Informatics Competencies for Nurses & Nurse Leaders

The “Gold” Standards

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OBJECTIVE:

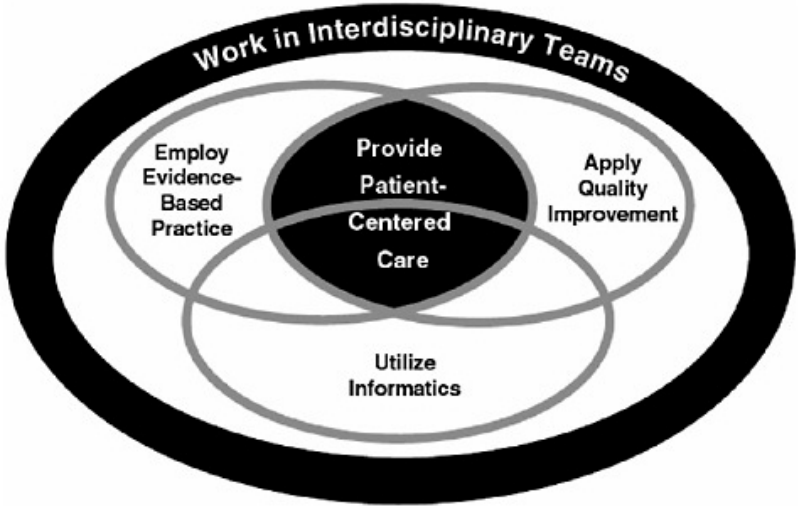
To identify top informatics competencies relevant to nurses and nurse leaders at various levels of practice

BACKGROUND

- 2001: Institute of Medicine report "*Crossing the Quality Chasm: A New Health System for the 21st Century*" recommended developing steps for reform of health professions education in order to enhance patient care quality and safety.

- 2002: IOM summit of 150 experts report focused on integrating *a core set of competencies into health professions education that all clinicians should possess, regardless of their discipline*, to meet the needs of the 21st-century health system. They were categorized as:

1. Patient-centered care
2. Interdisciplinary teams
3. Evidence-based practice
4. Quality Improvement
5. Informatics
6. Safety *added by(QSEN) in 2006*



DEFINITION OF NURSING INFORMATICS SPECIALTY

Nursing informatics is "a specialty that integrates nursing science, computer science, and information science to manage and communicate data, information, knowledge, and wisdom in nursing practice."

American Nurses Association (ANA). (2008). Nursing informatics: Scope and standards of practice. Silver Spring, MD.

NI SCOPE & STANDARDS OF PRACTICE

Nursing informatics (NI) is the specialty that integrates nursing science with multiple information management and analytical sciences to identify, define, manage, and communicate data, information, knowledge, and wisdom in nursing practice.

NI supports nurses, consumers, patients, the inter-professional healthcare team, and other stakeholders in their decision-making in all roles and settings to achieve desired outcomes. This support is accomplished through the use of information structures, information processes, and information technology.

Nursing Informatics: Scope and Standards of Practice, 2nd Edition, ANA 2015

Competencies, a Definition

Competencies are the habitual and judicious use of:

- Knowledge
- Technical skills
- Clinical reasoning
- Values
- Emotions
- Communication
- Reflection (insight and intuition)

Hundert, E. M., Douglas-Steele, D. and Bickel, J. (1996), Context in medical education: the informal ethics curriculum. Medical Education, 30: 353–364.

EDUCATION-BASED INFORMATICS SKILLS & COMPETENCIES- QSEN:

Between 2010 and 2014, the American Association of Colleges of Nursing (AACN) led the Quality and Safety Education in Nursing (QSEN) project to design & enhance the ability of nursing faculty to effectively develop quality and safety competencies among graduates of nursing programs. The result of which was launching a thirteen web-based learning modules focused on six core competencies:

1. Patient-centered care
2. Teamwork and collaboration
3. Evidence-based practice (EBP)
4. Quality improvement (QI)
5. Safety
6. Informatics

