ICT) (e.g., EHR, EMR, CIS)
- Clinical Decision Support
- Consumer Health
- Interoperability

- Identifies and demonstrates appropriate use of a variety of information and communication technologies (e.g., point of care systems, EHR, EMR, capillary blood glucose, hemodynamic monitoring, telehomecare, fetal heart monitoring devices, etc.) to deliver safe nursing care to diverse populations in a variety of settings.
- Uses decision support tools (e.g., clinical alerts and reminders, critical pathways, web-based clinical practice guidelines, etc.) to assist clinical judgment and safe patient care.
- Uses ICTs in a manner that supports (i.e., does not interfere with) the nurse-patient relationship.
- Describes the various components of health information systems (e.g., results reporting, computerized provider order entry, clinical documentation, electronic Medication Administration Records, etc.).
- Describes the various types of electronic records used across the continuum of care (e.g., EHR, EMR, PHR, etc.) and their clinical and administrative uses.
- Describes the benefits of informatics to improve health systems, and the quality of interprofessional patient care.



NURSING INFORMATICS TEACHING TOOLKIT:
SUPPORTING THE INTEGRATION OF THE CASN
NURSING INFORMATICS COMPETENCIES INTO
NURSING CURRICULA

CASN
ACESI



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Nursing Informatics Teaching Toolkit

- The *Nursing Informatics Teaching Toolkit* serves two purposes.
 - First, it provides key concepts and key learnings summarizing information faculty should know to teach each competency
 - Second, it provides faculty with teaching tools that they can easily integrate into pre-existing lesson plans.
 - For each competency there is a case study, a PowerPoint presentation, and discussion/quiz questions that can be used in the classroom.

Phase II:

Faculty Peer Leader Network

- Infoway funding to establish and launch faculty peer network January 2015 – March 2016
- 10 Peer Leaders selected from national pool of faculty applicants;
 - Cross country representation
 - 2 Eastern
 - 1 Quebec
 - 4 Ontario
 - 3 Western

Faculty Peer Leader

Terms of Reference:

- Provide advice and guidance in the development of a consumer health solutions resource for nursing faculty;
- Provide advice and guidance in the development of the Nursing Faculty eHealth Peer Network;
- Mentor at least seven nursing faculty (minimum 4 schools of nursing) in the area of eHealth and consumer health solutions;
- Assist CASN in creating and disseminating the baseline and follow up eHealth survey to mentees;
- Complete the eHealth Peer Leader reporting requirements; and,
- Assist in the dissemination of the knowledge products and information about the eHealth Peer Network

Project Timelines & Deliverables

- May, 2015 Dr. Cynthia Baker (CASN) sent an email to Deans/Directors asking for faculty involvement in the Digital Health Peer Leaders Project
- May-June - Mentees will be identified and, with the assistance of mentors, will develop lesson plans.
- One-on-One Mentoring (2015 Fall & 2016 Winter Terms)
- Mentors across Canada are working together to share and develop pedagogic strategies and learning resources over the next year.
- Focus:
 - Mentorship
 - Consumer Health Solutions
 - Curriculum Integration

Mentee Resource Requirements



New & Existing Resources
Unique Learning Plans



Consumer Health Solutions

Exploring how the patient engagement in digital health solutions impacts nursing practice.



WIIFM???

- Curriculum development-mapping competencies
- New course development
- Professional development-Continued Competence Program (CRNNS)→ Learning plan/letter of participation from CASN
- Sharing learning needs and strategies with nursing faculty/educators across Canada
- Getting jiggy with the Zeitgeist!

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References:

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Canadian Association of Schools of Nursing. (2012). Nursing Informatics Teaching Toolkit.

Additional Resources:

Nurses and Mobile Technology

Available at: <http://rnao.ca/bpg/courses/nursing-and-mobile-technology>

eHealth for Every Nurse

Available at: <http://rnao.ca/bpg/courses/ehealth-every-nurse>

Next presentation- Sherry Bowman

Audit of CASN Informatics Competencies in a BScN Program

Sherry Bowman, RN, MN
Memorial University of Newfoundland
St. Francis Xavier University
October 20, 2015

Overview

- Background
- Rationale
- Objectives
- Literature Review
- Conceptual Framework
- Methods
- Findings
- Recommendations
- Conclusion

