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 a specialty that integrates nursing science, computer science, and information science to manage and communicate data, information, knowledge, and wisdom in nursing practice. NI supports consumers, patients, nurses, and other providers in their decision-making in all roles and settings. This support is accomplished through the use of information structures, information processes, and information technology.

Nursing Informatics: Scope and Standards of Practice, ANA 2008
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 Information Systems requires:

- Well designed systems that support 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
- Resources that can support the above
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
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
- Planning
- Implementation
- Evaluation

- 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 Bi-Lingual!
• 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
- Enhance continuity of care
- Improve relationships between providers and recipients of health care
- Enable cost savings and productivity goals
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

• Enhance continuity of care
The Many Roles of a Nurse Informaticist

- Administration, leadership, & management
- Analysis
- Compliance and integrity management
- Consultation
- Coordination, facilitation, and integration
- Development
- Educational and professional development
- Policy development and advocacy
- Research and evaluation
Data from HIMSS Industry Surveys
22nd Annual HIMSS Leadership Survey
Primary Clinical IT Focus

- Ensure Operational EHR: 24%
- Installing CPOE: 20%
- Focus on Physician Systems: 11%
- Linking Clinical Systems: 11%
- Certification of EHR System: 8%
- Focus on Business: 7%
- Establish Clinical Protocols: 3%
- Focus on Nursing Systems: 2%

326 Respondents

Sponsored by Citrix Systems
22nd Annual HIMSS Leadership Survey
Most Significant Barriers to Implementing IT

- Lack of Staffing Resources: 17% (2011), 16% (2010)
- Vendor Inability to Deliver Product: 11% (2011), 10% (2010)
- Difficulty in End User Acceptance: 10% (2011), 7% (2010)

Sponsored by Citrix Systems
22nd Annual HIMSS Leadership Survey
Role of Clinicians

- Project Champions for Other Clinicians: 77% (2011), 76% (2010)
- Participate in Development of Policies: 60% (2011), 76% (2010)
- Involved in Clinician Training: 57% (2011), 57% (2010)
- Employed by IS Department: 43% (2011), 41% (2010)
- Project Leaders for Implementation: 42% (2011), 45% (2010)
- Explore Innovative Ways to Use IT: 42% (2011), 43% (2010)
- We have a CMIO: 26% (2011), 30% (2010)
- We have a CNIO: 8% (2011), 8% (2010)

Sponsored by Citrix Systems

HIMSS
NURSING INFORMATICS
Empowered Care Through Leadership and Technology
22\textsuperscript{nd} Annual HIMSS Leadership Survey 2011 IT Staffing Needs (Top Ten)

- Clinical Application Support: 39%
- Clinical Informaticist: 24%
- Network and Architecture Support: 21%
- Process/Workflow Design: 17%
- Clinical Transformation: 15%
- Systems Integration: 14%
- User Training: 14%
- Clinical Champions: 12%
- System Design: 12%
- IT Security: 12%

Sponsored by Citrix Systems
Areas in Which Healthcare Organizations Lack Qualified Candidates

Industry Staffing Needs

- Clinical Informatics
- Implementation Expert
- Software Maintenance Expert
- Executive
- Consultant
- Network Professional
- System Security

HIMSS Vantage Point
March 2010
149 Respondents
2011 NI Workforce Survey
Primary Workplace

Hospital - 48% (2011 Results), 51% (2007 Results), 55% (2004 Results)
Health System - 13% (2011 Results), 16% (2007 Results), 20% (2004 Results)
Academic Setting - 5% (2011 Results), 5% (2007 Results), 9% (2004 Results)
Vendor Organization - 5% (2011 Results), 10% (2007 Results), 16% (2004 Results)
Consulting Firm - 5% (2011 Results), 5% (2007 Results), 6% (2004 Results)
Government/Military - 2% (2011 Results), 3% (2007 Results), 4% (2004 Results)
Ambulatory Care - 2% (2011 Results), 1% (2007 Results), 7% (2004 Results)
Other - 7% (2011 Results), 5% (2007 Results), 5% (2004 Results)

660 Respondents

Data from the 2011 HIMSS Nursing Informatics Workforce Survey
© HIMSS
2011 NI Workforce Survey
Nursing Education