Resource: http://www.aacn.nche.edu/qsen/home

THE QSEN MODEL DEFINED 3 MAIN COMPETENCY GROUPS ADOPTED BY THE NLN

Informatics Pre-Licensure QSEN-KSAs

http://www.qsen.org/ksas_prelicensure.php#informatics

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

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

Education-based Informatics Skills & Competencies- TIGER

- TIGER (Technology Informatics Guiding Education Reform) began as a grassroots initiative in 2006 within the nursing community, with support from over 70 contributing organizations including the American Medical Informatics Association (AMIA) and HIMSS.
- TIGER focused on better preparing the clinical workforce to use technology and informatics to improve the delivery of patient care.
- TIGER transitioned to HIMSS, effective September 22, 2014 under Clinical Informatics with an interprofessional, interdisciplinary focus.

http://www.himss.org/professionaldevelopment/tiger-initiative?utm_source=commnews&utm_medium=email&utm_campaign=tiger

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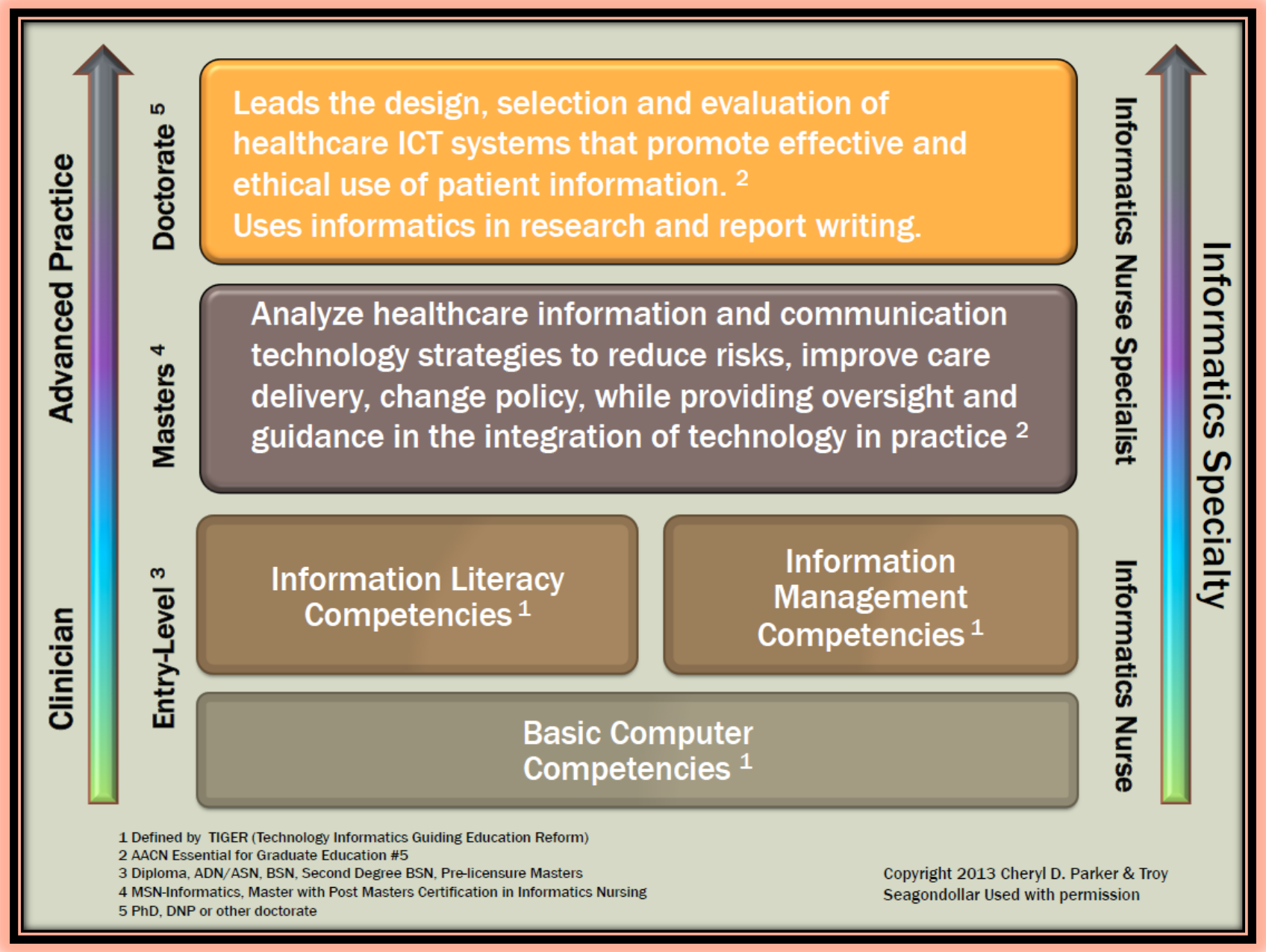
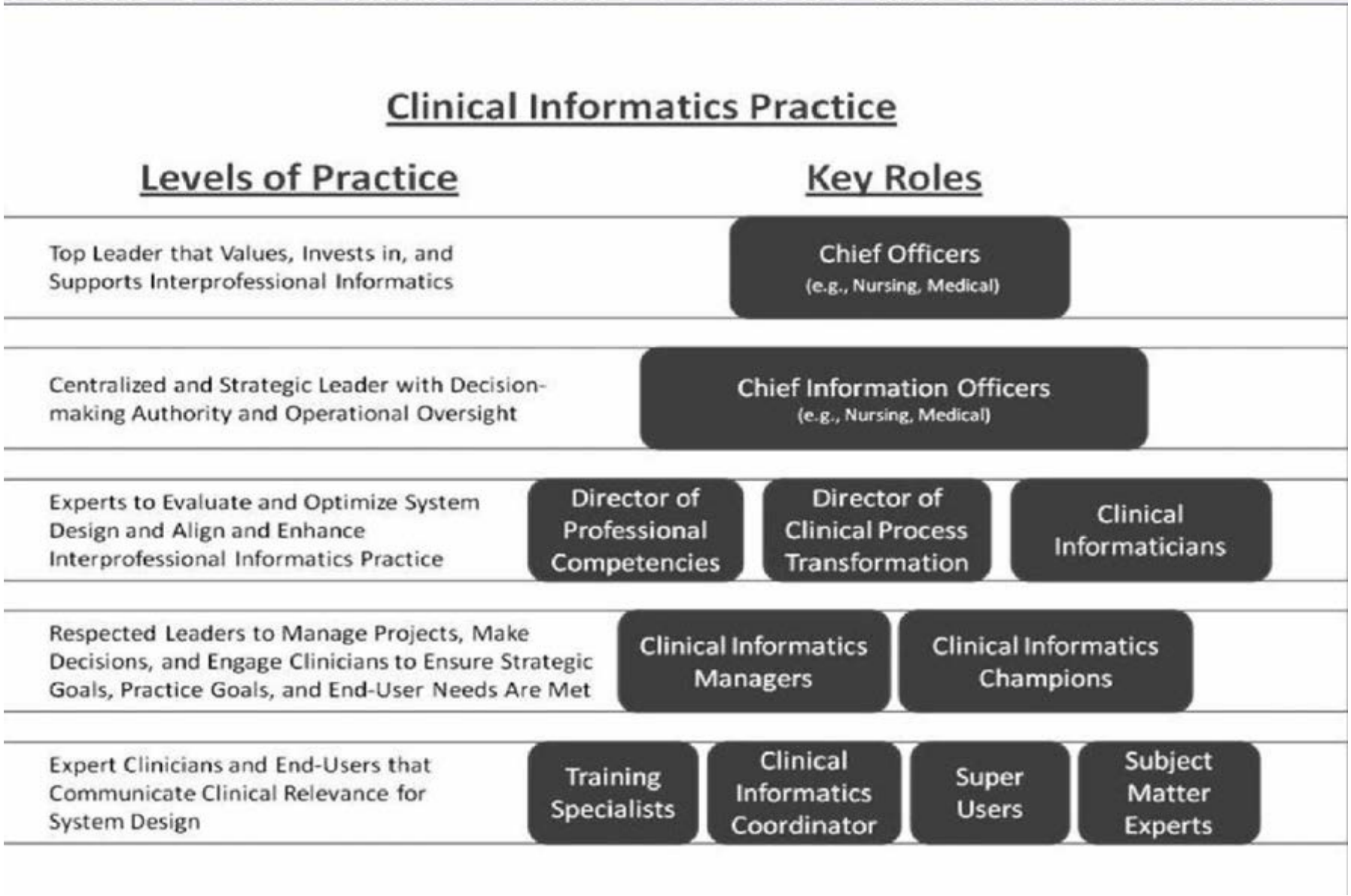
Education-based Informatics Skills & Competencies: TIGER/AACN Model



