Integrating Informatics Competencies and Digital Health into Nursing Education

ARCASN Workshop
Moncton, N.B.
Thursday, June 8, 2017

Facilitators:
Lynn Nagle, PhD, RN, FAAN
Karen Furlong, PhD, RN
<table>
<thead>
<tr>
<th>TIME</th>
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<tbody>
<tr>
<td>1200 - 1230</td>
<td>LUNCH</td>
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<tr>
<td>1230 - 1245</td>
<td>Welcome and introductions</td>
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<tr>
<td></td>
<td>Self Assessment</td>
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<tr>
<td>1245 - 1315</td>
<td>Project overview</td>
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<tr>
<td></td>
<td>• Entry-to-practice informatics competencies</td>
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<tr>
<td></td>
<td>• Nursing informatics teaching toolkit</td>
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<td></td>
<td>• Consumer Health Solutions Resource</td>
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<tr>
<td>1315 - 1445</td>
<td>Case study activity</td>
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<td>• Whiteboard animation video with group discussion to explore the</td>
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<td></td>
<td>intersection of digital health and nursing care</td>
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<tr>
<td>1445 – 1500</td>
<td>BREAK</td>
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<tr>
<td>1500 - 1600</td>
<td>Case study activity (continued)</td>
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<td>1600 – 1650</td>
<td>Discussion &amp; networking</td>
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Workshop Objectives

Participants will...

• have a clear understanding of CASN’s digital health support tools for undergraduate nursing education;

• leave with a deeper understanding of where and how digital health intersects with nursing care; and,

• learn strategies for integrating this content into nursing programs.
Nursing Informatics is most commonly defined as the intersection of:

A. Computer, Nursing & Cognitive Science
B. Computer, Information & Nursing Science
C. Information, Nursing & Human Science
D. Nursing, Cognitive & Information Science
Nursing Informatics is primarily concerned with the:

A. Management and transformation of nursing data, information and knowledge to support decision-making in practice settings
B. Use of technology in to improve the quality of clinical care delivery
C. Design of technology solutions for safer care
D. Development and management of best practice guidelines to support clinical decision-making
Informatics in Nursing...

A. Has been evolving for more than 50 years.
B. Is a new area of nursing specialization.
C. Requires a background in computer science.
D. Is relevant to the practice of only a few nurses.
Nursing Informatics is...

...the "science and practice (that) integrates nursing, its information and knowledge, with management of information and communication technologies to promote the health of people, families, and communities worldwide."

(IMIA Special Interest Group on Nursing Informatics, 2009)
“Nursing informatics (NI) incorporates the science of nursing with information, technological, communication and analytical sciences to support the integration of data, information, knowledge, and wisdom into the provision of evidence-based nursing care”

(ANA, 2014)
Digital Health includes:

A. Robotic surgery
B. Mobile health apps
C. Remote healthcare delivery
D. Electronic health records
E. All of the above
Digital Health content in nursing curricula:

A. Is generally well developed
B. Needs further development
C. Should be delivered by practice settings
D. Is best developed as a practice specialty
A shift to consumers and digital health...

• Convergence of the digital and genomic revolutions with health and wellness, healthcare, living, and society (Hannah, 2016).

• Digital health is the empowerment of people to better track, manage, and improve their own and their family's health, live better, more productive lives, and improve society.

Digital Health encompasses...

- Pervasive information & communication technologies (ICT) (e.g., EHRs, EMRs)
- Virtualization of care (telehomecare, mHealth, remote monitoring)
- Wearables, apps, sensors...
- Robotics
- Big Data
- Genomics
In 2017, Electronic Health Records in Canada are typically:

A. Integrated and accessible within and across care settings
B. Only used by physicians
C. Limited in functional maturity
D. Capturing all health information once for use by many
Longitudinal and comprehensive

Electronic Health Record (EHR)

Controls the access and use of information

Health Information Access Layer (HIAL)

Access to clinical decisions supports

Point of Services Applications: Clinical Information Systems

EMR

EPR

Other

Clinical Documentation

Order Entry

Medication Administration

(Furlong, 2014)
Integrated access to detailed data

- Results and images
- Patient information
- Medical alerts
- Medication history
- Interactions
- Immunization

