Nursing Informatics 101
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Why Nursing Informatics?

“If we cannot name it, we cannot control it, finance it, teach it, research it or put it into public policy.”

Source: Lang, N. 1993
Nursing Informatics Defined

Nursing informatics (NI) is the specialty that integrates nursing science with multiple information management and analytical sciences to identify, define, manage and communicate data, information, knowledge, and wisdom in nursing practice. NI supports nurses, consumers, patients, the interprofessional healthcare team, and other stakeholders in their decision-making in all roles and settings to achieve desired outcomes. This support is accomplished through the use of information structures, information processes, and information technology.

Who are Informatics Nurses?

• Expert nursing clinicians in utilizing the nursing process
  • Expert analytical & critical thinking skills
  • Understand patient care delivery workflow & integration points for automated documentation
• Clinicians with extensive clinical practice
  • Experienced in utilizing and implementing the nursing process
• Have additional education & experience related to technology and information systems
  • Are excellent project managers because of the similarity between the project management process & the nursing process
  • May be board certified in Nursing Informatics by ANCC
Nursing Informatics is Nursing!

• NI is was recognized as a specialty by the ANA in 1992
  • 1st Scope and Standards of Nursing Informatics Practice published
• Meets Panniers and Gassert’s (1996) attributes of a specialty in nursing
  • A differentiated practice
  • A defined research program
  • Organizational representation
  • Educational programs
  • A credentialing mechanism
Nursing Practice

Nursing Process is the cornerstone of Professional Nursing Practice

- Defines the “What” and “How” of professional practice
- The steps of the process are measurable
- The process steps can also be used by other clinical disciplines
Nursing Process

Well-documented information provides:

• What care has been provided and what is outstanding

• Outcomes of care provided and responses to the plan of care

• Current patient status & assessments

• Support decisions based on assessments to drive new plans of care
Automation of Documentation

• Why automate documentation – not only for nursing but for all of patient care?

• Up-to-date, accurate information of each step of the Nursing Process is the power behind safe, high quality patient-centered care!
Successful Automation

Successful implementation of health IT requires:

• Well designed systems that support the Nursing Process within the culture of an organization and/or specific care providers

• Acceptance & integration of information systems into the regular workflow of nursing process & patient care
How do Informatics Nurses Impact the Nursing Process?

Enable the professional nurse to be the “Coordinator” of each patient’s care

- Communicate & coordinate care with ALL other clinical disciplines
- Coordinate discharge planning, education & teaching, transitions of care
- Manage ALL information related to the nursing process and patient care delivery

Evaluation
- STANDARDIZED
- DOCUMENTATION
- PROCESS RE-ENGINEERING
- INFORMATION MANAGEMENT
- RESEARCH AND EVIDENCE COLLECTION

Assessment

Implementation

Planning
How do Informatics Nurses Impact the Nursing Process?

Because information management is integrated into nursing practice, there are now additional steps in the nursing process.

- **Assessment**
- **Implementation**
- **Evaluation**
- **Planning**

- STANDARDIZED
- DOCUMENTATION
- PROCESS RE-ENGINEERING
- INFORMATION MANAGEMENT
- RESEARCH AND EVIDENCE COLLECTION
How do Informatics Nurses Impact the Nursing Process?

• Standardized Documentation
  • The collection tool for information management

• Information Management
  • Key role for Nursing Informatics
  • Key to research and evidence collection

• Process Re-engineering
  • Key to successful implementation

• Research and Evidence Collection
  • Key to repeatable, standardized care and improved outcomes
The Value of Nurse Informaticists

- Nurse Informaticists are bilingual
- Support nursing work processes using technology
- Re-engineer clinical workflow & facilitate change management

- Acute care – all specialties
- Ambulatory care
- Redesign work flows
- Outpatient settings

- Home health
- Software development
- Long-term care
- Telehealth
The Value of Nurse Informaticists