Informatics Perspectives for Key Roles



Collins S, Alexander D, Moss J. Nursing Domain of Clinical Informatics Governance: Recommendations for Health IT adoption and Optimization. J Am. Med Inf Assoc. 2015 Feb

THE HIERARCHY OF INFORMATICS SKILLS FOR NURSES & NURSE LEADERS

3. Clnical Information Management Competencies	Manage workflows					
	Cenceptual framework	Confidentiality & security	Policy and Procedure	User Skills	Manage Information, Resulys	Manage decision Support
2. Information Literacy	Determine the nature and extent of the information needed	Access needed information effectively and efficiently	Evaluate information and its sources critically and incorporates selected information into his or her knowledge base and value system		Individually or as a member of a group, use information effectively to accomplish a specific purpose	Evaluate outcomes of the use of information
1. Basic Computer Competency	Hardware	Software	Networks	Information Computer Technology in Everyday Life	Security	Law
	The Internet	Operating System	File Management	Utilities	Print Management	Using the Application
	Using the Browser	Using the Web	Web Outputs	Electronic Communication	Using e-mail	e-mail Management

Summarized from an inventory of skills & competencies defined by NLN, ALA,TIGER & QSEN

WHAT IS THE GOLD STANDARD FOR INFORMATICS COMPETENCIES FOR NURSES & NURSE LEADERS?

Horizon 2020 is an EU*US eHealth Work project led by TIGER

http://ehealthwork.org/

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Welcome to EU*US eHealth Work

Technology Informatics
Guiding Education Reform

EU* US eHealth Work Consortium; A Horizon 2020 Project

Mission:

- map skills and competencies
- provide access to knowledge, tools and platforms, and
- strengthen, disseminate and exploit success outcomes for a skilled Transatlantic eHealth Workforce

Goal: to measure, inform, educate and advance eHealth and health information technology skills, work and workforce development throughout Europe, the United States and globally

EU·US eHealth WORK
Measure Inform Educate Advance

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No. 727552 EUUSEHEALTHWORK

NEW TERM: E-HEALTH COMPETENCIES

(eHealth) Competencies:

".. Are the combination of cognitive, motivational, moral, and social Skills available to (or potentially learnable by) a person or a social group that underlie the successful mastery of a range of demands, tasks, problems, and goals through appropriate understanding and actions"

Weinert FE. Competencies and key competencies: Educational perspective. In: Smelser NJ, Baltes B, eds. International Encyclopedia of the Social and Behavioral Sciences. Amsterdam: Elsevier 2001 (Vol. 4), 2433-2436.

How does the EU*US eHealth Work project classify competencies?

Technology Informatics
Guiding Education Reform

eHealth Competencies Examples

Competency components	*Competency areas*	*Competencies*
cognitive:	*decision support*	*understand the potential and risks* *apply and create clinical pathways* *evaluate algorithms*
motivational:	*leadership*	*apply principles of positive thinking*
moral:	*ethics and IT*	*understand ethical dilemmas* *apply rules to balance availability and confidentiality of data*
*and **social** skills:*	*communication*	*understand the role of the language to shape reality*

Source: http://www.himsslearn.org/evolution-technology-informatics-guiding-education-reform-tiger-initiative

TOP INFORMATICS COMPETENCY GROUPS

*Based on the EU*US eHealth Work project to compile recommended & ranked core international informatics competencies reflective of many countries, scientific societies, and research projects*

1. Information and knowledge management
2. Ethics and IT
3. Quality management
4. Population Health, telehealth, mhealth
5. Decision support
6. Data protection and security

Source: http://www.himsslearn.org/evolution-technology-informatics-guiding-education-reform-tiger-initiative

Why Are eHealth Competencies So Relevant?

