Workforce Development: The Future of Nursing Informatics

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DISCLAIMER: The views and opinions expressed in this presentation are those of the author and do not necessarily represent official policy or position of HIMSS.
OBJECTIVES

• Describe the current Nursing Informatics workforce.
• Discuss issues identified by healthcare leaders as aligned with the Nursing Informatics discipline.
• Identify Nursing Informatics professional development needs and opportunities.
Session Format

1. Presentation
2. Interactive discussion
Nursing Informatics (ANA, 2014)

- Integrates nursing science with multiple information and analytical sciences to identify, define, manage, and communicate data, information, knowledge, and wisdom.
- Supports nurses, consumers, patients, interprofessional healthcare team in decision-making.
- Improves health of populations, communities, groups, families, and individuals.
ANA Tenets of Nursing Informatics

• Unique body of knowledge, preparation & experience
• Synthesis of data and information into knowledge and wisdom
• Collaboration is an integral characteristic
• Incorporates key ethical concerns
  – advocacy, privacy, and confidentiality
  – security of data and information
ANA Tenets of Nursing Informatics

• Supports decision-making to achieve healthcare consumer safety and advocacy

• Considers impact of technological changes on patient safety, healthcare delivery, quality reporting, and the nursing process

• Leads in the design and promotion of useful, innovative information technologies
ANA Tenets of Nursing Informatics

• Supports data analytics to improve population health outcomes and global health
• Promotes data integrity and the access and exchange of health data for all consumers
• Supports agenda on interoperability
• Interleaves user experience and computer-human interaction concepts
Functional Areas of NI (ANA 2014)

- Administration, leadership, and management
- Compliance and integrity management
- Consultation
- Coordination, facilitation, and integration
- Development of systems, products, and resources
- Educational and professional development
- Genetics and genomics
- Information management/operational architecture
- Policy development and advocacy
- Quality and performance improvement
- Research and evaluation
- Safety, security, and environmental health
- Systems analysis and design
Nursing Informatics WORKFORCE
NI Workforce Data Sources

• 2013
  – National Workforce Survey of Registered Nurses
    • National Council of State Boards of Nursing (NCSBN)
    • Forum of State Nursing Workforce Centers

• 2014
  – Nursing Informatics Workforce Survey
    • Health Information and Management Systems Society (HIMSS)

• 2015
  – Impact of the Informatics Nurse Survey
    • HIMSS
## National Workforce of RNs

<table>
<thead>
<tr>
<th>Primary Nursing Practice Position</th>
<th>Employment Specialty</th>
<th>(n = 33,516)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute care/critical care</td>
<td>5,789</td>
<td>17%</td>
<td></td>
</tr>
<tr>
<td>Adult health/family health</td>
<td>872</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>Anesthesia</td>
<td>654</td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td>Community</td>
<td>335</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>Geriatric/gerontology</td>
<td>1,989</td>
<td>6%</td>
<td></td>
</tr>
<tr>
<td>Home health</td>
<td>1,515</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>Maternal-child health</td>
<td>1,662</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>Medical-surgical</td>
<td>4,249</td>
<td>13%</td>
<td></td>
</tr>
<tr>
<td>Occupational health</td>
<td>333</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>Oncology</td>
<td>953</td>
<td>3%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Specialty</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Palliative care</td>
<td>499</td>
<td>1%</td>
</tr>
<tr>
<td>Pediatrics/neonatal</td>
<td>1,996</td>
<td>6%</td>
</tr>
<tr>
<td>Primary care</td>
<td>857</td>
<td>3%</td>
</tr>
<tr>
<td>Psychiatric/mental health/substance abuse</td>
<td>1,341</td>
<td>4%</td>
</tr>
<tr>
<td>Public health</td>
<td>511</td>
<td>2%</td>
</tr>
<tr>
<td>Rehabilitation</td>
<td>691</td>
<td>2%</td>
</tr>
<tr>
<td>School health</td>
<td>1,097</td>
<td>3%</td>
</tr>
<tr>
<td>Tele-health</td>
<td>388</td>
<td>1%</td>
</tr>
<tr>
<td>Trauma</td>
<td>566</td>
<td>2%</td>
</tr>
<tr>
<td>Women’s health</td>
<td>651</td>
<td>2%</td>
</tr>
<tr>
<td>Other</td>
<td>6,568</td>
<td>20%</td>
</tr>
</tbody>
</table>

*Note. Survey participants were asked to answer this question only if they were actively employed in nursing.*

Standard Occupational Classification

- Standard Occupational Classifications (SOC) for healthcare and related industries lack codes associated with health informatics occupation:
Practitioner Job Titles Not Represented

- Bioinformatics Specialist/Analyst
- Clinical Informatics Specialist/Analyst
- Clinical Applications Specialist/Coordinator
- Health Data Analyst/Specialist
- Health Informatics Specialist
- Informatics Analyst/Specialist/Coordinator
- Terminology Specialist
- Nursing Informaticist/Informatician
- Physician Informaticist/Informatician
- Pharmacy Informaticist/Informatician
- Laboratory Informaticist/Informatician
- Imaging Informaticist/Informatician
- Public Health Informatics Specialist
Leadership Job Titles Not Represented