• Analyze clinical and financial data
• Promote and facilitate access to resources and references
• Provide nursing content to standardized languages
• Improve relationships between providers and recipients of health care
• Enable cost savings and productivity goals including key roles in requirements for:
  – Population health
  – Engaging patients and families
  – Increasing quality and decreasing variations in care
  – Enhancing Care Coordination
  – Meaningful Use / Affordable Care Act
The Benefits of Nurse Informaticists

• Nurse Informaticists promote and facilitate access to resources and references
• Support for their mission to deliver high quality, evidence-based care
• Support for better service by facilitating true interdisciplinary care
• Improvement in key relationships with providers & care recipients
• Enable cost savings and productivity goals
• Facilitate change management
Functional Areas of Nurse Informatics

- Administration, Leadership & Management
- System Analysis and Design
- Compliance and Integrity Management
- Consultation
- Coordination, Facilitation and Integration
- Development of Systems, Products and Resources
- Education and Professional Development
- Genetics and Genomics
- Information Management and Operational Architecture
- Policy Development and Advocacy
- Quality and Performance Improvement
- Research and Evaluation
- Safety, Security and Environmental Health
- Integrated Functional Area Example: Telehealth and Informatics
Nursing Informatics: Scope and Standards of Practice, Second Edition

• Covers the full scope of Nursing Informatics
• Outlines the competency level of nursing practice and professional performance expected for all informatics nurses and nurse specialists
• Details nursing informatics competencies needed by any RN
• Reflects the impact of informatics in any health care practice environment
• HIMSS Bookstore - http://marketplace.himss.org/Store/Product-Detail?productId=544956773
Standards of Nursing Informatics Practice

• Standard 1 – Assessment
• Standard 2 – Diagnosis, Problem and Issues Identification
• Standard 3 – Outcomes Identification
• Standard 4 – Planning
• Standard 5 – Implementation
• Standard 5A – Coordination of Activities
• Standard 5B – Health Teaching and Health Promotion
• Standard 5C - Consultation
Standards of Nursing Informatics Practice

• Standard 6 – Evaluation
• Standard 7 – Ethics
• Standard 8 – Education
• Standard 9 – Evidence-Based Practice and Research
• Standard 10 – Quality of Practice
Standards of Nursing Informatics Practice

- Standard 11 – Communication
- Standard 12 – Leadership
- Standard 13 – Collaboration
- Standard 14 – Professional Practice Evaluation
- Standard 15 – Resource Utilization
- Standard 16 – Environmental Health
Nursing Informatics Certifications

American Nurses Association Credentialing Center Board Certification in Nursing Informatics

http://www.nursecredentialing.org/InformaticsNursing

HIMSS – CPHIMS (Certified Professional in Healthcare Information and Management Systems)

http://www.himss.org/health-it-certification/cphims
Data from HIMSS Industry Surveys
26th Annual HIMSS Leadership Survey: Business Objectives

N = 330

Source: 26th Annual HIMSS Leadership Survey
26th Annual HIMSS Leadership Survey: Impact of IT on Triple Aim Goals

- Improve Patient Health Experience: 68%
- Reduce Cost of Healthcare: 53%
- Improve Population Health: 51%

N = 330

Source: 26th Annual HIMSS Leadership Survey
26th Annual HIMSS Leadership Survey: IT and Nurses

- IT Effectively Engages Nursing Leaders: 57%
- Nurses Believe IT is Critical to Their Success: 45%
- Nurses Believe IT can Positively Impact Patient Care: 42%
- Nurses Have Favorable Attitude Towards IT: 38%
- CNIO is Part of Executive Team: 32%

N = 330

Source: 26th Annual HIMSS Leadership Survey
25th Annual HIMSS Leadership Survey
Primary Clinical IT Focus – Top Ten

