National Nursing Informatics Deep Dive Program

Integrating AACN Essentials, QSEN KSA’s and TIGER Competencies for Nursing Informatics

Part 1

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Faculty Practices, Partnerships and Professional Development

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University of Minnesota
School of Nursing
Driven to Discover™
Disclosure

I have no relevant financial interest to disclose nor am I endorsing any commercial products identified in this presentation.
Objectives: Overview

• Describe why it is important for nursing students to develop successful knowledge, skills and attitudes for information management and patient technology.

• Discuss methods of integrating professional standards for nursing informatics into program curricula aimed at prelicensure nursing students.

• Provide nursing informatics resources and tools that can be easily incorporated into existing prelicensure program curricula.
Objectives: Part 1

Part I: Aligning AACN Essentials for Information Management and Patient Care Technologies with QSEN & TIGER

• Compare and contrast how information management and patient care technology has impacted nursing in the last 35 years.
• Describe how rising complexity in healthcare is driving the need for continuous learning systems enabled by technology.
• Discuss challenges nursing school faculty face in learning and teaching information technology today.
• Identify nursing school accreditation expectations and standards for integration of information management and patient care technology in pre-licensure nursing programs.
Supporting Safe Nursing Practice Through Patient Care Technologies and Workflow Design;

- Basic computer concepts, information literacy, current patient care technologies (IV smart pumps, bar code medication management and other), new technology (eMobile health, wearable technology, big data, and other) and telehealth.
Improving Patient Outcomes and Safety through Electronic Health Records & Clinical Decision Support

- Navigating the electronic health record (EHR), clinical decision support, workflow design and the selection, implementation and evaluation of information technologies.
Part 4: April 22, 2015

Identifying Nursing’s Unique Contribution to Patient Outcomes Through Standardized Terminologies

- Information technology as an enabler of evidence based practice and outcomes research (standardized nursing terminologies, descriptive and predictive analytics, population management, dashboards), ethics, information security, and protected health information as they relate to regulatory requirements, confidentiality, and clients’ right to privacy
National Nursing Informatics Deep Dive Workshop Websites

Workshop Packet (AACN)

Workshop Webpage (University of Minnesota School of Nursing)
- z.umn.edu/nnideepdive
Why Informatics?

Computer and information literacy are crucial to the future of nursing for advancing improvements in:

- Safety
- Evidence based practice
- Outcomes research
- Inter-professional care coordination
- Cost effectiveness

Graduates of nursing programs must have competence in using both patient care technologies and information management systems.

Safety

This illustration is an example of a hand-written prescription for Metadate ER 10 mg tablets. Metadate is a drug used in the treatment of Attention Deficit Hyperactivity Disorder (ADHD). Due to the similarity in name, poor penmanship and the omission of the modifier "ER", the pharmacy filling the prescription incorrectly dispensed methadone 10 mg tablets. Methadone is a morphine-based product used as a heroin substitution therapy and analgesic. Methadone is not used for the treatment of ADHD.

Safety

This illustration is an example of similar looking packaging from the same manufacturer for two unrelated drugs. On the left are 50 mg tablets of hydroxyzine HCL, a sedating antihistamine. On the right are 50 mg tablets of hydralazine HCL, an antihypertensive drug. The packaging of these products may lead to a serious medication error.

Bar Coded Medication Administration

http://mcgsites.org/ccreport/archives/1430

Attempted administrations that received one or more warnings or alerts (n = 7120)

Actionable warnings (n = 5606)

User response

Changed or canceled administration (n = 1254)

Overrode warning and administered dose (n = 4352)

Potential prevented error (n = 308)

Possible error (n = 2157)

Prevented administration error (n = 187)

Administration discrepancy (n = 477)

Source: Am J Health-Syst Pharm © 2005 American Society of Health-System Pharmacists

# Evidence Based Practice

## Nursing Care Plans

**SUBJECTIVE:**
- "Bakit kaya malas ako nina ko?" (Why do I always feel dizzy?) as verbalized by the patient.

**OBJECTIVE:**
- Request for information.
- Agitated behavior
- Inaccurate follow through of instructions.
- VS taken as follows:
  - T: 37.2
  - P: 84
  - R: 18
  - BP: 120/110

**DIAGNOSIS:**
- Risk for prone behavior related to lack of knowledge about the disease.
- High blood pressure (HBP) or hypertension means high pressure (tension) in the arteries. Arteries are vessels that carry blood from the pumping heart to all the tissues and organs of the body. High blood pressure does not mean excessive emotional tension, although emotional tension and stress can temporarily increase blood pressure. Normal blood pressure is below 120/80; blood pressure between 120/80 and 139/89 is called "pre-hypertension".

