Informatics Education: How to Package and Thread Content

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• Specialty that integrates nursing science, computer and information science, and cognitive science to manage, communicate, and expand data, information, knowledge and wisdom in nursing practice. (2008, accessed http://nursingworld.org/books/pdescri.cfm?CNum=3)

• Recognized as ANA specialty in 1992
• NI nurses support improved patient outcomes through expertise in information processes, structures, and technology thus helping nurses and other care providers to create and record evidence of their practice
First Nursing Informaticist?
NI Synergy Meeting – Focus on the NI Specialist Education

AMIA, Nov. 13, 2009

Organizing Group
Nancy Staggers, Chaired Event
Betsy Weiner, Recorder
Trish Trangenstein
Judy Warren
Helen Connors
Purposes of Meeting

• Discuss current issues that facilitate the need for increased collaboration among NI educational programs.
• Discuss existing collaborations at the regional level.
• Determine areas of potential collaboration across programs.
• Determine potential barriers to the collaboration. Describe strategies to overcome them.
• Outline next steps for the collaboration, including potential funding sources.
Themes

• Variety of types of programs (27), reflective of where we are housed
• Many sets of competencies, not always leveled according to curriculum
• Faculty development needs
• Isolated faculty need additional mentoring
• More than one level of certification?
• Process of getting informatics content on NCLEX
Possible Collaboration

- Share teaching resources
- Share teaching strategies
- Share human expertise
- Collaborate on research
- Consensus on core content in NI
- Initial focus on faculty sharing; students in later phases
Action Items

- Resource Sharing (Profiles and Teaching Resources) – AMIA NIWG WIKI
- Second resource sharing to be teaching strategies, culminating in presentation and publications
- Theme identification from distributed informatics courses – core content
- NI Synergy Education Task Force to meet virtually prior to next AMIA meeting
A specialty where advanced skills and knowledge are used in the multidisciplinary management, processing and transformation of data to information; information to knowledge; and knowledge to wisdom to make appropriate nursing decision and actions to improve costs, quality, safety, satisfaction, efficiency and effectiveness.

Trangenstein, 2006
Vanderbilt’s Model for Nursing Informatics
“Information, knowledge, decisions, or actions to improve cost, quality, safety, satisfaction” and efficiency  Effken, 2003

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<th>Nursing Informatics Outcomes</th>
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<td>Modeling</td>
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<td>Consumer Health</td>
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<td>Professional Scope and Standards</td>
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<td>Process Improvement</td>
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<td>Information and Knowledge Management</td>
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<td>Organizational Factors</td>
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<th>Data</th>
<th>Information</th>
<th>Knowledge</th>
<th>Wisdom</th>
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<td>Nursing Science</td>
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<td>Cognitive Science</td>
<td>Information Science</td>
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Informatics Nurse Specialist

Entry level Nurse (Uses)
- Computer Skill
- Information Literacy
- Information Processing and Technology

Advanced Practice Nurse (Modifies)
- System and Infrastructure Management
- Information/Knowledge Management & Dissemination
- Organizational Factors

Nurse Scholars (Creates)
- Nursing informatics tools to support appropriate nursing decisions and actions

Improved Client Outcomes
AACN Essentials

• Essential IV: Information Management and Application of Patient Care Technology
  1. Demonstrate skills in using patient care technologies, info systems, and communication devices that support safe nursing practice.
  2. Use telecommunication technologies to assist in effective communication in a variety of health settings.
– 3. Apply safeguards & decision making support tools embedded in patient care technologies and info systems to support a safe practice environment.

– 4. Understand the use of CIS systems to document interventions related to achieving nurse sensitive outcomes.

– 5. Use standardized terminology in a care environment that reflects nursing’s unique contribution to patient outcomes.
AACN Essentials (cont.)

– 6. Evaluate data from all relevant sources, including technology, to inform the delivery of care.
– 7. Recognize the role of information technology in improving patient care outcomes & creating a safe care environment.
– 8. Uphold ethical standards related to data security, regulatory requirements, confidentiality, and clients’ right to privacy.
9. Apply patient-care technologies as appropriate to address the needs of a diverse patient population.