<table>
<thead>
<tr>
<th>Degree Type</th>
<th>2011 Results</th>
<th>2007 Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelors in Nursing</td>
<td>42%</td>
<td>6%</td>
</tr>
<tr>
<td>Registered Nurse</td>
<td>41%</td>
<td>30%</td>
</tr>
<tr>
<td>Masters Degree In Nursing</td>
<td>35%</td>
<td>33%</td>
</tr>
<tr>
<td>Other Masters</td>
<td>24%</td>
<td>21%</td>
</tr>
<tr>
<td>Other Bachelors</td>
<td>13%</td>
<td>0%</td>
</tr>
<tr>
<td>Other PhD</td>
<td>3%</td>
<td>2%</td>
</tr>
<tr>
<td>PhD in Nursing</td>
<td>1%</td>
<td>4%</td>
</tr>
<tr>
<td>Nurse Practitioner</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>Licensed Practical Nurse</td>
<td>1%</td>
<td>1%</td>
</tr>
</tbody>
</table>

*Only highest degree is shown.

Data from the 2011 HIMSS Nursing Informatics Workforce Survey
© HIMSS
Nursing Informatics Education

• Nursing Informatics courses at the BSN level
• Specialty in Nursing Informatics – MSN
  - Distance learning – online
  - Traditional
• Certificate programs
• Post graduate degree
2011 NI Workforce Survey
Years of Clinical Experience


Data from the 2011 HIMSS Nursing Informatics Workforce Survey
© HIMSS
2011 NI Workforce Survey
Nursing Experience

ICU/CCU

- 2011 Results: 44%
- 2007 Results: 43%
- 2004 Results: 24%

Administration

- 2011 Results: 48%
- 2007 Results: 34%
- 2004 Results: 22%

Pediatric

- 2011 Results: 17%
- 2007 Results: 15%
- 2004 Results: 7%

Home Health/Community

- 2011 Results: 13%
- 2007 Results: 12%
- 2004 Results: 6%

Quality Improvement

- 2011 Results: 11%
- 2007 Results: 12%
- 2004 Results: 5%

Oncology

- 2011 Results: 10%
- 2007 Results: 10%
- 2004 Results: 9%

Data from the 2011 HIMSS Nursing Informatics Workforce Survey
© HIMSS
2011 NI Workforce Survey
Time Devoted to Clinical Activities

More than 75%
- 2011 Results: 2%
- 2007 Results: 3%
- 2004 Results: 3%

51% to 75%
- 2011 Results: 3%
- 2007 Results: 1%
- 2004 Results: 3%

26% to 50%
- 2011 Results: 3%
- 2007 Results: 3%
- 2004 Results: 3%

Less than 25%
- 2011 Results: 77%
- 2007 Results: 71%
- 2004 Results: 74%

None
- 2011 Results: 77%
- 2007 Results: 71%
- 2004 Results: 74%

Data from the 2011 HIMSS Nursing Informatics Workforce Survey
© HIMSS
2011 NI Workforce Survey
Years of Informatics Experience

- Ten or More:
  - 2011: 39%
  - 2007: 33%
  - 2004: 23%
- Seven to Nine:
  - 2011: 13%
  - 2007: 15%
  - 2004: 10%
- Five or Six:
  - 2011: 14%
  - 2007: 16%
  - 2004: 15%
- Three or Four:
  - 2011: 14%
  - 2007: 14%
  - 2004: 14%
- One or Two:
  - 2011: 13%
  - 2007: 14%
  - 2004: 23%
2011 NI Workforce Survey
Years in Current Position

*This question was not included in the 2004 survey.

Data from the 2011 HIMSS Nursing Informatics Workforce Survey
© HIMSS
2011 NI Workforce Survey
Training as Nurse Informaticist

- Masters/PhD: 19% (2007), 11% (2004)
- Bachelors: 3% (2007), 0% (2004)
- None: 5% (2007), 41% (2004)

Data from the 2011 HIMSS Nursing Informatics Workforce Survey
© HIMSS
2011 NI Workforce Survey
Training as Nurse Informaticist

Degree Earned in 2011

- Masters/PhD: 23%
- On the Job Training: 15%
- Certificate: 15%
- Bachelors: 2%

Data from the 2011 HIMSS Nursing Informatics Workforce Survey © HIMSS
2011 NI Workforce Survey Nursing Informatics Certification


Data from the 2011 HIMSS Nursing Informatics Workforce Survey
© HIMSS
Nursing Informatics Certification – Anticipate Obtaining