Background

- Integration of NI in nursing curricula and nursing practice is preferred and encouraged (CASN, 2012; Ornes & Gassert, 2007; Staggers et al., 2002)
- School of Nursing at STFX supported the need for the project to assess the integration of NI competencies in our curriculum

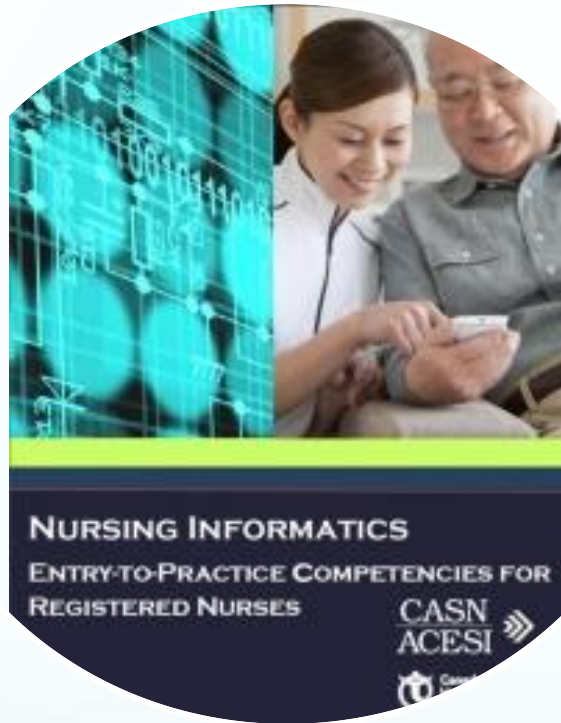
Rationale

- Challenge of incorporating NI competencies in already burgeoning curriculum, calls for systematic approach (Flood et al., 2010)
- Nursing students and beginning nurses informatics competencies less than desired (Flood et al.)
- Need strategic initiative to address the attainment of NI competencies in integrated and manageable manner

Objectives

1. Become familiar with the CASN NI competencies for beginning nurses and issues involved in integrating these in an undergraduate nursing curriculum;
2. Complete a pilot audit of five nursing courses at STFX to determine how the NI competencies are threaded through those courses, and identify any gaps;
3. Provide recommendations to address gaps in NI competencies in audited courses.

Literature Review



Overarching Competency

“Uses information and communication technologies to support information synthesis in accordance with professional and regulatory standards in the delivery of patient/client care”

(CASN, 2012, p. 5)

CASN NI entry-to-practice competencies

- The list of NI competencies that all nurses should possess when they graduate from an undergraduate nursing program in Canada;
- Foundational skills (expected on entry to undergraduate studies) and set of indicators; and
- 3 NI competencies with a set of indicators for each
 - Information and knowledge use;
 - Professional and regulatory accountability; and
 - Use of information and communication technologies for patient/client care.

Relevant definitions

- Competency – “a complex know-act based on combining and mobilizing internal resources (knowledge, skills, attitudes) and external resources to apply appropriately to specific types of situations” (CASN, 2012, p. 13)
- Nursing Informatics (NI) – “science and practice (which) integrates nursing, its information and knowledge, and their management, with information and communication technologies to promote the health of people, families and communities worldwide” (IMIA, 2009 In: CASN, 2012, p. 1)

Making the case for NI competencies for nurses

Key issues regarding NI competencies (Bond & Proctor, 2009)

- Nursing has evolved, the need for NI competencies for nurses is an international issue;
- Technology provides means to access evidence to support practice and critical thinking;
- Nurses are the largest group of providers in healthcare and successful implementation of electronic records means this group must be confident and competent in their use;
- Importance of NI in nursing practice – health care information intense, expanding use of technology in healthcare, patient safety, reduce errors, manage information, decision support; and
- Integration helps nurses become competent

