Informatics, Nursing, and Health Policy

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Objectives

• Nursing Informatics as a specialty
• Intersection of informatics domains
• Influence of health policy
NI as a Specialty

- 1992 Nursing Informatics (NI) first recognized as specialty by American Nurses Association
- 1994 Scope of Practice for Nursing Informatics
- 1995 Standards of Practice for Nursing Informatics
- 1995 Certification Examination
- 2001 Scope and Standards of Nursing Informatics Practice
- 2008 New scope and standards document
How Does a Practice Become a Specialty in Nursing?

ANA guidelines

- Differentiated practice
- Organized representation
- Education programs
- Credentialing mechanism
- Established research program
Differentiated Practice

- Definition
- Domain of interest
- Scope of practice
- Practice standards
- Models
Definition of Nursing Informatics – 2008 (ANA)

- 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 patients, nurses and other providers in decision making in all roles and settings through the use of information structures, information processes, and information technology.
Domain of Interest for Informatics

Increasing complexity and inter-relationships

• Data
  – Naming, collecting and organizing

• Information
  – Organizing and interpreting

• Knowledge
  – Interpreting, integrating, and understanding

• Wisdom
  – Understanding and applying
Differentiated from Other Nursing Specialties

<table>
<thead>
<tr>
<th>Nursing</th>
<th>Nursing Informatics</th>
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<tbody>
<tr>
<td>Nurses, patients, health, environment</td>
<td>Nursing data, information, knowledge, and wisdom</td>
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<tr>
<td>Content of information</td>
<td>Design, structure and presentation of information as it impacts nurses’ decision-making</td>
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<tr>
<td>Using information applications and technology</td>
<td>Optimizing information structures, applications and technology for use in managing and communicating data, information, knowledge, wisdom</td>
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Informatics Core for Nurses

• Phenomena—all data, information and knowledge, wisdom involved in nursing
• Operations—identifying, acquiring, preserving, managing, retrieving, aggregating, analyzing, communicating & transmitting data, information, knowledge.
• Symbolic representation of nursing through nursing vocabularies
Related Sciences

• Other sciences needed
  – Cognitive science
  – Management science
  – Political science
  – Human-computer interaction
  – Linguistics
  – Computational biology (?)

• Use other sciences depending upon the problem being addressed

• Core sciences remain nursing, computer & information science
Organizational representation

- International -- International Medical Informatics Association (IMIA) – primarily country representation; NI SIG
- National -- American Medical Informatics Association (AMIA) – NIWG
- National – Alliance for Nursing Informatics (ANI)
- Regional and local (UNIN, CARING, MANI, ANIA, Puget Sound NI, etc.)
Educational programs

- Columbia University (sub-specialty)
- Duke University
- Loyola University (Health Informatics)
- New York University
- U. of Arizona
- U. of Colorado – Health Care Informatics
- University of Maryland
- University of Utah
- University of Washington – CIPCT
- Vanderbilt University – Clinical or Educational Informatics
NI Certification

- ANCC
- Informatics nurse level
- Requirements
  - 2 years as RN
  - 2000 hours in informatics
Defined Research Program

- Standardized language/vocabularies
- Information needs
- Technology development to support practice and patient care
- Database issues
- Patient use of information technologies
- Using telecommunications technology for nursing practice
- Systems evaluation
NI Conceptual Frameworks

- Schwirian
- Happ
- Graves & Corcoran
- Gassert
- Zielstorff, Hudgings & Grobe
- Staggers & Parks
- Turley
- Billings,
- Staggers, Gassert, Curran
- Sward
- Etc. etc
Informatics Framework

Health (Clinical) Informatics

- Nursing Informatics
- BioMedical Informatics
- Dental Informatics
- Consumer Informatics
Political Forces Influencing Informatics Education

- Emphasis on patient safety through provider order entry systems
- Presidential mandate for information systems
- Congressional testimony of need for informatics specialists (6000 NI specialists)
- Nursing education programs
A View of NI Education Evolution

- 1988 – First masters at University of Maryland with courses in information systems department
- 1990 – Second masters at University of Utah with courses from nursing and medical informatics
- 1991 – First prescribed doctoral program in NI at University of Maryland
- 1992 – Doctoral summer fellowship in NI at University of Utah
- 2001 – Interdisciplinary model of informatics education at University of Utah
- 2005 – Interprofessional model of informatics at University of Utah
Definition of Interprofessional Education

• Interdisciplinary education – professional groups interact between, among or across disciplines