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<tr>
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<th>State</th>
<th>Status</th>
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<tr>
<td>Hypertension</td>
<td>1/1989</td>
<td>Ongoing</td>
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<tr>
<td>Diabetes</td>
<td>1/1996</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Coronary</td>
<td>02/2002</td>
<td>Ongoing</td>
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<tr>
<td>Artery Disease</td>
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<td></td>
</tr>
<tr>
<td>Fasting lipids</td>
<td>12/2005</td>
<td></td>
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<tr>
<td>Exercise stress test</td>
<td>1/2005</td>
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<tr>
<td>Coronary angiogram</td>
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<td></td>
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<td>Cellulitis</td>
<td>02/2005</td>
<td>Resolved</td>
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<td>Cholecystectomy</td>
<td>05/1981</td>
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<td>Cesarian section</td>
<td>1/1967</td>
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<tr>
<th>Encounter History</th>
<th>Facility</th>
<th>Speciality</th>
<th>Clinician</th>
<th>Reason</th>
<th>Type</th>
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<td>02/2006</td>
<td>GP</td>
<td>Cardiology</td>
<td>Diaz, E.</td>
<td>Hypertension</td>
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<td>Diabetes teaching</td>
<td>Outpatient</td>
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<td>Outpatient</td>
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<th>Immunizations</th>
<th>Type</th>
<th>Most Recent</th>
<th>Number Received</th>
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<tr>
<td>Influenza</td>
<td>11/2005</td>
<td>7</td>
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<tr>
<td>Pneumovax</td>
<td>03/2005</td>
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<tr>
<td>Twirnix</td>
<td>08/2002</td>
<td>3</td>
<td></td>
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<tr>
<td>Td</td>
<td>04/1996</td>
<td>1</td>
<td></td>
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<table>
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<tr>
<th>Diabetic Indexes</th>
<th>Type</th>
<th>Value</th>
<th>Informed/Uninformed</th>
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<tr>
<td>A1C</td>
<td>0.071</td>
<td>12/2005</td>
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<tr>
<td>LDL</td>
<td>2.41</td>
<td>12/2005</td>
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<tr>
<td>BP</td>
<td>135/75</td>
<td>02/2006</td>
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<tr>
<td>Urine</td>
<td>08/2005</td>
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<tr>
<td>MicroAlb</td>
<td>0.02</td>
<td>08/2005</td>
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<td>Eye Exam</td>
<td>05/2005</td>
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<tr>
<td>Hemoglobin (average)</td>
<td>7.4</td>
<td>01/2006</td>
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</table>
Canadian Association of Schools of Nursing

The national voice for nursing education, research, and scholarship and represents baccalaureate and graduate nursing programs in Canada.
DIGITAL HEALTH NURSING INFORMATICS TRAINING PROJECT

http://www.casn.ca/education/digital-healthnursing-informatics-casn-infoway-nurses-training-project/
Canada Health Infoway (Infoway)

A not-for-profit corporation funded to...

With their partners, Infoway helps accelerate the development, adoption and effective use of digital health solutions across Canada.
Project Background

• Since 2011, CASN and Canada Health Infoway have partnered on a series of projects to enable the integration of digital health into nursing curricula

• Developed a series of guideline documents and tools to support faculty through a Digital Health Nursing Faculty Peer Leader Network
The Digital Health Nursing Faculty Peer Network

- Launched in 2015
- Network created to support digital health inclusion in nursing curriculum
- Nursing faculty digital health champions engaged to lead a peer network

- 49 Nursing Schools
- 11 Provinces
I am ______________ familiar with the CASN Entry-to-Practice Informatics Competencies.

A. Very
B. Somewhat
C. Not at all
D. Unsure
The CASN Entry-to-Practice Informatics Competencies include which of the following:

A. Use of information and communication technologies
B. Information and knowledge management
C. Professional and regulatory accountabilities
D. All of the above
CASN Over-Arching Nursing Informatics Competency

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

CASN Entry-to-Practice Informatics Competencies

Foundational
– Uses hardware (PCs, tablets, mobiles, modems, blue-tooth, flashdrives)
– Uses applications (email, texting, podcasts, blogs, social networking, word processing, spreadsheets)

Competency 1: Information and Knowledge Management
– Uses relevant information and knowledge to support the delivery of evidence-informed patient care.

Competency 2: Professional and Regulatory Accountability
– Uses ICTs in accordance with professional and regulatory standards and workplace policies.

Competency 3: Information and Communication Technologies
– Uses information and communication technologies in the delivery of patient/client care.

SELF ASSESSMENT

Consider each of the abilities within the three entry to practice nursing informatics competencies as defined by CASN.
Information and Knowledge Management

- Lit reviews, scholarly articles, evidence-informed decision making
- Uses patient data to support decision making
- Assist patients and families to use ICTs to manage their health
- Understands EHRs
- Understands importance of using standardized nursing data to advance knowledge and articulate nursing
- Evaluates data from multiple sources to inform practice
Information and Knowledge Management

A. Novice

B. Intermediate

C. Advanced

D. Unsure
Professional and Regulatory Accountability

• Privacy and confidentiality
• Advocates for ICTs to deliver safe quality patient care
• IDs and reports system failures/problems
• Functions appropriately if system unavailable
• Uses professional judgment with ICTs
• Recognizes need for nurse input into systems
Professional and Regulatory Accountability

A. Novice
B. Intermediate
C. Advanced
D. Unsure
Information and Communication Technologies (ICT)

- Identifies and uses variety of ICTs (hemodynamic monitoring, EHRs, point of care devices)
- Uses decision support tools to assist judgment and deliver safe quality care
- Uses ICTs to support not interfere with nurse-patient relationships
Information and Communication Technologies (cont.)