**INFEERENCE:**
- After 8 hours of nursing interventions, the patient will verbalize understanding of the disease process and treatment regimen.

**PLANNING:**
- Infer the need for understanding the limits of desired BP. Explain hypertension and its effect on the heart, blood vessels, kidney, and brain.

**INTERVENTION:**
- Provides basis for understanding elevations of BP, and clarifies misconceptions and also understanding that high BP can exist without symptoms or even when feeling well.
- After 8 hours of nursing interventions, the patient was able to verbalize understanding of the disease process and treatment regimen.

**RATIONALE:**
- Assist the patient in identifying modifiable risk factors like diet, high in sodium, saturated fats and cholesterol.
- Reinforce the importance of adhering to treatment regimen and keeping follow up appointments.
- Suggest frequent position changes, leg exercises when lying down.
- Decreases peripheral venous pooling that may be potentiated by vasodilators and

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[Image 40x58 to 345x414]

[Image 362x58 to 653x414]

[Image 43x458]
Evidence Based Guidelines

Example of window text display for diagnosis of Diabetes and Severe Hypertension

Recommendations:

Medication X is a derivative of the medication Y, which Mr. Johns has a documented allergy

This recommendation is specific to the patient’s diagnosis and available to the user at the point clinical decisions are made. In this case, the prescriber (physician or APRN) may see this information as they are writing orders to a new patient with diagnosis of Diabetes and severe hypertension.
Outcomes Research
Federal Health IT Strategic Plan 2011-2015
coordinated strategy between the public and private sector to improve the quality,
efficiency, safety and patient-centeredness of health care through use of
information and technology.

Better Technology ➔ Better Information ➔ Transform Health Care

**Goal V:** Achieve Rapid Learning and Technological Advancement

**Goal IV:** Empower Individuals with Health IT to Improve their Health and the Health Care System

**Goal III:** Inspire Confidence and Trust in Health IT

**Goal II:** Improve Care, Improve Population Health, and Reduce Health Care Costs through the Use of Health IT

**Goal I:** Achieve Adoption and Information Exchange through Meaningful Use of Health IT
“Meaningful Use of Meaningful Use”

Transform health care

Access to information

Improved population health
Enhanced access and continuity
Data utilized to improve delivery and outcomes
Data utilized to improve delivery and outcomes
Patient self management
Patient engaged, community resources
Patient centered care coordination
Team based care, case management
Registries to manage patient populations
Registries to manage patient populations
Privacy & security protections
Privacy & security protections
Privacy & security protections
Privacy & security protections

Utilize technology

Basic EHR functionality, structured data
Structured data utilized
Privacy & security protections
Care coordination
Patient informed
Evidenced based medicine
Privacy & security protections
Privacy & security protections
Privacy & security protections

Stage 1 MU
Stage 2 MU
PCMH 3-Part Aim
ACO’s “Stage 3 MU”
A Call to Action:

Engage in Big Data Science

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  \item \textsuperscript{f}Healthcare Information and Management Systems Society (HIMSS)
  \item \textsuperscript{g}Warren Associate, LLC
  \item \textsuperscript{h}School of Nursing, University of Colorado
\end{itemize}
Outcomes Research

Despite these efforts, a lack of standardization and integration within key technologies such as electronic health records (EHR) and administrative systems persists and prevents information exchange, quality measurement, research, and the expansion of data-based, knowledge driven solutions for the delivery of health care. No more evident is this than in Nursing where after decades of implementing EHR’s nurses still cannot consistently use electronically collected data to conduct research or report quality and patient safety outcomes.