- Focus on Physician Systems: 21%
- Ensuring Organization has Fully Functional EHR: 13%
- Linking Clinical Systems with Quality Measures: 13%
- Supporting Workflow Changes: 9%
- Focus on Data Warehouse: 9%
- Implementing Patient Portal: 6%
- Implementing Ambulatory EMR Solution: 4%
- Creating Standards-Based Care Summary: 3%
- Ancillary Systems: 2%
- Establishing Clinical Protocols: 2%
- Interoperability of EHR and Mobile Devices: 2%
2014 NI Workforce Survey
Primary Workplace

- Ambulatory Care: 3% (2014), 2% (2011), 2% (2007)
- Other: 3% (2014), 5% (2011), 5% (2007)
2014 NI Workforce Survey
Nursing Education

<table>
<thead>
<tr>
<th>Education Level</th>
<th>2014 Results</th>
<th>2011 Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelors in Nursing</td>
<td>42%</td>
<td>42%</td>
</tr>
<tr>
<td>Masters in Nursing</td>
<td>41%</td>
<td>35%</td>
</tr>
<tr>
<td>Registered Nurse</td>
<td>41%</td>
<td>29%</td>
</tr>
<tr>
<td>Other Masters</td>
<td>41%</td>
<td>18%</td>
</tr>
<tr>
<td>Other Bachelors</td>
<td>24%</td>
<td>11%</td>
</tr>
<tr>
<td>Doctor of Nursing Practice</td>
<td>3%</td>
<td>1%</td>
</tr>
<tr>
<td>PhD in Nursing</td>
<td>2%</td>
<td>1%</td>
</tr>
<tr>
<td>Licensed Practical Nurse</td>
<td>2%</td>
<td>1%</td>
</tr>
<tr>
<td>Nurse Practitioner</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>Other PhD</td>
<td>3%</td>
<td>1%</td>
</tr>
</tbody>
</table>

2014 Results 2011 Results
Nursing Informatics Education

- Nursing Informatics courses at the BSN level
- Specialty in Nursing Informatics – MSN
  - Distance learning – online
  - Traditional
- Certificate programs
- Post graduate degree
2014 NI Workforce Survey
Current Informatics Education/Training

- **On-the-Job Training**: 23% (2014) vs 26% (2011)
- **Masters/PhD**: 9% (2014) vs 11% (2011)
- **Certificate**: 5% (2014) vs 7% (2011)
- **Program/Course**: 4% (2014)
- **Bachelors**: 1% (2014) vs n/a (2011)

Survey question was revised in 2011 and not comparable to 2007 survey.

HIMSS
transforming health through IT
2014 NI Workforce Survey Nursing Certification Held

- CPHIMS: 2014 - 6%, 2011 - 4%, 2007 - 3%
- Other Nursing Specialty: 2014 - 17%, 2011 - 9%, 2007 - 20%

2014 Results, 2011 Results, 2007 Results
2014 NI Workforce Survey
Job Responsibilities

<table>
<thead>
<tr>
<th>Role</th>
<th>2014 Results</th>
<th>2011 Results</th>
<th>2007 Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systems Implementation</td>
<td>43%</td>
<td>45%</td>
<td>57%</td>
</tr>
<tr>
<td>System Optimization/Utilization</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Systems Development</td>
<td>38%</td>
<td>41%</td>
<td>53%</td>
</tr>
<tr>
<td>Clinical Analytics</td>
<td>29%</td>
<td>31%</td>
<td>31%</td>
</tr>
<tr>
<td>Quality Initiatives/Reporting</td>
<td>22%</td>
<td>21%</td>
<td>31%</td>
</tr>
<tr>
<td>Informatics Education</td>
<td>15%</td>
<td>22%</td>
<td>23%</td>
</tr>
<tr>
<td>Liaison/Communicator</td>
<td>16%</td>
<td>22%</td>
<td>23%</td>
</tr>
<tr>
<td>Regulatory Initiatives</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>
2014 NI Workforce Survey
Application Experience (Background)