- ANCC: 35%
- CPHIMS: 17%
- Other: 4%
- None: 42%

Data from the 2011 HIMSS Nursing Informatics Workforce Survey © HIMSS
2011 NI Workforce Survey
Salary Impact of Certification

Data from the 2011 HIMSS Nursing Informatics Workforce Survey
© HIMSS
Nursing Informatics Certifications

American Nurses’ Association Credentialing Center Board Certification in Nursing Informatics

http://nursingworld.org/ancc/certification/cert/certs/informatics.html

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

http://himss.org/ASP/certificationHome.asp
2011 NI Workforce Survey
Reporting Department

<table>
<thead>
<tr>
<th>Category</th>
<th>2011 Results</th>
<th>2007 Results</th>
<th>2004 Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Systems</td>
<td>50%</td>
<td>52%</td>
<td>37%</td>
</tr>
<tr>
<td>Nursing</td>
<td>38%</td>
<td>32%</td>
<td>26%</td>
</tr>
<tr>
<td>Administration</td>
<td>22%</td>
<td>17%</td>
<td>6%</td>
</tr>
<tr>
<td>Education</td>
<td>6%</td>
<td>6%</td>
<td>6%</td>
</tr>
<tr>
<td>Quality Improvement</td>
<td>5%</td>
<td>6%</td>
<td>3%</td>
</tr>
<tr>
<td>Implementation</td>
<td>5%</td>
<td>5%</td>
<td>3%</td>
</tr>
<tr>
<td>Physician Practice</td>
<td>3%</td>
<td>5%</td>
<td>6%</td>
</tr>
<tr>
<td>Software Design</td>
<td>3%</td>
<td>5%</td>
<td>2%</td>
</tr>
<tr>
<td>Sales/Marketing</td>
<td>3%</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Ancillary</td>
<td>1%</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Case Management</td>
<td>1%</td>
<td>2%</td>
<td>2%</td>
</tr>
</tbody>
</table>

Data from the 2011 HIMSS Nursing Informatics Workforce Survey
© HIMSS
2011 NI Workforce Survey
Top Three Job Responsibilities

Data from the 2011 HIMSS Nursing Informatics Workforce Survey
© HIMSS
2011 NI Workforce Survey
Developing/Implementing

*Top nine responses shown.

Data from the 2011 HIMSS Nursing Informatics Workforce Survey
© HIMSS
2011 NI Workforce Survey
Applications with Experience

*Top responses in 2011 shown.

- EMR/EHR: 76% (2011), 72% (2007)
- Quality Improvement: N/A (2011), 40% (2007)

Data from the 2011 HIMSS Nursing Informatics Workforce Survey
© HIMSS
2011 NI Workforce Survey

Largest Barrier to Success


Data from the 2011 HIMSS Nursing Informatics Workforce Survey
© HIMSS
Healthcare Transformation: Opportunities for Nursing Informatics
Implications for Informatics

Nurses must be supported by a healthcare environment that adequately enables their knowledge-based work as:

- Leaders in the Effective Design and Use of EHR Systems
- Integrators of Patient Information
- Full Partners in Decision Making
- Care Coordinators Across Disciplines
- Advocates for Engaging Patients and Families
- Contributors to Standardize EHR Infrastructure

Source: ANI Testimony to the October 2009 Forum on the Future of Nursing
The Future of Nursing: Leading Change, Advancing Health

Nurses constitute the largest segment of the nation’s health care workforce at 3.1 million.

In their front-line roles, nurses can play a vital role in helping realize the objectives set forth in the 2010 Affordable Care Act.

A number of barriers prevent nurses from being able to respond effectively to rapidly changing health care settings and an evolving health care system.

These barriers must be overcome to ensure that nurses are well-positioned to lead change and advance health.
1) Nurses should practice to the full extent of their education and training

2) Nurses should achieve higher levels of education and training through an improved education system that promotes seamless academic progression

3) Nurses should be full partners, with physicians and other healthcare professionals in the redesigning of health care in the United States

4) Effective workforce planning and policy making require better data collection and an improved information infrastructure
New Ingredients in Transforming Nursing

Informatics → Technology

Technology → Engaged Consumers

Engaged Consumers → Expanded Access

Expanded Access → Data Exchange

HIMSS Nursing Informatics
Empowered Care Through Leadership and Technology
HIMSS Position

Together, nurses and nursing informatics must lead, and be visible, vocal and present at the table to achieve healthcare delivery transformation.
Steps for Transformation

**Leadership**
- Partner with nurse executives to lead technology changes that advance health and the delivery of healthcare.
- Support the development of informatics departments and nurse informaticists in analyst, leadership and officer roles.
- Foster the evolution of nurse informaticists in leadership roles such as a Nursing Informatics Executive or Chief Nursing Informatics Officer (CNIO).