• Multidisciplinary education – students from several disciplines learn same content at same time

• Interprofessional education – planned occasions when two or more professions learn from each other and about each other in a structured manner – groups represent different departments
Goal of Interprofessional Education

- Goal – Promote effectively functioning health team that results in improved collaboration and enhanced quality care
- Learn about role of other professions, how the professions interface, and key behaviors that make health teams functional
- Goes beyond normal professional boundaries to promote collaborative practice, but domains do not give up their identity.
Relevance of Domain

- Provides perspective
- Illuminates values and beliefs
- Denotes practice base
- Produces unique knowledge
- Distinguishes groups of practitioners
- Focuses attention on certain concepts
- Provides needed language
- Provides context to words
IP Activity: Sharing Courses

- Biomedical/Nursing Informatics Faculty
  - Decision Support
  - Information Technology Operations
- Nursing Informatics Faculty
  - Databases
  - Data Mining
- Biomedical Informatics Faculty
  - Vocabulary
  - Clinical applications
IP Activity: Sharing Spaces
IP Activity:
Committees/Appointment

- Student committees
- Adjunct faculty appointments
- Seven-year graduate review
- Faculty search committees
IP Activity: Orientation/Team Building
IP Activity: Social Events

- Welcome picnic
- Holiday party
- Graduation celebration
IP Activity: Informatics Seminars

- Weekly seminars
- Joint student attendance
- NI/BMI faculty presentations
Challenges/Opportunities

- Joint strategic planning
- Financial model – courses, faculty, technology
- Space for growth
- Social separation from College of Nursing
- Retention, Promotion, Tenure criteria
- Role changes
- Distance education model
NI Competencies

- Beginning nurse
- Advanced nurse
- Informatics specialist
- Informatics innovator
NI Competency Framework

Information Management Framework

- Computer Skills
- Informatics Knowledge
- Informatics Skills
- Informatics Competencies
- Human Information Processing Skills
- Information Management Competencies
Method

- Competencies abstracted
- Unique competencies listed
- Competencies leveled
- Pilot test administered
- Delphi rounds
### Number of Competencies Approved by Level of Nurse

<table>
<thead>
<tr>
<th>Level of Nurse</th>
<th>Initial</th>
<th>Final</th>
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<tbody>
<tr>
<td>Beginner</td>
<td>43</td>
<td>37</td>
</tr>
<tr>
<td>Experienced</td>
<td>35</td>
<td>32</td>
</tr>
<tr>
<td>Specialist</td>
<td>187</td>
<td>174</td>
</tr>
<tr>
<td>Innovator</td>
<td>40</td>
<td>38</td>
</tr>
<tr>
<td>Total</td>
<td>305</td>
<td>281</td>
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Doctorate of Nursing Practice

Essential #4: Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care

- Design, select, use and evaluate programs that evaluate and monitor outcomes including consumer use
- Analyze and communicate critical elements in selection, use and evaluation of HIT
- Demonstrate conceptual ability and technical skills to develop and execute an evaluation plan including data extraction
- Provide leadership in resolution of ethical issues related to use of HIT
- Evaluate health information sources for accuracy, timeliness, and appropriateness.
Essentials of Baccalaureate Education – AACN (under review)

Essential IV – Nursing Informatics & Patient Care Technology in Practice of Baccalaureate Generalist

- Use IT and patient data for clinical decision making
- Use technologies that facilitate clinical care
- Evaluate technologies used in patient care
- Protect privacy of patients relative to IT
- Use safeguards in IT and IS to create safe environment
- Demonstrate knowledge of regulations for using IT
- Use technologies to assist in effective communication
- Develop awareness that new technology requires new workflow and changes in practice
TIGER Initiative and the Alliance for Nursing Informatics

Carole A. Gassert, RN, PhD, FACMI, FAAN
Co-Chair ANI (AMIA Representative)
TIGER Representative

September 25, 2007
Technology Informatics Guiding Education Reform

The focus of the TIGER Initiative is to better prepare our nursing workforce (all practicing nurses and nursing students) to use technology and informatics to improve the delivery of patient care.

We believe that necessary skills for nurses’ portfolio includes computer literacy, information literacy, and informatics skills.

The TIGER Initiative is a program; not an organization.