Standardized Terminologies

• Multidisciplinary terminologies (SNOMED-CT, LOINC)

• Nursing terminologies (CCC, ICNP, NANDA, NIC, NOC, OS, PNDS)

AACN Content Sample:
Information management for patient safety.

http://z.umn.edu/nnideepdive
New Multi-institution Networks

- CTSA – Clinical Translational Science Award.
- PCORI – Patient Powered and Clinical Data Research Network
- NIH Big Data to Knowledge Initiative
On-The-Go Big Data

http://www.soterawireless.com/
http://www.visimobile.com/
Interdisciplinary Practice

MD Progress Note

RN Progress Note

http://drwes.blogspot.com/2012/05/paper-based-charts-how-soon-we-forget.html

# Interdisciplinary Practice

## Patient Information:
- **Full Name:** Smith, Betty (94/F)
- **Age:** 94
- **Gender:** F
- **Date of Birth:** 01/01/1930
- **Team:** Russell Regional
- **Location:** 3A East Medicine
- **Attending:** Doctor A

## Active Problems:
- **Septic T shrinkage:** Onset Jan 01, 2023
- **HT:** Admit
- **Hi of Alcohol:** Admit
- **Lack of houses:** Admit

## Allergies/Adverse Reactions:
- **Allergen:** None
- **Severity:** High
- **Reactions:** ACE inhibitors, Hypertension, Topiramate

## Active Medications:
- **Levothyroxine:** Status ACTIVE
- **Chloroquine (PQ):** Status DISCONTINUED
- **Calcium DiGlyceride:** Status PRN
- **Lamotrigine:** Status ACTIVE

## Clinical Reminders:
- **Diabetes Mellitus Type 2**
- **N11 Immunization Registry**

## Vitals:

<table>
<thead>
<tr>
<th>Vital</th>
<th>Value</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>98.6°F</td>
<td>Nov 01, 2023 14:30</td>
</tr>
<tr>
<td>P</td>
<td>60</td>
<td>Nov 01, 2023 14:30</td>
</tr>
<tr>
<td>R</td>
<td>100</td>
<td>Nov 01, 2023 14:30</td>
</tr>
<tr>
<td>SP</td>
<td>120/80</td>
<td>Nov 01, 2023 14:30</td>
</tr>
<tr>
<td>BP</td>
<td>120/80</td>
<td>Nov 01, 2023 14:30</td>
</tr>
<tr>
<td>HT</td>
<td>65 cm2 (80.0)</td>
<td>Nov 01, 2023 14:30</td>
</tr>
<tr>
<td>NT</td>
<td>110</td>
<td>Nov 01, 2023 14:30</td>
</tr>
<tr>
<td>PT</td>
<td>Undetectable</td>
<td>Nov 01, 2023 14:30</td>
</tr>
</tbody>
</table>

## Recent Lab Results:
- **TSH Blood Serum SP FC:** Date Nov 01, 2023 15:30, Status COMPLETE
- **Hb 1 Blood Serum SP LS:** Date Nov 01, 2023 15:30, Status COMPLETE
- **Cbc W Ate Differential:** Date Nov 01, 2023 15:30, Status COMPLETE
- **Unstable Vt Thorax SP L:** Date Nov 01, 2023 15:30, Status COMPLETE
Texas Hospital Blames EHR For Ebola Mishandling

Texas Health Presbyterian Hospital Dallas cites lack of interoperability between nurse and physician workflows as reason Ebola patient was sent home.

Lack of interoperability between the nurse and physician workflows in its electronic health record system was the reason Texas Health Presbyterian Hospital Dallas initially sent home Ebola patient Eric Duncan, according to the healthcare facility. And similar interoperability issues could threaten other healthcare organizations, industry executives caution.

Exponential Growth in Complexity

Decades of rapid innovation and technological improvement have created an extraordinarily complex healthcare system. So much so that healthcare often falls short of its potential.

Typical chronic disease pt.
- 79 years old,
- Osteoporosis,
- Osteoarthritis,
- Type 2 diabetes,
- Hypertension,
- COPD,

Exponential Growth in Interactions

Typical Patient

• See 7 doctors across 4 practices
• 27 different health providers (surgery patient)
• 19 medications per day

Exponential Growth in Activities

Typical Physician
• Interacts with 229 other physicians in 117 different practices.

Typical ICU Nurse
• Manages 180 activities per patient per day!

Exponential Growth in New Knowledge

Most physicians, nurses, and other health care professionals work diligently to care for their patients, but they often are contending with:

- challenges of a system that is poorly configured, for the current complexity of treatments, technologies, and clinical science.

Transformation: Nurses must be engaged in technology solutions.