Changing environment

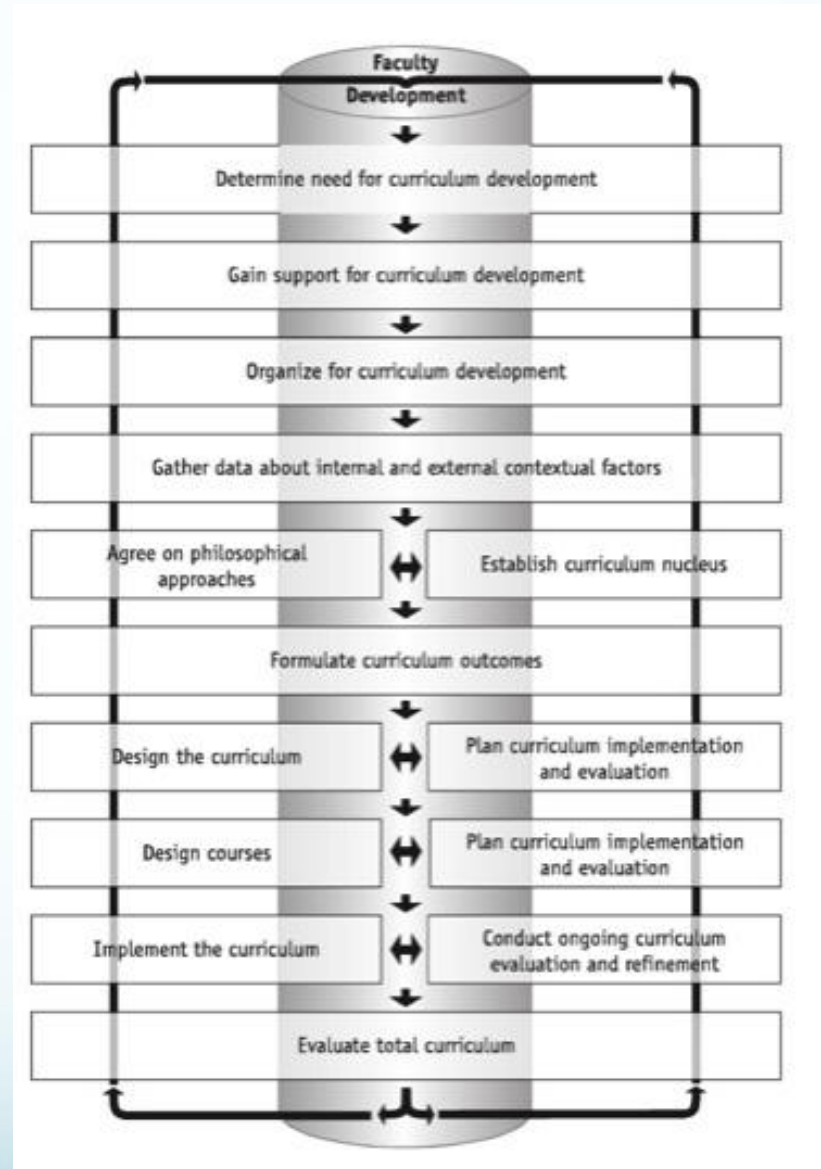
- Proliferation of technology in everyday life does not ensure graduating nurses have capacity to use health care specific information systems for the planning and evaluation of nursing care (Choi, 2012; Ornes & Gassert, 2007)
- Patients increasing reliance on ICT for accessing information and managing health, nursing guidance can support this;
- Employer expectations – nurses need fundamental NI skills to be successful in practice; and
- NI competencies are included in beginning competencies from licensing authorities including College of Registered Nurses of Nova Scotia (CRNNS, 2013)

Why start with audit of curriculum

- Need to evaluate if, and what NI competencies are present in current curricula (Ornes & Gassert)
- Can develop strategies to include required NI competencies in the program (Ornes & Gassert)

Context-relevant curriculum development

Early phase of curriculum development – audited NI competencies in five BScN courses; continuation of the process beyond the realms of this practicum



Method

- Consulted with Director & Curriculum Coordinator to assess need for audit of NI competencies;
- Review, select, and adapt audit tool;
- Piloted audit tool with one course (N305) & revised;
- Participant selection (faculty and nurse educators for five BScN courses); and
- Met with each participant and reviewed course syllabus for each of the 5 courses to complete audit.

Findings

Foundational Skills

- Device & application use – skills expected on entry to undergraduate nursing education

Knowledge and information management

Indicator	Content	Practice	Assess	Syllabus	Objective
Research data	✓✓✓ ✓✓	✓	✓✓✓ ✓	✓✓✓✓ ✓	✓✓✓✓ ✓
Analysis/ Terminology	✓	✓	✓✓		
Patient/family info & ICT	✓	✓			
Patient/family leverage ICT		✓			
Articulating data gathering	✓✓	✓	✓✓✓		