**Education**
- 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.

**Practice**
- 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.

**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.
Improving Nursing Care through Technology

• Technologies can create better work environment for inpatient nurses:
  ➢ Improve efficiency, safety and quality
  ➢ Add value to the way nurses coordinate and provide care
    • Alarm/event messaging
    • Biomedical device integration
    • Medication administration

Source: California HealthCare Foundation, [www.chcf.org](http://www.chcf.org), 2008
Improving Nursing Care Through Technology

- Nurses do not want to be passive consumers of technology
- Nurses want devices that are integrated, voice activated, handheld, use biometrics, provide translation, are portable, are wireless, auto populate, and are “smart”
- Greater nurse satisfaction leads to greater patient satisfaction

Source: Cipriano, P., Nurse Scholar in Residence, IOM 2011
Growth in the Nursing Market

Nursing Applications w/ Highest Expected Purchase Rates for Hospitals over Next 24 Mo.

• eMAR
  ➢ Closed Loop Medication Administration
  ➢ Impact on patient safety

• Nursing Documentation
  ➢ Supports quality outcomes reporting
  ➢ Makes CPOE more effective
    • Vital signs, flow sheet data

• Nurse staffing/scheduling
• Nurse acuity

Source: HIMSS Analytics™ Database 2010
Transforming Practice through Technology & Informatics will:

- Improve safety and efficiency
- Free clinicians from tasks
- Bring evidence for decisions to point of care
- Empower patients to be involved in care
- Enable nurses to:
  - Integrate data into health information
  - Consult in the home, LTC, Assisted living
  - Coordinate care across settings

Source: Cipriano, P., Nurse Scholar in Residence, IOM 2011
Explore the HIMSS Nursing Informatics Community
The first “official community” within HIMSS for Nursing Informatics formed in 2004 – now represents over 4,400 individuals.

Community Framework
- Clinical Informatics
- Leadership
- National Initiatives
- Informatics Practice

www.himss.org/ni
About HIMSS

• **Vision**  Advancing the best use of information and management systems for the betterment of health care.

• **Mission**  To lead healthcare transformation through the effective use of health information technology.
HIMSS NI Milestones

- 2003: Community Officially Launched
- 2004: Alliance for Nursing Informatics*, NI Leadership Award
- 2005: NI Workforce Survey
- 2006: TIGER Summit Collaborator*, NI Committee Launched
- 2007: Nursing & Informatics for the 21st Century Publication
- 2008: NI Day: Awareness & Education*, TIGER Initiative Phase II*
- 2009: 2nd NI Workforce Survey
- 2010: Int'l Survey Impact of HIT on Nurses
- 2011: Emerging Giant: Nursing Informatics Publication

*HIMSS is proud cosponsor/collaborator

Community Population: 4,400+
Community Participation

- 4400 nurse members at HIMSS
- 2287 list serv subscribers
- 450+ attendees at NI Symposium
- 60+ NI Task Force call monthly participants
- 25 Deliverables

As of October 1, 2011
NI Community Framework

- Committee *(Strategy)*
- Task Force *(Education & Networking)*
- Workgroups *(Participation)*
- Multidisciplinary activities
- External collaborations
NI Community Tools

- NI Toolbox & NI Knowledge Repository (website)  
  www.himss.org/ni
- NI Community (website)  
  www.himss.org/nursing
- List serv  
  NI@LIST.HIMSS.ORG
- Webex (conference calls)
- Wiki (online workstation)  
  http://himssni.pbworks.com/
- NI Facebook  
  http://www.facebook.com/profile.php?ref=name&id=100000434371377
- Twitter: #HIMSSCI

- Clinical Informatics RSS feed  
  http://www.himss.org/ASP/himssNewsRSS.asp
- Clinical Informatics Insights  
  http://www.himss.org/ASP/topics_FocusDynamic.asp?faid=305
- HIMSSNtv Nursing Informatics Channel  
- HIMSS Blog  
  http://blog.himss.org/
- HIMSS NI Standards Practices Discussion Forum  
  www.himss.org/niforums
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 Community
  http://www.himss.org/ni