Institute of Medicine
• These problems point to the need for a transformation in how the health care enterprise generates, processes, and applies information to further patient care.

Key Imperatives
• To manage the health care system’s ever-increasing complexity, and curb ever-escalating costs.

Healthcare as a Learning System

“Opportunities exist to address these problems—opportunities that did not exist even a decade ago:”

1. Vast computational power that is affordable and widely available;
2. Connectivity that allows information to be accessed in real time virtually anywhere;
3. Human and organizational capabilities that improve the reliability and efficiency of care processes; and
4. The recognition that effective care must be delivered by collaborations between teams of clinicians and patients, each playing a vital role in the care process.

IOM: Characteristics of continuously Learning Healthcare System

Science and Informatics

• **Real-time access to knowledge.** The system continuously and reliably captures, curates and delivers the best available evidence to guide and improve clinical decision-making and healthcare safety and quality (*EHR*).

• **Digital capture of the care experience.** The system captures the care experience on digital platforms for real-time generation and application of knowledge for care improvement (*on-the-go big data)*.

Patient-Clinician Relationships

• **Engaged, empowered patients.** The system focuses on patient needs and perspectives and promotes the inclusion of patients, families and other caregivers as vital members of the continuously learning care team (*telehealth, eMobile health, quantified self*).
Characteristics of a Continuously Learning Healthcare System

Incentives

- **Incentives aligned for value.** The system actively aligns incentives to encourage continuous improvement, identify and reduce waste and reward high-value care (*Meaningful Use*).
- **Full transparency.** The system systematically monitors the safety, quality, processes, prices, costs and outcomes of care, and makes information available for care improvement and informed choices and decision-making by clinicians, patients and their families (*Dashboards and OpenNotes*).

Culture

- **Leadership-instilled culture of learning.** The system has leadership committed to a culture of teamwork, collaboration and adaptability in support of continuous learning as a core aim.
- **Supportive system competencies.** The system constantly refines complex care operations and processes through ongoing team training and skill building; systems analysis and information development; and creation of the feedback loops for *continuous learning* and system improvement.
8 Recommendations Supporting 4 Key Messages

• Nurses should practice to the full extent of their education and training.
• Nurses should achieve higher levels of education and training through an improved education system that promotes seamless academic progression.
• Nurses should be full partners, with physicians and other health care professionals, in redesigning health care in the United States.
• Effective workforce planning and policy making require better data collection and information infrastructure.
Triple Aim

Information Infrastructure

- Healthy Communities
  - (Prevention, nutrition, the built environment, housing, jobs, education)
- Integrated Delivery Systems
  - (Specialists, ER, inpatient, long term care, behavioral health, social services, community resources)
- Primary Care
  - (Patient-Centered Medical Home)
2006 NLN of Survey of Deans & Faculty

2006 National League for Nursing Survey

- Five hundred deans and 1,557 faculty
- Only 50 to 60 percent of respondents said that informatics was integrated into the curriculum.
- Clinical experience with information systems was provided during clinical experiences.
2013 Survey: Moore Foundation Grant on Nursing Informatics

SCHOOL OF NURSING FACULTY SURVEY – 28 Nursing Schools – 2013

- 94.7% did not provide course content regarding theories of nursing informatics and key terms.

- 53.3% did not provide content on how to use data gathered through the Electronic Health Record (EHR) to improve patient care.

- 70.8% did not provide content on how to monitor and analyze data on nurse sensitive quality indicators through electronic dashboards and other tools.

- 40% did not provide content on the application and benefits of EHR’s in enabling the use of evidence based practices (For example: developing evidence based care plans and executing electronic order sets, using standardized nursing languages, decision support, links to resources or other)
2013 Survey: Moore Foundation Grant on Nursing Informatics

SCHOOL OF NURSING FACULTY SURVEY – 28 Nursing Schools – 2013

• 40% did not provide content on how the EHR can be used as a bridge for **interdisciplinary learning** (for example: the integration of information systems for nursing, pharmacy, lab, radiology, medicine and other).