Knowledge and information management

	Content	Practice	Assess	Syllabus	Objective
Risks/gaps in info across HC system	✓✓✓ ✓	✓✓	✓✓ ✓		
info standards for interoperable records	✓	✓			
Importance of standard nursing data	✓✓✓	✓	✓	✓	
Critically evaluate data variety of sources	✓✓✓ ✓	✓✓	✓✓	✓✓✓ ✓	✓✓

Professional and Regulatory Accountability

Indicator	Content	Practice	Assess	Syllabus	Objective
Complies with standards	✓✓✓ ✓	✓✓	✓✓✓	✓	✓
Advocates use of ICT for safe care	✓✓✓ ✓✓	✓✓	✓✓	✓	✓
Identifies & reports system errors	✓	✓	✓		
Maintains safe practice in system down-time		✓	✓		
Professional judgment & ICT	✓✓✓ ✓	✓✓	✓		
Nurse involvement in System Process	✓	✓			

Information and Communication Technologies

Indicator	Content	Practice	Assess	Syllabus	Objective
Identifies & uses ICT for safe care	✓	✓✓			
Uses decision support tools	✓✓	✓✓			
Uses ICTs to support nurse/patient relationship	✓	✓	✓✓		
Describes components of HIS		✓			
Describes types of electronic records	✓				
Describes benefits of HIS for inter-professional care	✓✓✓ ✓	✓			

Strengths

- All competencies integrated to some degree over the 5 courses audited
- Search & critical appraisal of literature & resources taught & reinforced extensively
- Promote ICT to support evidence-based/informed practice

Gaps

- Articulating NI competencies in course content & objectives
- Nurses' role in IS selection, implementation and evaluation
- Reinforce & use of ICT in practice and the essential elements of electronic records and HIS

Recommendations

- Continue with audit of remaining courses in BScN curricula and provide more specific feedback on the extent of integration;
- Build on strengths by more clearly articulating and integrating NI concepts & competencies in course objectives, course work and clinical practice
- Address gaps through a strategic process involving interested members of the School of Nursing; and
- An individual or group to lead integration of NI competencies in curriculum

Acknowledgements

- Dr. Shirley Solberg, my MN Practicum Supervisor at MUN, for incredible support and guidance.
- Dr. Wendy Young, now retired from MUN whose guidance was instrumental in the early stages of this project
- Dr. Diane Duff, Director & Dr. Joanne Whitty Rogers, former Director, for supporting this project from its inception
- My colleagues, both Faculty and Nurse Educators at STFX who generously participated in this process

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Next presentation- Maureen White

Nursing informatics education: Perspectives from School of Nursing, Dalhousie University Halifax, NS

Atlantic Nursing Informatics Conference, Halifax, NS
Nursing Education Panel on October 20, 2015

Maureen White, MN RN

Assistant Professor, School of Nursing, Dalhousie University

Examples of BScN Nursing program's changing outcomes r/t Nursing Informatics

- **1996-1998:** *Communicate and collaborate with individuals and other members of the health care team to achieve health goals.*
- **1998-2005 :** *Be a nurse who demonstrates knowledge and application of various computer information and communication systems which promote collaboration, critical thinking and ethical reasoning (with clients).*
- **2005-present:** *Demonstrate application of nursing science through critical inquiry , commitment to life-long nursing and evidence-based practice + Practice competently ... in a variety of health care contexts and by responding to emerging trends, technology and concepts in health care*

NOTE: CNA position statement on nursing information and knowledge management since 2006 (Stresses ICTs are **INTEGRAL** to nursing practice)

Evolution of Health Informatics elective in Nursing programs 2001-present

- 2001 –*Nursing Informatics* elective (primarily for graduate students in nursing AND post-RN students) Partially online course.
- 2005 -2015 *Health informatics* elective available completely online for nursing graduate and undergraduate students plus small numbers of students from other health professions NURS 3310/NURS 5891.

Focus on information technology in health care practice, education and research...stressing critical thinking concerning the impact of information systems for health care (15-50 students per course)

Health informatics elective (Nursing): Main types of assignments

- Assessing the quality of health information on the www (structured critique)
- Use of a bibliographic database (eg. Pub Med, CINAHL) to systematically locate evidence r/t to clinical questions (aka *search like you mean it*)
- Groups build informative wikis to provide evidence about the science and practice of nursing informatics (eg. EHRs, decision-support, point of care and online education)
- Students facilitate online evidence and policy–based discussions on such issues as: privacy & security, standardized nursing data, PDAs, patient-controlled health records, and many more

Opportunities to build confidence re: CASN/ASESI entry to practice competencies in current programs

When written course outcomes for the 26 required nursing courses in the 4-year BScN program were assessed using the CASN/ASESI competencies ...