TIGER has been a grass-roots effort to engage with all stakeholders that are committed to a common “vision” of ideal EHR-enabled nursing practice. Today, more than 70 diverse organizations have joined this effort.
TIGER Summit – Phase I

- October 31 - November 1, 2006
- Held at the Uniformed Services University for Health Sciences (USUHS) in Bethesda, MD
- 100 participants representing all stakeholders, 70 organizations
- Created a collective vision for nursing practice and education within 10 years if nurses were fully enabled with IT resources
- Developed a 3-year action plan required to achieve this vision
- Summary Report published at www.tigersummit.com
9 Collaborative Teams

Created from combining all 3-year action steps into common themes/topics

1. Standards and Interoperability
2. Healthcare IT National Agenda/HIT Policy
3. Informatics Competencies
4. Education and Faculty Development
5. Staff Development/Continuing Education
6. Usability/Clinical Application Design
7. Virtual Demonstration Center
8. Leadership Development
9. Patient-Focus/Personal Health Record
Measurable Outcomes for Each Collaborative Team

1. Definition, scope, success criteria, and timeline for deliverables (1 year)
2. Inventory and analysis of existing resources (e.g., literature review, subject matter experts, publications, programs, etc.)
3. Identification and access to resources and constituent targets
4. Educational web-based audio conferences (target = 2)
5. Conference presentations (e.g., AONE, AWHONN, AACN, NONPF, ARN, NADONA, etc.)
6. Comprehensive white paper-type document (modeled after TIGER Summary Report – see next slide)
7. Articles for publication and dissemination amongst broader TIGER audience
8. Chapter in the 4th Edition of the Nursing Informatics Series *Where Caring and Technology Meet*
ANI

- Alliance for Nursing Informatics is a collaboration of organizations that represent a united voice for nursing informatics.
- Alliance represents more than 3000 nurses and brings together 27 distinct nursing informatics groups in the U.S.

ANI and the TIGER Initiative

- In 2007, ANI became the enabling organization for the TIGER initiative
Workforce Development:

Nursing Informaticists (n=776)

- 41% no formal training in informatics
- 25% job training in informatics
- 12% informatics certificate
- 17% masters in informatics, 2% PhD
- 12% enrolled in degree or certificate program

(~12 degree granting programs for nurses in Informatics in US)

HIMSS 2007 Nursing Informatics Survey, sponsored by McKesson
Addressing the Demand on Nurses

- Technology Targets Study by American Academy of Nursing - funded by Robert Wood Johnson Foundation

- Aims of the study
  - Create an improved process for identifying technology and HIT solutions to improve efficiency in care delivery on medical/surgical units, incorporating nurses’ viewpoints
  - Capture the attention of and prompt industry to develop technology and HIT that help with workforce issues.
Technology Drill Down (TD\(^2\))

- Two day process of brainstorming and visioning
- 20 – 30 multidisciplinary representatives

Primary Purpose
- Map gaps between current workflow & idealized workflow
- Identify potential technological applications that could close the gaps
Preliminary Findings from Sites

7 workflow processes:
- Admissions
- Care delivery
- Communications
- Documentation
- Equipment & supplies
- Medications
- Patient movement
Example: Documentation

- Computerized Order Entry included in electronic record
- Touch screen/Voice activated
- Global Documentation System
  - Multidisciplinary
  - Real time
  - Universal – physician, hospital, home care
- Flash Drive/Smart Card
Clinical Information System

- Cerner Academic Education Solution
- Live-production application
- Simulates clinical information system
- Uses Cerner PowerChart
- Utah Clinical Academic Record Excellence (UCARE) AES
UCARE AES

- Undergraduate nursing curriculum
- Graduate nursing -- pharmacy
- Medicine
Educational Assumptions

- Information management must be learned from beginning
- Information management needs to be integrated into curriculum for all levels of students
- Electronic documentation is an expectation of performance
- Information management skills should be assessed by observing use of IS
- Education of skills and concepts using real-world simulation
Ex. Beginning NI Competencies – Computer Skills Examples

Patient management
• Uses administrative applications for practice management
  – Searches for patient; retrieves demographics

Communication
• Uses telecommunications devices to communicate with other systems
  – Access UCARE
Implementation

• Just like implementing a hospital information system...required
  – a full team, including a systems analyst
  – regular meetings
  – project management
  – champions
  – training
  – testing
Utah Cerner AES Team

• Carole Gassert – co-project director
• Kathy Sward – co-project director
• Dave Matney – systems analyst
• Phyllis Murray – Cerner practice manager
• Cerner AMS – Application management service
• Consortium – Kansas U.; University of Missouri Kansas City; University of Utah; University of Maryland; William-Jewell College
• Nursing Informatics as a specialty
• Intersection of informatics domains
• Influence of health policy

Thank you for your attention!