• 50% did not provide content on **consumer informatics** in a course (For example: shared medical records, consumer health websites, virtual office visits and other)

• 68% did not engage with **clinical sites/partners** to discuss developing/enhancing nursing informatics curriculum, provide feedback on demands and priorities of each organization, hospital/regional advisory councils, etc.
Faculty Challenges

SCHOOL OF NURSING FACULTY SURVEY – 28 Nursing Schools – 2013

- Confusion on what nursing informatics is.
- NI is a new field and faculty must find ways to integrate the content into an already full schedule of courses.
- To meet the accreditation requirements for NI many Schools rely on a clinical site’s EHR.
Distribution of Nurse Informaticists by Workplace

- Only 9% of nurse informaticists are employed in academic institutions.
- Of the 3,179 total nursing programs in the US, only 317 (10% of total) have either a certificate program or advanced degree in nursing informatics.

<table>
<thead>
<tr>
<th>Workplace</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital</td>
<td>48%</td>
</tr>
<tr>
<td>Health System</td>
<td>20%</td>
</tr>
<tr>
<td>Academic Setting</td>
<td>9%</td>
</tr>
<tr>
<td>Vendor Organization</td>
<td>10%</td>
</tr>
<tr>
<td>Consulting Firm</td>
<td>5%</td>
</tr>
<tr>
<td>Government/Military</td>
<td>4%</td>
</tr>
<tr>
<td>Ambulatory Setting</td>
<td>2%</td>
</tr>
<tr>
<td>Other</td>
<td>7%</td>
</tr>
</tbody>
</table>

HIMSS Annual Survey 2011
(660 Respondents)
Faculty Resources

Content and teaching methods needed by nurse educators for nursing informatics is:

• Scattered among numerous websites
• Aimed primarily at professional development of working informatics professionals.

www.ania.org
The goal of the workshop was to develop the content and skills of local nursing school faculty so that they would more effectively develop the QSEN informatics KSAs (Knowledge, Skill and Ability) in pre-licensure students.
<table>
<thead>
<tr>
<th>Survey Choice</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>A series of webinars on specific nursing informatics topics, hosted through professional organizations such as AACN and others (webinars).</td>
<td>92</td>
<td>59</td>
<td>151</td>
</tr>
<tr>
<td>A 10 module on-line, introductory course that meets the AACN BSN Essentials and QSEN competencies for nursing informatics. The course provides access to multiple resources and an instructor manual. (modules).</td>
<td>71</td>
<td>65</td>
<td>136</td>
</tr>
<tr>
<td>A week-long summer institute that would provide nurse educators a comprehensive review of how to meet AACN BSN Essentials and QSEN competencies for nursing informatics (institute).</td>
<td>59</td>
<td>21</td>
<td>80</td>
</tr>
<tr>
<td>A series of one-day pre-conference workshops (For example: prior to an AACN regional conference) that would provide an overview of nursing informatics and how to meet AACN Essentials and QSEN competencies for nursing informatics (conferences).</td>
<td>55</td>
<td>17</td>
<td>72</td>
</tr>
<tr>
<td>A customized on-site consultation, provided by domain experts aimed at meeting AACN BSN Essentials and QSEN competencies for Nursing informatics (consultations).</td>
<td>43</td>
<td>23</td>
<td>66</td>
</tr>
<tr>
<td>A certificate program aimed at nurse educators whose purpose is to provide an in-depth program of study covering the fundamentals of nursing informatics, 12 academic credits, 1-2 years to complete (certificate).</td>
<td>33</td>
<td>16</td>
<td>49</td>
</tr>
</tbody>
</table>
Biomedical Informatics

- BIOMEDICAL INFORMATICS - The science that develops methods, techniques, and theories regarding how to use data, information and knowledge to support and improve biomedical research, human health, and the delivery of healthcare services.

http://www.amia.org/glossary
Interdisciplinary Nature of Biomedical Informatics

- Computer Science (hardware)
- Computer Science (software)
- Cognitive Science & Decision Making
- Management Sciences
- Clinical Sciences
- Basic Biomedical Sciences
- Bioengineering
- Epidemiology And Statistics

Clinical Informatics
Clinical Informatics

• **CLINICAL INFORMATICS** - The application of biomedical informatics methods and techniques, including information technology, to deliver healthcare services. AMIA considers all informatics when used for healthcare delivery to fall in this category, regardless of the health professional group involved (dentist, pharmacist, physician, nurse, or other health professional).

