National Nursing Informatics Deep Dive Program

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

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Faculty Practices, Partnerships and Professional Development

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Disclosure

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

• Discuss methods of integrating professional standards for nursing informatics into program curricula aimed at prelicensure nursing students.
• Explore various methods used to teach nursing informatics to prelicensure students.
• Provide nursing informatics resources and tools that can be easily incorporated into existing prelicensure program curricula.
Presentation Objectives

• Discuss the “Knowledge Complexity Framework” as it relates to curriculum development for nursing informatics.

• Review the integration of The AACN Essentials for Information Management, The TIGER Competencies for Practicing Nurses and the QSEN knowledge, skills and attitudes for nursing informatics into a nursing informatics curriculum.
Knowledge Work

- **Data**
  - statistics, financial data, metrics
  - procedures, standards, user guides, specifications, regulations, audits, filing and classification, order processing

- **Information (Procedural)**
  - workflow planning, priorities, graphs, engineering, historical data, tracking, database design & management

- **Knowledge (Functional)**
  - business plans, goals, objectives, budgets, resources, roles, culture, managing variables, developing projects

- **Meaning (Managing)**
  - strategic planning, systemic mapping, competitive analysis, market forecasts
  - values, vision, future trends

- **Philosophy (Systems)**
  - social, environmental & global issues, activism, ecological values work

- **Wisdom (Renewing)**

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# 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>
<th>Syllabus</th>
<th>Readings</th>
<th>Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>DATA (Instinctual Learning) Sensing</td>
</tr>
<tr>
<td>2.</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>INFORMATION (Single Loop learning). Action without reflection</td>
</tr>
<tr>
<td>3.</td>
<td></td>
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<td>KNOWLEDGE (Double Loop learning) Self-conscious reflection.</td>
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<tr>
<td>4.</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>MEANING (Communal learning) Understanding context, relationships &amp; trends.</td>
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<tr>
<td>5.</td>
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<td>PHILOSOPHY (Duetero learning) Self-organizing</td>
</tr>
<tr>
<td>6.</td>
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<td>WISDOM (Generative learning) Value driven</td>
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<td>UNION (Synergistic) Connection</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, WA 1,3,4,5,6 |          |                      |
| SPRING JUNIOR 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 |                      |
| 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 |                      |
| 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 |                      |
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
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
# Course by AACN Essential

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

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Key</th>
<th>Description</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>
</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>
</tr>
<tr>
<td>NURS 3806 Professional Nursing</td>
<td>1,5</td>
<td>1,5</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>
</tr>
</tbody>
</table>
1. Demonstrate skills in using:

- *patient care technologies*,
- *information systems* and
- *communication devices* that support safe nursing practice.
Patient Care Technologies

- Computers, printers
- IV smart pumps,
- Bar coded medication management systems,
- Pulse oximeters,
- Automated blood pressure and pulse
- Monitoring equipment (ECG, arterial blood pressure, respirations)
- Automated temperature
- Defibrillators

AACN Sample Content
Use of patient care technologies
AACN Communication Devices

Communication Devices

• Smart phones,
• Hands free mobile communication devices (Vocera),
• Tablets (iPads)
• Email
• Quantified Self
AACN Information Systems

Operations Support
- Basic computer hardware and software
- Software (spread sheets, email, word processing, databases)

Core Systems
- Admission, discharge, transfer
- Financial systems
- Order entry system
- Ancillary systems (lab, pharmacy, radiology)
- Results reporting systems
- Documentation systems
- Administrative systems (scheduling)

Sample AACN Content
Computer skills that may include basic software, spreadsheet, and healthcare databases.
QSEN Attitudes

Appreciate the necessity for all health professionals to seek lifelong, continuous learning of information technology skills

Knowledge

• Explain why information and technology skills are essential for safe patient care

Skills

• Seek education about how information is managed in care settings before providing care.
Technology Informatics Guiding Education Reform (TIGER) Informatics Competencies for Every Practicing Nurse:

**TIGER Competencies**

**European Computer Driving License**

**Basic Computer Competencies**

1.1 Hardware  
1.2 Software  
1.3 Networks  
1.4 Information/communication tech.  
2.1 Operating systems  
2.2 File Mgt  
2.3 Utilities  
2.4 Print Mgt  
3.1 Using the Application  
7.1 The Intranet  
7.2 Using the browser  
7.3 Using the Web  
7.4 Web outputs
2. Understand the use of CIS (clinical information systems) to document interventions related to achieving nurse sensitive outcomes.