- Bioinformatics Advisor
- Chief Medical Information Officer
- Chief Public Health Informatics Officer
- Chief Nursing Information Officer
- Chief Health Information Officer
- Clinical Informatics Director
- Clinical Information Systems Director
- Director Clinical Information Services
- Health Informatics Researchers/Scientists
- Professor Health/Clinical Informatics
Standard Occupational Classification: Health Informatics Practitioner Proposal

July 21, 2014

Standard Occupational Classification Policy Committee Chair
2 Massachusetts Avenue NE
Washington, DC 20212

Submitted via email to soc@bls.gov (subject line 2018 SOC)
Re: Request/Recommendation for New Health Informatics Practitioner Standard Occupational Classification (SOC)

To the Standard Occupational Classification Policy Committee Chair:

This proposal was developed as a collaborative effort initiated by the FACA Health IT Policy Committee, Certification and Adoption Workgroup, Workforce Sub-group. The following groups employing, representing, and/or educating the workforce in the health informatics occupation respectfully request a new Standard Occupational Classification for **Health Informatics Practitioner:**

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HiMSS
transforming health through IT

NURSING INFORMATICS INSTITUTE
NURSING INFORMATICS WORKFORCE
A SPECIALTY ON THE RISE

30% of organizations have a CNIO/Nursing Informatics Exec

2X the amount of Informatics titles in 2014 compared to 2011

TOP RESPONSIBILITY
System implementation and Optimization

Download the full report: himss.org/ni

HIMSS
transforming health through IT”
Job Responsibilities

- Clinical Analytics: 2014 - n/a, 2011 - n/a, 2007 - 22%
- Regulatory Initiatives: 2014 - 16%, 2011 - n/a, 2007 - n/a

Selection options expanded for 2014 survey
Post-Graduate Nursing Education 2004 Compared to 2014

- Masters in Nursing: 2004 - 31%, 2014 - 41%
- Other Masters: 2004 - 14%, 2014 - 18%
- PhD in Nursing: 2004 - 3%, 2014 - 2%
- Other PhD: 2004 - 1%, 2014 - 1%
Prior Informatics Education/Training

Survey question was revised in 2011 and not comparable to 2007 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) vs. n/a (2011)
- **Bachelors**: 1% (2014) vs. 1% (2011)

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

ANCC:
- 2014: 23%
- 2011: 19%
- 2007: 23%

CPHIMS:
- 2014: 6%
- 2011: 4%
- 2007: 3%

Other Nursing Specialty:
- 2014: 17%
- 2011: 9%
- 2007: 20%

None:
- 2014: 52%
- 2011: 55%
- 2007: 55%

2014 Results  2011 Results  2007 Results
Nursing Informatics Certification Pursuing

- **ANCC**: 37% (2014), 35% (2011)
- **CPHIMS**: 18% (2014), 17% (2011)
- **PMP**: 6% (2014), 3% (2011)
- **Other Nursing Specialty**: 5% (2014), n/a (2011)
- **CAHIMS**: 4% (2014), n/a (2011)
- **None**: 43% (2014), 42% (2011)

Survey question was revised in 2011 and not comparable to 2007 survey.
Top Barrier to Success as Nurse Informaticist – Past 10 Years

- **Lack of Administrative Support**: 17% (2014) vs. 16% (2004)
- **Lack of Staffing Resources**: 14% (2014) vs. 7% (2004)
- **Organizational Strategic Plan**: 9% (2014) vs. 12% (2004)
- **User Acceptance**: 7% (2014) vs. 7% (2004)
- **Software Architecture/Design**: 6% (2014) vs. 12% (2004)
- **Infrastructure**: 6% (2014) vs. 7% (2004)
- **Regulations**: 2% (2014) vs. 1% (2004)

Percent of respondents who rated option as the top/largest barrier for select responses appearing in both years.
Sources of Information for Day-to-Day Activities

Selection options expanded for 2014 survey

<table>
<thead>
<tr>
<th>Source</th>
<th>2014 Results</th>
<th>2011 Results</th>
<th>2007 Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Networking with Peers</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Websites</td>
<td>n/a</td>
<td>50%</td>
<td>58%</td>
</tr>
<tr>
<td>Electronic Journals</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Association Newsletters</td>
<td>n/a</td>
<td>55%</td>
<td>40%</td>
</tr>
<tr>
<td>List Serves</td>
<td>n/a</td>
<td>56%</td>
<td>44%</td>
</tr>
<tr>
<td>Print Journals</td>
<td>n/a</td>
<td>68%</td>
<td>59%</td>
</tr>
<tr>
<td>Internal Help Desk</td>
<td>21%</td>
<td>31%</td>
<td>23%</td>
</tr>
<tr>
<td>Blogs</td>
<td>20%</td>
<td>27%</td>
<td>21%</td>
</tr>
<tr>
<td>Social Networking</td>
<td>18%</td>
<td>16%</td>
<td>17%</td>
</tr>
<tr>
<td>Books</td>
<td>17%</td>
<td>37%</td>
<td>17%</td>
</tr>
<tr>
<td>eBooks</td>
<td>17%</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>
Impact of the Informatics Nurse Survey (HIMSS 2015)
Applications Installed at Respondents’ Organizations – Top 10