- During the years of study there are increasingly frequent opportunities for students to attain many of the indicators related to the THREE competencies:
- *(#1) Information & knowledge management:* Most indicators metHowever informatics theory and research findings and the importance of standardized nursing data are usually only discussed in the health informatics elective.
- *(#3) Information and communication technologies* Some opportunities re: practicing & skill development with occurred for all students but practices varied considerably between students depending on the technology in use at their clinical placements.

Opportunities to build confidence re: CASN/AESI entry to practice competencies in current 4-year program (con't)

- **(#2) *Professional and Regulatory Accountability:***

Attention to professional, legal, ethical standards across all 4 years BUT difficult for students to gain confidence re: dealing with system issues/problems, coping with system unavailability and experiencing/valuing how nurses can be involved in the design, selection, implementation and evaluation of different systems.

Dalhousie's Nursing Graduate of the future

(modified curriculum starting fall 2016, current curriculum also continues until spring 2019)

“The Bachelor of Science (Nursing) program prepares graduates with the academic foundation and evidence-informed professional competency to respond to complex health needs in an evolving health care system ...”

- The modified curriculum is a three-year, year-round program of 8 semesters (first 2 semesters are for foundational learning in non-nursing courses)
- A goal is for digital health knowledge and practice to be woven through all nursing courses with an emphasis on the *CASN/ACESI (2012) Nursing Informatics :Entry-to-practice competencies for registered nurses*. This will require extensive faculty consultation and collaboration with each other and with the agencies where practice-learning takes place. Some strategies from experiences with the Health Informatics elective will be incorporated (eg. learning resources, assignments, *CASN/ACESI toolkit*, etc)

Brochures re: revised Dalhousie nursing curriculum available on request

Challenges and opportunities for the future of nursing education for digital health

- Identifying progression and best practices to integrate nursing informatics content and promote practice opportunities within nursing and interprofessional curricula
- Faculty keeping pace with emerging Information and communication technologies- in particular digital health and consumer health solutions (per CASN/ACESI – Infoway peer network)
- Gaining access to simulation and lab learning and clinical experiences based on up-to-date materials and technology
- Evaluating changes in nursing education & practice related to digital health
- Opportunities for research in a rapidly expanding area of digital health in nursing education and practice

? Other challenges & opportunities?

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Retrieved from: <http://www.casn.ca/2015/03/digital-health-nursing-faculty-peer-network/>

Next Presentation: Hanqing Yang

New Graduate's Perspective

Hanqing Yang BScN, RN

Atlantic Nursing Informatics Conference,
Halifax, Nova Scotia

October 20, 2015

Agenda

- Brief Introduction ;
- Restate of CASN Nursing Informatics Entry-to-Practice Competencies for Registered Nurses;
- Examples of how each competency demonstrate in daily nursing practice;
- The Importance and Needs of Cultivating Nursing Research in Undergraduate Nursing Programs.

- Enrolled in the four-year basic program;
- Took Nursing Health Informatics during the third year of nursing program;
- Graduated in May, 2015;
- Worked on a orthopedics unit for three months;
- Currently working on the plastic/burn unit at the Halifax Infirmary.

Information and Knowledge Management

- Uses relevant information and knowledge to support the delivery of evidence-informed patient care.
- At the Nova Scotia Health Authority, nurses are able to access intranet for clinical references such as IV drug manual, medication compatibilities, etc.

Professional and Regulatory Accountability

- Uses Information and Communication Technologies in accordance with professional and regulatory standards and workplace policies.
- Nova Scotia Health Authority provides education on Personal Health Information Act and other legal documents. Facility wide education also allow consistency among d

Competency: Information and Communication Technologies

- Uses information and communication technologies in the delivery of patient/client care.
- Nurses are able to access Clinical Portal which includes blood work reports, diagnostic reports, and other reports. A great feature of the tool is that it allows nurses and other clinicians to see the trend of a particular lab value. This is very useful when working with patients with imbalanced electrolytes.

Nursing Research

- Education is needed in the following areas:
 - How to use common database such as CINAHL and PubMed;
 - How to add limitations to narrow search results using different databases;
 - Basic criteria for appraising a journal article;
 - How to apply evidence in to practice/use evidence to guide practice;