AACN Clinical Information Systems

Electronic health records in:
- Acute care
- Ambulatory care
- Skilled nursing care
- Home, public and community health systems

Applications to manage care.
- Provider order entry
- Clinical documentation (assessment, care planning, other)
- Results reporting
- Bar coded medication administration (BCMA)
- Electronic medication administration record (eMar)
- Ancillary systems (pharmacy, lab, radiology)

AACN Sample Content
Electronic health records/physician order entry.
QSEN Attitudes

Appreciate the necessity for all health professionals to seek lifelong, continuous learning of information technology skills

Knowledge

• Explain why information and technology skills are essential for safe patient care.

Skills

• Document and plan patient care in an electronic health record.
• Navigate the electronic health record.
Technology Informatics Guiding Education Reform (TIGER) Informatics Competencies for Every Practicing Nurse:

<table>
<thead>
<tr>
<th>TIGER Competencies</th>
<th>Information Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>European Computer</td>
<td>1.0 Demographic</td>
</tr>
<tr>
<td>Driving License</td>
<td>2.0 Consents</td>
</tr>
</tbody>
</table>

Information Management:

1.0 Demographic
2.0 Consents
3.0 Medication Mgt
4.0 Planning care
5.0 Order results
6.0 Care documentation
3. Advocate for the use of new patient care technologies for safe, quality care
• Emobile Health
• Telehealth
• Patient Engagement/Personal Health Records
• Social Media
• Predictive analytics and “Big Data”
• Robotics
• Nano-technology and 3D computing
• 3D Printing
• Wearable Technology

The Future is Here!
Google Glasses

AACN Essential

4. Use telecommunication technologies to assist in effective communication in a variety of healthcare settings.

Telecommunications Technologies:

AACN Sample Content

• Technology for virtual care delivery and monitoring.
• Interstate practice regulations (e.g., licensure, telehealth).
• Information literacy

University of Minnesota
School of Nursing
Telehealth

- Patient monitoring technologies (virtual assessments, ICU’s)
- Home sensing devices (weight scale, BP monitor, bed chair, glucose meter, implant monitors, baby monitors, spirometer, medication monitoring, pedometer)

Patient engagement

- Personal health records
- Health literacy
- Social networking

AACN Essentials

Telehealth Communication Technologies

University of Minnesota
School of Nursing
QSEN Attitudes

Appreciate the necessity for all health professionals to seek lifelong, continuous learning of information technology skills

Knowledge

• Contrast benefits and limitations of different communication technologies and their impact on safety and quality

Skills

• Employ communication technologies to coordinate care for patients.

QSEN

Quality and Safety Education for Nurses
Technology Informatics Guiding Education Reform (TIGER) Informatics Competencies for Every Practicing Nurse:

**TIGER Competencies**

- European Computer Driving License

**Communication Technologies**

- **Basic Computer Competencies**
- **Electronic Communication**
  - 7.6 Using e-mail
  - 7.7 e-mail management

- **Information Mgt Competencies**
  - 9.0 Facilitating Communications
5. 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.
Safeguards and Decision Making Support

- **Medication dosing** support (medication pick lists, dosing calculators)
- **Order facilitators** (order sets for specific conditions based on evidence based guidelines: pneumonia, adult prosthetic hip replacement, myocardial infarction)
- **Point of care alerts** (drug to drug interactions, duplicate therapy, drug allergies, contraindications to specific conditions)
- **Point of care reminders** (immunizations, cancer screenings, fall prevention, pain management).
- **Information displays** (dashboards of relevant data)

AACN Sample Content

- Use of technology and information systems for clinical decision-making.
- Technology and information systems safeguards
QSEN Attitudes

Value technologies that support clinical decision-making, error prevention, and care coordination

Knowledge

• Describe examples of how technology and information management are related to the quality and safety of patient care

Skills

• Respond appropriately to clinical decision-making supports and alerts.
• Apply technology and information management tools to support safe processes of care.
TIGER Competencies