• Clinical informatics includes a wide range of topics ranging from clinical decision support to clinical documentation to provider order entry systems, and from system design to system implementation and adoption issues.

http://www.amia.org/glossary
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 consumer, patients, 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.
Standards and Guidelines

AACN Essentials for Information Management And Patient Care Technologies

Quality, Safety & Education for Nurses Knowledge, Skills and Attitudes

Technology Informatics Guiding Education Reform Competencies for Practicing Nurses
# Competency Matrix for Nursing Informatics

<table>
<thead>
<tr>
<th></th>
<th>AACN BSN Essentials</th>
<th>TIGER Competencies</th>
<th>QSEN Undergrad. KSA’s</th>
<th>AACN Essentials Masters</th>
<th>QSEN Graduate KSA’s</th>
<th>AACN Essentials DNP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generalist</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Masters</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Doctor of Nursing Practice</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
AACN Essentials for Baccalaureate Education For Professional Nursing Practice

Information Management and Application of Patient Care Technology

- I. Liberal Education for Baccalaureate Generalist Nursing Practice
- II. Basic Organizational and Systems Leadership for Quality Care and Patient Safety
- III. Scholarship for Evidence Based Practice
- IV. Information Management and Application of Patient Care Technology
- V. Healthcare Policy, Finance, and Regulatory Environments
- VI. Inter-professional Communication and Collaboration for Improving Patient Health Outcomes
- VII. Clinical Prevention and Population Health
- VIII. Professionalism and Professional Values
- IX. Baccalaureate Generalist Nursing Practice
AACN Essentials

- Demonstrate skills in using patient care technologies, information systems, and communication devices that support safe nursing practice.
- Use telecommunication technologies to assist in effective communication in a variety of healthcare settings.
- Apply safeguards and decision making support tools embedded in patient care technologies and information systems to support a safe practice environment for both patients and healthcare workers.
- Understand the use of CIS systems to document interventions related to achieving nurse sensitive outcomes.
- Use standardized terminology in a care environment that reflects nursing’s unique contribution to patient outcomes.
AACN Essentials

• Evaluate data from all relevant sources, including technology, to inform the delivery of care.
• Recognize the role of information technology in improving patient care outcomes and creating a safe care environment.
• Uphold ethical standards related to data security, regulatory requirements, confidentiality, and clients’ right to privacy.
• Apply patient care technologies as appropriate to address the needs of a diverse patient population.
• Advocate for the use of new patient care technologies for safe, quality care.
• Recognize that redesign of workflow and care processes should precede implementation of care technology to facilitate nursing practice.
• Participate in evaluation of information systems in practice settings through policy and procedure development.
Information Management Systems as Enablers of BSN Essentials

III. Scholarship for Evidence Based Practice

The baccalaureate program prepares the graduate to evaluate the credibility of sources of information, including but not limited to databases and Internet resources.

- locating and evaluating sources of evidence
- electronic database search strategies (e.g., CINAHL, PubMed, the Cochrane Database of Systematic Reviews)

IV. Information Management and Application of Patient Care Technology

- Baccalaureate graduates must have competence in the use of information technology systems, including decision support systems, to gather evidence to guide practice.
- “Improvement of cost effectiveness and safety depend on evidence based practice, outcomes research, interprofessional care coordination, and electronic health records, all of which involve information management and technology (McNeil et al., 2006).”
Tiger Competencies

A. Basic Computer Skills – Hardware, software, networks, information & technology communication, security, law, operating systems, file management, utilities, print management, work processing & applications, the intranet & browsers, using the web, and email.

B. Information Literacy – Effective and efficient search strategies. Evaluating information and its sources critically.

C. Information Management (EHR) – Demographics, consents, medications, care planning, provider order entry, results reporting, clinical documentation, clinical decision support (alerts, reminders, notifications), communication.
**QSEN: Knowledge, Skills & Attitudes**

**INFORMATICS**

**Definition:** Use information and technology to communicate, manage knowledge, mitigate error, and support decision making.