- Describes variety of information systems (CPOE, clinical documentation, MARs)
- Knows difference between EHR, PHR, EMR
- Describes benefit of informatics to improve health systems and quality of interprofessional patient care
Information and Communication Technologies (ICTs)

A. Novice

B. Intermediate

C. Advanced

D. Unsure
Overall, as a nurse educator I rate my ability to integrate basic informatics content into the nursing curriculum as:

A. Novice

B. Intermediate

C. Advanced

D. Unsure
Consumer Health Solutions

Integration of digital and consumer health solutions (CHS) content in nursing education

• Increased faculty knowledge about CHS
• Readiness to integrate digital health/CHS into courses/curriculum
• Presence of learning opportunities

Consumer Health Solutions Resource

Detailed exploration of 6 bourgeoning areas of consumer health solutions and accompanying learning activities for curricular integration.
# Sample Learning Activity

## Section 2: Health-related Smartphone Applications

<table>
<thead>
<tr>
<th>Health-related Smartphone Applications</th>
<th>Activity Overview</th>
<th>Learning Activity Description</th>
<th>Learning Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activity Overview</strong></td>
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<td></td>
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<tr>
<td>Learning Environment(s)</td>
<td>How is the public using health-related smartphone applications?</td>
<td>Defines health-related smartphone applications.</td>
<td></td>
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<tr>
<td>Classroom</td>
<td>Provide students with the article <em>Health-e-Apps: A project to encourage effective use of mobile health applications</em> (Ho, 2013). Ask students to survey how many of their peers, nursing faculty, or even neighbours in their community use these tools. What motivates them to use these applications?</td>
<td>Describes how to engage clients in discussions about the benefits and risks of health-related smartphone applications.</td>
<td></td>
</tr>
<tr>
<td><strong>Target Students</strong></td>
<td>Do they share the information they track with their health care professional, why or why not? Students engage in class discussion about the benefits and challenges associated with the use of mobile health applications.</td>
<td>Describes ways to leverage health-related smartphone applications to promote health.</td>
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<tr>
<td><strong>Years 1 and 2</strong></td>
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<td><strong>Key Concepts</strong></td>
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<td>Health-related smartphone applications; Health promotion</td>
<td>Evaluation Suggestions</td>
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<td></td>
<td>Observation of group discussion</td>
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<td></td>
<td>Resources</td>
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In Clinical Practice…
the Promise…

• Increased patient empowerment & engagement
• Information continuity
• Continuity of care
• Improved quality & safety
• Personalized care
• Practice based evidence
The Peril...

• Technology becoming the focus - depersonalization
• Over-reliance on technology
• Negative impact on critical thinking and inquiry
• Oversimplification of clinical context in the face of clinical decision support tools
• Privacy breaches
In Nursing Education…
the Promise…

• Engaged learners
• Active learning
• Supportive of student to graduate transition
• Alignment with digitally enabled practice environments
The Peril...

- Loss of alignment with practice
- Lack of student engagement
- Curriculum irrelevance
- Faculty obsolescence
DISCUSSION TIME
COFFEE BREAK
WHITEBOARD ANIMATION

Digital Health Nursing Faculty Peer Leaders

NURSING CARE IN A DIGITAL WORLD

https://www.youtube.com/watch?v=5U7FZB-Z9Mk&feature=youtu.be
ADDITIONAL RESOURCES
Whiteboard Animation: Classroom Learning Activity

http://www.casn.ca/2016/03/whiteboard-animation-student-nurses-story-social-media-use/
WHITEBOARD ANIMATION

https://youtu.be/u_ZI2_JDxW0
Nursing informatics competencies are essential for nurses in all roles to function in complex, contemporary health-care environments. Moreover, there is a need to have nurses with a specialization in informatics to support decision-making relevant to the profession’s use of information and technology in digitally connected health environments.
Canadian Nursing Informatics Association

www.cnia.ca

CNA-CNIA Joint Position Statement on Nursing Informatics


Technology Informatics Guiding Educational Reform

http://www.thetigerinitiative.org
International Classification of Nursing Practice (ICNP)

http://www.icn.ch/what-we-do/international-classification-for-nursing-practice-icnpr/

Canadian Health Outcomes for Better Information and Care (C-HOBIC)

http://www.c-hobic.cna-aiic.ca/about/default_e.aspx
Position Statements & Guidelines on Social Media

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<tr>
<th>Organization</th>
<th>Description</th>
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<tr>
<td>College of Registered Nurses of British Columbia</td>
<td>(2012). Social Media: Professionalism, nurses and social media.</td>
<td><a href="https://www.crnbc.ca/Standards/Confidentiality/Pages/SocialMedia.aspx">https://www.crnbc.ca/Standards/Confidentiality/Pages/SocialMedia.aspx</a></td>
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Social Media

Thank You!

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