Electronic Medication Administration Record (eMAR) – 92%
EMR/EHR – 91%
Nursing Clinical Documentation – 91%
Ancillary – 91%
Billing/Financial Management – 90%
CPOE – 90%
Clinical Information Systems – 85%
Bar Coded Medication Management – 85%
PACS – 85%
Non-Nursing Clinical Documentation – 82%

Which applications are currently installed at your organization?
Applications Being Installed at Respondents’ Organizations – Top 10

- Health Information Exchange: 27%
- Mobile Applications: 26%
- Medical Device Integration: 23%
- Voice Recognition: 20%
- Electronic Prescribing: 18%
- Remote Monitoring/Telehealth: 18%
- Immunization Information Systems: 17%
- Point of Care Clinical Decision Support: 15%
- Quality Improvement: 14%
- Personal Health Record: 14%

Which applications are currently installed at your organization?
In general, what impact do informatics nurses have on the quality of care that patients receive at your organization?
Areas Where Informatics Nurses Bring a High Degree of Value

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

Identify the overall value that informatics nurses bring to the following with regard to clinical systems.
Areas Where Informatics Nurses Bring a High Degree of Value

- Workflow: 80%
- Patient Safety: 76%
- User Acceptance: 75%
- Design/Configuration: 71%
- Compliance with Policies/Regulations: 70%
- Accuracy of Documentation: 67%
- Definition of Alerts/Reminders: 67%
- Screenflow: 66%
- Completeness of Documentation: 65%
- Quality Outcomes: 64%
- Reduction of Never Events: 61%
- Reporting: 57%
- Integration/Interface with Other Systems: 51%

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%
Trends

• Rapidly evolving technology
• Changing practice roles in nursing
• Regulatory changes and quality standards that include healthcare consumers as partners
• Care delivery models and innovation
• Increasing informatics competency requirements for all nurses
Nursing Informatics Competencies
Competency Identification

• American Association of Colleges of Nursing (AACN)
• American Nurses Association (ANA)
• American Organization of Nurse Executives (AONE)
• Health Information and Management Systems Society (HIMSS)
  – Technology Informatics Guiding Education Reform (TIGER)
• National Council of State Boards of Nursing (NCSBN)
AACN: Informatics Competencies

• BSN
  – *Information Management and Application of Patient Care Technology*

• Graduate
  – *Informatics and Healthcare Technologies*

• Doctoral
  – *Clinical Scholarship and Analytical Methods for Evidence-Based Practice*
ANA NI Standards:

1. Assessment
2. Diagnosis, Problems, and Issues Identification
3. Outcomes Identification
4. Planning
5. Implementation
6. Evaluation
7. Ethics
8. Education
9. Evidence-Based Practice and Research
10. Quality of Practice
11. Communication
12. Leadership
13. Collaboration
14. Professional Practice Evaluation
15. Resource Utilization
16. Environmental Health
AONE (2012)

• Nursing Informatics Executive Leader
  – Leadership
  – Education and Credentialing
  – Governance and Reporting Structures
HIMSS

• Nursing Informatics Position Paper
  – Summer 2015
TIGER: Informatics Competencies
(2009)

• Basic computer competencies
• Information literacy
• Information management
 Leads the design, selection and evaluation of healthcare ICT systems that promote effective and ethical use of patient information. Use informatics in research and report writing.

Master’s prepared Informatics Nurses analyze healthcare information communication technology (ICT) strategies to reduce risks, improve care delivery, change policy, while providing oversight and guidance in the integration of technology in practice.

Information Literacy Competencies

Information Management Competencies

Basic Computer Competencies

1 Defined by TIGER (Technology Informatics Guiding Education Reform)
2 AACN Essential for Graduate Education #5
3 Diploma, ADN/ASN, BSN, Second-degree BSN, Pre-licensure Masters
4 MSN-Informatics, Masters w/PMC in Informatics Nursing
5 DNP, PhD

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NCSBN

• Transition to Practice (TTP) preceptor model
  – Communication and teamwork
  – Patient-centered care
  – Evidence-based practice
  – Quality improvement
  – Informatics
NI Workforce & Competencies

• Key responsibilities:
  – Systems implementation / optimization / utilization / development

• Top installations:
  – eMAR, EHR, CPOE, HIE, mobile apps, device integration

• Primary source of education / training:
  – On-the-job

• Major sources of information, day-to-day:
  – Peers
  – Web

• Barriers to success:
  – Lack of admin support, staffing & financial resources
Interactive Discussion
RESOURCES

• American Nurses Association (2014). *Nursing Informatics: Scope and Standards of Practice*, 2nd ed. ANA: Silver Spring, MD.


• Technology Informatics Guiding Education Reform (TIGER). (ND.) *The TIGER Initiative. Informatics competencies for every practicing nurse: Recommendations from the TIGER Collaborative*.

• National Council of State Boards of Nursing (NCSBN). (ND). *Transition to Practice*.
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