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Skills</th>
<th>Attitudes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explain why information and technology skills are essential for safe patient care</td>
<td>Seek education about how information is managed in care settings before providing care</td>
<td>Appreciate the necessity for all health professionals to seek lifelong, continuous learning of information technology skills</td>
</tr>
<tr>
<td>Identify essential information that must be available in a common database to support patient care</td>
<td>Navigate the electronic health record</td>
<td>Value technologies that support clinical decision-making, error prevention, and care coordination</td>
</tr>
<tr>
<td>Contrast benefits and limitations of different communication technologies and their impact on safety and quality</td>
<td>Document and plan patient care in an electronic health record</td>
<td>Protect confidentiality of protected health information in electronic health records</td>
</tr>
<tr>
<td>Describe examples of how technology and information management are related to the quality and safety of patient care</td>
<td>Employ communication technologies to coordinate care for patients</td>
<td>Value nurses’ involvement in design, selection, implementation, and evaluation of information technologies to support patient care</td>
</tr>
<tr>
<td>Recognize the time, effort, and skill required for computers, databases and other technologies to become reliable and effective tools for patient care</td>
<td>Respond appropriately to clinical decision-making supports and alerts</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Use information management tools to monitor outcomes of care processes</td>
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<tr>
<td></td>
<td>Use high quality electronic sources of healthcare information</td>
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</tr>
</tbody>
</table>
# Course by AACN Essential

## Sample Crosswalk Between AACN BSN Essentials for Information Management and Patient Care Technologies and Curriculum

<table>
<thead>
<tr>
<th>Key</th>
<th>Classroom Activities</th>
<th>1.0 Demonstrate skills in using patient care technologies, information systems, and communication devices that support safe nursing practice.</th>
<th>2.0 Understand the use of CIS (clinical information systems) to document interventions related to achieving nurse sensitive outcomes.</th>
<th>3.0 Advocate for the use of new patient care technologies for safe, quality care</th>
<th>4.0 Use telecommunication technologies to assist in effective communication in a variety of healthcare settings.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
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<td>2.</td>
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<td>3.</td>
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<td>4.</td>
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<td>5.</td>
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<td>6.</td>
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</tbody>
</table>

## FALL SOPHOMORE YEAR

<table>
<thead>
<tr>
<th>Course</th>
<th>Classroom Activities</th>
<th>Simulation Activities</th>
<th>Clinical Activities</th>
<th>Syllabus</th>
<th>Readings</th>
<th>Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 3703 Assessment and Basic Nursing (lab I)</td>
<td>1,2,4,5,6</td>
<td>1,2,4,5,6</td>
<td>1,5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NURS 3801PCC Adults/Older Adults I or NURS 3802 Nursing Care of Families I (1/2 Class in each)</td>
<td>1,5</td>
<td>1,5</td>
<td>1,5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NURS 3806 Professional Nursing</td>
<td>1,5</td>
<td>1,5</td>
<td>1,5</td>
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<td></td>
</tr>
<tr>
<td>NURS 5010 Foundations of Interprofessional Communication/Collaboration</td>
<td>1,2,4,5,6</td>
<td>1,2,4,5,6</td>
<td>1,5</td>
<td>1,2,4,5,6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[http://z.umn.edu/nnideepdive](http://z.umn.edu/nnideepdive)
Knowledge Complexity Framework

Data → Information → Knowledge → Meaning → Philosophy → Wisdom

As a clinical nurse I review the blood pressure readings in the assessment screen of the **EHR**

I note that one of my patients has an **“alert”** signal next to the blood pressure reading because it is outside of the normal range parameters.

I review the patients’ history, physical and previous notes regarding their disease condition. I do a quick search of the Cochrane Collaboration website using an **“info-button”** and learn that an elevated blood pressure is dangerous in conjunction with the disease condition.

Knowing the patient has an elevated BP, means that I need to intervene quickly. So I review the evidence based guidelines **embedded** in the EHR for what actions to take.

Before taking action I stop and integrate a holistic philosophy. Is there something else going on in this individual’s life that could be elevating his blood pressure (a stressful event, fear, diet?). So I review the patients **clinical dashboard**.

I integrate all of the information gathered and prepare to call a very busy specialist. Having experienced phone calls in the past with this specialist I use the SBAR technique and successfully communicate my concerns and document assessment and interventions on the **electronic flowsheet**.
### Knowledge Complexity Curriculum Framework