2014 NI Workforce Survey
Top Barrier to Success as a Nurse Informaticist – Past 10 Years

<table>
<thead>
<tr>
<th>Issue</th>
<th>2014 Results</th>
<th>2004 Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of Administrative Support</td>
<td>17%</td>
<td>16%</td>
</tr>
<tr>
<td>Lack of Staffing Resources</td>
<td>14%</td>
<td>7%</td>
</tr>
<tr>
<td>Lack of Financial Resources</td>
<td>12%</td>
<td>7%</td>
</tr>
<tr>
<td>Organizational Strategic Plan</td>
<td>9%</td>
<td>12%</td>
</tr>
<tr>
<td>User Acceptance</td>
<td>7%</td>
<td>16%</td>
</tr>
<tr>
<td>Software Architecture/Design</td>
<td>6%</td>
<td>12%</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>7%</td>
<td>6%</td>
</tr>
<tr>
<td>Regulations</td>
<td>2%</td>
<td>1%</td>
</tr>
</tbody>
</table>

Percent of respondents who rated option as the top/largest barrier for select responses appearing in both years.
2015 Impact of the Informatics Nurse Survey - Informatics Leadership

Does your organization employ any of the below clinical informatics leaders?

- Chief Medical Information Officer: 48%
- Chief Nursing Information Officer: 20%
- Part of Another Position: 20%
- Chief Clinical Information Officer: 10%
- None of the Above: 21%
- Other: 9%
- Don't Know: 2%

N = 565
2015 Impact of the Informatics Nurse Survey - CNIO Reporting Structure

Who does your CNIO report to?

- Chief Nursing Officer: 34%
- Chief Information Officer: 25%
- Chief Executive Officer: 16%
- Chief Medical Officer: 5%
- Chief Medical Information Officer: 5%
- Chief Operating Officer: 2%
- Chief Technology Officer: 1%
- Other: 13%
- None of the Above: 1%

N = 110
In general, what impact do informatics nurses have on the quality of care that patients receive at your organization? Please use a one to seven scale, where one is “no impact” and seven is “high degree of impact.”

N = 543
Identify the overall value that informatics nurses bring to the following with regard to clinical systems.

2015 Impact of the Informatics Nurse Survey - Areas Where Informatics Nurses Bring a High Degree of Value

- Implementation: 85%
- Optimization: 83%
- Analysis: 75%
- Design: 73%
- Selection: 50%

N = 553
Identify the level of impact that having informatics nurses involved in the analysis, design, optimization, implementation and selection process had on each of the areas below.
In which of the below areas do informatics nurses play a role with regard to emerging technologies?

- Medical Device Integration: 70%
- Smart Devices: 53%
- Personalized Healthcare: 49%
- Remote Monitoring: 33%
- Data Warehousing: 29%
- Voice Recognition: 27%
- Predictive Modeling: 22%
- Other: 5%

N = 576
Explore the HIMSS Nursing Informatics Community
NI Community Framework

• Committee (*Strategy*)
• Task Force (*Education & Networking*)
• Workgroups (*Participation*)
• Multidisciplinary activities
• External collaborations
HIMSS Position: Transforming Nursing Practice through Technology & Informatics

Together, nurses and nursing informatics must lead, and be visible, vocal and present at the table to achieve healthcare delivery transformation.
Position Statement “Call to Action”

| Leadership       | • Partner with nurse executives  
|                  | • Support the development of informatics departments  
|                  | • Foster the evolution of nurse informaticists in leadership roles |
| Education        | • Transform nursing education to include informatics competencies  
|                  | • Promote the continuing education of all levels of nursing |
| Practice         | • Ensure that data, information, knowledge and wisdom form the basis of 21st century nursing practice  
|                  | • Facilitate the collection and analysis of interprofessional healthcare workforce data |
| Policy           | • Enable nursing informatics leaders to be knowledgeable and engaged in current public policy initiatives  
|                  | • Government agencies must recognize that regulations and reimbursement policies that remain exclusively physician-focused will not achieve the goals of healthcare transformation in the U.S. |
The Impact of our Position Statement