10. Advocate for the use of new patient care technologies for safe, quality care.

11. Recognize that redesign of workflow and care processes should precede implementation of care technology to facilitate nursing practice.

12. Participate in evaluation of information systems in practice settings through policy and procedure development.
• Provide opportunities for students to:
  – Use info & patient care technology to communicate effectively with members of healthcare team
  – Use clinical evidence & research to base and validate practice decisions
  – Participate in QI activities and required regulatory reporting through IT systems
  – Employ a range of technologies that support patient care, ex. EHR, monitoring, med admin
AACN Nurse Faculty Toolkit (cont.)

– Use simulation and EHRs to access & analyze data relevant to the patient situation
– Use IT resources such as WIKI, Second Life simulation, or SkyScape.com to communicate with other healthcare professionals or students in other disciplines regarding a joint project
– Develop a professional e-portfolio
National League for Nursing

  – Faculty should participate in development about informatics
  – Incorporate informatics into the curriculum
  – Identify clinical informatics examplars
  – Partner with clinicians and Informatics experts to help with competency development in informatics
T.I.G.E.R.

• Technology Informatics Guiding Education Reform; engage with stakeholders for common vision of ideal tech-enabled nursing practice
• April 4, 2009 moved into its Implementation Phase
• www.tigersummit.com
• Informatics Competencies was one of 9 collaborations
Example of Vanderbilt DNP Content

- Systems and Infrastructure Management: Electronic Health Records and Tools
- Information/Knowledge Management & Dissemination: Issues with Electronic Data Search Techniques, Presentation techniques, Terminologies and Vocabularies, Online Surveys, EBP Tools, Simulation, C-Map, Excel for Stats
- Organizational Factors: Informatics Quality and Safety, Gartner Feedback, Management Tools

Improved Client Outcomes
Science of Informatics – Clinical Enterprise

- People are important to process for their ideas, pattern recognition, and overall perceptions of world view
- Process is important to arrive at simplification, best representation of what intended, and standardization of work flow
- Applying science forces function and decreases need for memory dependence
Clinical Examples

- Data Aggregation, concept recognition, & structuring (Starchart)
  - Computerized Provider Order Entry
  - Clinical Dashboards (Starmer Example for Ventilator Dashboard)
- Modeling
- Quality Assurance
Clinical Examples (cont.)

- Zynx Health (www.Zynxhealth.com)
  - ZynxOrder
  - ZynxCare
  - Zynx AmbulatoryCare
  - ZynxEvidence
Clinical vs. Educational Informatics

- Application of informatics science to the educational domain of knowledge, in this case nursing
Educational Examples


Educational Examples
Emergency Preparedness
(http://www.nursing.vanderbilt.edu/incmce/modules.html)
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<th>Technologies</th>
<th>Informatics</th>
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<td>Smart White Board</td>
<td>Organize/detect patterns in data</td>
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<td>Electronic Dashboards</td>
<td>Predict resource needs &amp; safety zones</td>
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<td>Resource Modeling</td>
<td>Access additional info</td>
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<tr>
<td>Internet Access to Info</td>
<td>Record &amp; process decisions for legal &amp; financial purposes</td>
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<tr>
<td>Staffing &amp; Scheduling Records</td>
<td>Analyze data to determine statistical significance</td>
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<tr>
<td>Electronic Logs/Minutes</td>
<td>Report &amp; analyze internet surveillance systems</td>
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<td>Resource Inventories</td>
<td>Promote standardization of data collection &amp; vocabulary</td>
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<td>Online Disaster Manual with Job Action Sheets</td>
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Simulation

- Example using Second Life as environment for teaching nursing faculty how to manage clinical simulations
- HRSA INET Grant, B. Weiner, PI
- Competencies developed and will be placed into dashboard to demonstrate faculty growth across these competencies
In Summary

• Nursing informatics is both a specialty and a process, each which presents challenges for education!