#### Sample Crosswalk Between AACN BSN Essentials/Knowledge Framework/Semester

<table>
<thead>
<tr>
<th>Key</th>
<th>Classroom Activities</th>
<th>Simulation Activities</th>
<th>Clinical Activities</th>
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<th>Readings</th>
<th>Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>DATA (Instinctual Learning) Sensing</td>
<td>INFORMATION (Single Loop learning). Action without reflection</td>
<td>KNOWLEDGE (Double Loop learning) Self-conscious reflection.</td>
<td>MEANING (Communal learning) Understanding context, relationships &amp; trends.</td>
<td>PHILOSOPHY (Duetero learning) Self-organizing</td>
<td>WISDOM (Generative learning) Value driven</td>
</tr>
</tbody>
</table>

| FALL FRESHMAN YEAR | ICL, 1,5,6 | ICL, 1,5,6 | | | | |
| SPRING FRESHMAN YEAR | ICL, 1,5,6 | ICL, 1,5,6 | | | | |
| FALL SOPHOMORE YEAR | ICL, PCT, CIS, CD, CDS, SNT, 1,2,4,5,6 | ICL, PCT, CIS, CD, CDS, SNT, 1,2,4,5,6 | | | | |
| SPRING SOPHOMORE YEAR | ICL, PCT, CIS, CD, CDS, SNT, 1,2,4,5,6 | ICL, PCT, CIS, CD, CDS, SNT, 1,2,4,5,6 | ICL, 1,2,4,5,6 | | | |
| FALL JUNIOR YEAR | ICL, PCT, CIS, CD, CDS, SNT, CL, HIPAA, CI 1,2,3,4,5,6 | ICL, PCT, CIS, CD, CDS, SNT, CL, HIPAA, CI 1,2,3,4,5,6 | ICL, PCT, CIS, CD, CDS, SNT, CL, HIPAA, CI 1,2,3,4,5,6 | ICL, PCT, CIS, CD, CDS, SNT, CL, HIPAA, CI 1,2,3,4,5,6 | ICL, PCT, CIS, CD, CDS, SNT, CL, HIPAA, CI 1,2,3,4,5,6 | ICL, PCT, CIS, CD, CDS, SNT, CL, HIPAA, CI 1,2,3,4,5,6 |
| SPRING JUNIOR YEAR | ICL, PCT, CIS, CD, CDS, SNT, CL, HIPAA, CI 1,2,3,4,5,6 | ICL, PCT, CIS, CD, CDS, SNT, CL, HIPAA, CI 1,2,3,4,5,6 | ICL, PCT, CIS, CD, CDS, SNT, CL, HIPAA, CI 1,2,3,4,5,6 | ICL, PCT, CIS, CD, CDS, SNT, CL, HIPAA, CI 1,2,3,4,5,6 | ICL, PCT, CIS, CD, CDS, SNT, CL, HIPAA, CI 1,2,3,4,5,6 | ICL, PCT, CIS, CD, CDS, SNT, CL, HIPAA, CI 1,2,3,4,5,6 |
| FALL SENIOR YEAR | ICL, PCT, CIS, CD, CDS, SNT, CL, HIPAA, WA, 1,3,4,5,6 | ICL, PCT, CIS, CD, CDS, SNT, CL, HIPAA, WA, 1,3,4,5,6 | ICL, PCT, CIS, CD, CDS, SNT, CL, HIPAA, WA, 1,3,4,5,6 | ICL, PCT, CIS, CD, CDS, SNT, CL, HIPAA, WA, 1,3,4,5,6 | ICL, PCT, CIS, CD, CDS, SNT, CL, HIPAA, WA, 1,3,4,5,6 | ICL, PCT, CIS, CD, CDS, SNT, CL, HIPAA, WA, 1,3,4,5,6 |
| SPRING SENIOR YEAR | ICL, PCT, CIS, CD, CDS, SNT, CL, HIPAA, WA, 1,3,4,5,6 | ICL, PCT, CIS, CD, CDS, SNT, CL, HIPAA, WA, 1,3,4,5,6 | ICL, PCT, CIS, CD, CDS, SNT, CL, HIPAA, WA, 1,3,4,5,6 | ICL, PCT, CIS, CD, CDS, SNT, CL, HIPAA, WA, 1,3,4,5,6 | ICL, PCT, CIS, CD, CDS, SNT, CL, HIPAA, WA, 1,3,4,5,6 | ICL, PCT, CIS, CD, CDS, SNT, CL, HIPAA, WA, 1,3,4,5,6 |

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Questions?

Workshop Packet (AACN)

• http://www.aacn.nche.edu/downloads/meetings/2014/informatics

Workshop Webpage (University of Minnesota School of Nursing)

• z.umn.edu/nnideepdive