Leadership
Education
Practice
Policy
<table>
<thead>
<tr>
<th>Category</th>
<th>IOM/RWJ Recommendation</th>
<th>HIMSS Recommendations for Nursing Informatics</th>
<th>HIMSS Impact on Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership</td>
<td>1. Prepare and enable nurses to lead change to advance health.</td>
<td>• Partner with nurse executives to lead technology changes that advance health and the delivery of healthcare. &lt;br&gt;• Support the development of informatics departments. &lt;br&gt;• Foster the evolution of the Chief Nursing Informatics Officer/Nursing Informatics Executive role.</td>
<td>• Launch of Nursing Informatics Executive Workgroup with 170 participants &lt;br&gt;• <a href="#">Creation of NI Executive Toolbox</a> with 25 resources &lt;br&gt;• Growth in # of Chief Nursing Informatics Officer/Nursing Informatics Executive members of HIMSS; to date there are approximately 200 NI Executive HIMSS members.</td>
</tr>
<tr>
<td>Leadership</td>
<td>2. Expand opportunities for nurses to lead and diffuse collaborative improvement efforts.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Category</td>
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</table>
| Education | 3. Increase the proportion of nurses with a baccalaureate degree to 80 percent by 2020. | • Transform nursing education to include informatics competencies and demonstrable behaviors at all levels of academic preparation.  
• Promote the continuing education of all levels of nursing, particularly in the areas of EHRs and health IT. | • HIMSS is a proud supporter of the collaborative work accomplished by TIGER, including the [TIGER Informatics Competencies Report](#); in September of 2014 TIGER joined the HIMSS family.  
• Over 60 universities have informatics programs as identified in the [HIMSS US Informatics Curriculum Listing](#). |
<p>| Education | 4. Double the number of nurses with a doctorate by 2020. | | |
| Education | 5. Ensure that nurses engage in lifelong learning. | | |</p>
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</tr>
</thead>
<tbody>
<tr>
<td>Practice</td>
<td>6. Remove scope of practice barriers.</td>
<td>• Ensure that data, information, knowledge and wisdom form the basis of 21st century nursing practice by incorporating informatics competencies into practice standards in all healthcare settings. • Facilitate the collection and analysis of interprofessional healthcare workforce data by ensuring data can be collected from existing health IT systems.</td>
<td>• Published the <a href="#">HIMSS Transforming Nursing Practice through Technology &amp; Informatics</a> Position Statement resources with 30,000 downloads and 10,000 booklets printed. • Conducted the <a href="#">2014 NI Workforce Survey</a> with 1,047 respondents to gain an understanding of the roles and responsibilities of the informatics nurse</td>
</tr>
<tr>
<td>Practice</td>
<td>7. Implement nurse residency programs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Practice</td>
<td>8. Build an infrastructure for the collection and analysis of interprofessional healthcare workforce data.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
What’s Next

• Update HIMSS Position Statement and supporting resources to reflect:
  – New areas of nursing practice
  – Additional focus on health e.g. patient engagement, mobile, population health

• Expected publication Summer 2015
Online Journal of Nursing Informatics (OJNI)

• Launched in 1996 with readership spanning over 49 countries

• Complimentary, international, peer reviewed journal published three times a year that supports all function areas of nursing informatics

• View the latest issue www.himss.org/ojni

• Explore the submission guidelines and submit a manuscript. Student submissions welcome!
TIGER (Technology Informatics Guiding Education Reform)

• Focused on education reform and maximizing the integration of technology and informatics into seamless practice, education and research resource development

• Explore the reimagined TIGER Virtual Learning Environment (VLE)

• Join the TIGER Community, tiger@himss.org

• www.thetigerinitiative.org
Resources and References

• Alliance for Nursing Informatics
  http://www.allianceni.org

• American Nurses Association
  http://www.nursingworld.org

• American Nurses Credentialing Center
  http://www.nursecredentialing.org/

• CPHIMS
  http://himss.org/ASP/certificationHome.asp

• HIMSS Nursing Informatics
  www.himss.org/ni
HIMSS Nursing Informatics Community
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