Decision Support

7.1 Standard Assessments
7.2 Patient Context-Driven assessments
7.3 Identification of Potential Problems and Trends
7.4 Patient and Family Preferences
7.5 Standard Care Plans, Guidelines, and Protocols
7.6 Context-Sensitive Care Plans, Guidelines, and Protocols
7.7 Consistent Healthcare
7.8 Patient Groups or Populations
7.9 Research Protocols Relative to Individual Patient Care
7.10 Self-Care
7.11 Medication and Immunization Ordering
7.12 Drug Interaction Checking
7.13 Patient Specific Dosing and Warnings
7.14 Medication Recommendations
7.15 Medication and Immunization Administration
7.16 Non-Medication Ordering
7.17 Support for Result Interpretation
7.18 Referral Process
7.19 Referral Recommendations
7.20 Safe Blood Administration
7.21 Accurate Specimen Collection
6. Recognize the role of information technology in improving patient care outcomes and creating a safe care environment.
Information Technology and Improving Patient Outcomes

Benefits of Big Data

• Population management
• Cost benefit/Effectiveness
• Best practices & EBG’s
• Health analytics
  • Descriptive
  • Predictive
• Clinical research
• Comparative analysis
  • Nurse sensitive quality outcomes
  • Dashboards
7. Use **standardized terminology** in a care environment that reflects nursing’s unique contribution to patient 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.
QSEN Attitudes

Value technologies that support clinical decision-making, error prevention, and care coordination

Knowledge

• Identify essential information that must be available in a common database to support patient care

Skills

• Use information management tools to monitor outcomes of care processes
Technology Informatics Guiding Education Reform (TIGER)  
Informatics Competencies for Every Practicing Nurse:

TIGER Competencies

European Computer Driving License

Standardized Nursing Terminology

Information Literacy

2.9 Understand how to use classification systems and their rationale.
8. Evaluate data from all relevant sources, including technology, to inform the delivery of care.
Relevant Sources, Including Technology

AACN Sample Content

• Retrieval from information systems, including access, evaluation of data, and application of relevant data to patient care.
• On-line literature searches
• Technological resources for evidence based practice
QSEN Attitudes

Value technologies that support clinical decision-making, error prevention, and care coordination

Knowledge

• Identify essential information that must be available in a common database to support patient care

Skills

• Use high quality electronic sources of healthcare information.
Technology Informatics Guiding Education Reform (TIGER) Informatics Competencies for Every Practicing Nurse:

<table>
<thead>
<tr>
<th>TIGER Competencies</th>
<th>Information Literacy Competencies</th>
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<tbody>
<tr>
<td>European Computer Driving License</td>
<td>1. Knowledge</td>
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<tr>
<td></td>
<td>2. Access</td>
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<tr>
<td></td>
<td>3. Evaluate Information</td>
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<td>4. Application of information</td>
</tr>
<tr>
<td></td>
<td>5. Evaluate Outcomes</td>
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</tbody>
</table>
9. Apply patient-care technologies as appropriate to address the needs of a diverse patient population.

Institute for Family Health

Early adopter of the patient portal, introducing the Epic MyChart, MyHealth in 2007 and the Spanish-language version, MiRecord, MiSalud, in 2011.
Diverse Patient Populations

The Institute implemented a robust patient portal that patients can use to:

- Send and receive secure messages
- Access and review clinical summaries
- Access and review their health information (medications, health history, allergies, current medication, lab and other test results)
- Download their medical record
- Create a “wallet card” that lists their medications
- Access MedlinePlus patient education resources, schedule appointments
- Request medication refills

Specific programs to address health care needs in these communities:

- including education and support for people with HIV,
- a comprehensive diabetes program,
- school-based clinics,
- and clinics for the homeless.
10. Recognize that redesign of workflow and care processes should precede implementation of care technology to facilitate nursing practice.
11. Participate in evaluation of information systems in practice settings through policy and procedure development.
QSEN Attitudes

Value nurses’ involvement in design, selection, implementation, and evaluation of information technologies to support patient care.

Knowledge

• Recognize the time, effort, and skill required for computers, databases and other technologies to become reliable and effective tools for patient care
12. Uphold ethical standards related to data security, regulatory requirements, confidentiality, and clients’ right to privacy.
Technology Informatics Guiding Education Reform (TIGER)
Informatics Competencies for Every Practicing Nurse:

TIGER Competencies
European Computer Driving License

Basic Computer Competencies

1.10 Security
1.11 Law
QSEN Attitudes

• Protect confidentiality of protected health information in electronic health records
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).”
Questions?