The patient deserves the best care possible!

	Core competency area	REL in % n= 41
1	Nursing documentation (including terminologies)	94.4
2	Information and knowledge management	82.2
3	Principles of nursing informatics	80.5
4	Data protection and security	80.0
5	Ethics and IT	79.5
6	Information and communication systems (including interoperability)	75.1
7	Quality management	72.0
8	Decision support by IT	70.2
9	eHealth, telematics and telehealth (including interoperability)	69.5
10	Assistive technology for ageing people	69.0
11	Process management	67.8

***Participants from 23 countries**

Source: http://www.himsslearn.org/evolution-technology-informatics-guiding-education-reform-tiger-initiative

Informatics Skills Based on the 6 Competency Groups Defined by TIGER's EU*US eHealth Work Project PLUS Foundational skills

ROLE	Foundational Skills	Information and knowledge management	Ethics and IT	Quality management	Population Health, telehealth, mhealth	Decision support	Data protection and security
Primary Nursing Care Providers	Patient care Related Applications: Documenting patient assessments, Creating care plans Documenting nursing interventions including BCMA, Supporting patient education	Documenting outcomes of care, Monitoring trends, clinical decision making	copyright Law Proficient awareness of legal and ethical issues related to client data, information, and confidentiality	Nursing quality Indicators & metrics for specialty/ cohort	Care delivery across the continuum, Integration of technology to keep patients healthy in their own homes	Familiarity with Clinical Decision support & its value as an ADJUNT to RNs critical thinking & knowledge skills	Adherence to established information security procedures, ethical standards and data protection practices
Mid level Nurse Leaders	General Management Applications for: Budgeting Human resources/ performance evaluation Patient acuity/Staffing	Understand the effect of IT on patient care and delivery systems to reduce work load & improve patient experience	Copyright Law, Proficient awareness of legal and ethical issues related to client data, information, and confidentiality Patients' rights r/t computerized information management	Nursing quality & outcome indicators & metrics for specialty/ cohort. General Management Applications for: Quality measurement, PI, Risk Management	Outcome measurement & its impacnt on the health of communities. Care delivery across the continuum, Integration of technology to keep patients healthy in their own homes	Awareness of the risks of dependance on CDS especially for less seasoned RNs	Enforcing established information security procedures, ethical standards and data protection practices
Nurse Executive	General Management Applications for: Budgeting Human resources Quality measurement Patient acuity/Staffing	Understand the impact of technology on the triple aim: Cost, quality & patient experience. Support Knowledge to wisdom: support nursing & NI research Interdisciplinary collaboration	Ethical issues related to use of data (obtaining, storing, and disseminating text, data, images, or sounds.) Access to personal health information (PHI – HIPAA language). HIPAA, ACA	Consistency of systems with organizational policies, external licensing, accreditation, and regulatory agency requirements	Awareness of societal and technological trends, issues and new developments as they relate to nursing & the health of communities	Advanced Management Applications: Dashboards with tools for Forecasting, Statistical analysis, what-if scenarios, planing and decision making	Data Governance: Data quality issues Disaster recovery planning and execution
Nurse Informaticist	Change management Workflow analysis & mapping Project management conceptual framework of NI practice	Impact of IT on patient care and delivery Avoidance of potential negative impacts of HIT Support Knowledge to wisdom: support nursing & NI research	Patients' rights r/t computerized information management copyright Law Ethical issues related to use of data , HIPAA	Consistency of systems with organizational policies, external licensing, accreditation, and regulatory agency requirements	Awareness of societal and technological trends, issues and new developments as they relate to nursing	Integration of nursing data elements Integration of standardized nursing languages in systems Monitoring rules & logic/system testing	Data Governance: Data quality issues. Disaster recovery planning and execution Health. Data storage & transmission standards.

REFLECTION

Information technology (IT) is not a panacea, and will not fulfill its promise unless it is harnessed in support of foundational values.

That is why every nurse cannot afford to be unconnected to this transformation, but must take an active role in ensuring that IT is used in service to our profession's values.

After all, we are knowledge workers.

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