What Practicing Nurses Need to Know About Health Information Technology in Order to Practice Today: Continuing Education and Certification

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Abstract. This chapter focuses on informatics and information management continuing education for all practicing nurses, as well as certification for informatics nurse specialists.

Keywords. Continuing education, certification, health IT competencies, informatics nurse, informatics nurse specialist, training, standards of nursing informatics practice

1. Introduction

Every nurse has a role working with informatics in healthcare as more aspects of care delivery are facilitated with technology. This chapter focuses on continuing education for the topics of informatics and information management for practicing nurses and informatics nurses, as well as certification for informatics nurses.

Continuing education related to informatics is vital for every level of nurse from the nurse practicing at the bedside, clinic or home - to administrators, educators and researchers. Opportunities for continuing education will be discussed.

Some informatics nurses choose to attain a professional milestone by seeking certification in nursing or healthcare informatics. The informatics nurse may look to certification as a way to validate knowledge and skills needed in order to deliver quality care and promote professional practice.

2. Continuing Education Opportunities in Nursing Informatics

Statistics are scarce regarding the extent of nurses who take advantage of nursing informatics continuing education. A 2010 publication [1] discussed the incidence of continuing education among registered nurses in the U.S. in 2000. Twenty one percent (21%) of the respondents reported continuing education in informatics the year prior to the survey. The authors surmised that the use of the internet would probably increase those numbers. They discussed some opportunities to increase the rates. Their data was derived from the National Sample Survey of Registered Nurses (NSSRN) which was discontinued in 2012.

The American Nurses Association (ANA) Scope and Standards of Practice: Nursing Informatics [2] supports lifelong learning in informatics. The standards of nursing informatics practice for education and leadership both promote lifelong learning. One way to attain education to promote lifelong learning is through continuing education (CE) courses. CE is usually needed to maintain certification or maintain nursing licensure.

There are numerous opportunities for continuing education in nursing informatics (NI). Although thirty-two (64%) states in the U.S. have mandatory continuing education for re-licensure [3], there are few requirements for informatics outside of health information privacy and security training. Most organizations require training to be proficient in the use of the facility electronic health record or electronic medical record.

A good way to find continuing education on informatics for nurses is to use an online search engine to explore the World Wide Web. A sample search could include, "nursing informatics continuing education." Nurses who do not have the money, finances or time to attend in person events can find online courses. Online courses may also support the learners learning style. Many continuing education opportunities are paid events, but some are free or low cost.

A variety of organizations offer continuing education for members often at no additional charge other than the membership fee. These organizations include the Healthcare Information and Management Systems Society (HIMSS) (www.himss.org) [4]; the American Medical Informatics Association (AMIA) (www.amia.org) [5], the American Nursing Informatics Association (ANIA) (www.ANIA.org) [6], the University of Maryland Summer Institute in Nursing Informatics (SINI) (http://www.nursing.umaryland.edu/sini/) [7], and the International Medical Informatics Association (www.IMIA.org) [8] with MedInfo and the International Congress in Nursing Informatics.

Specialty nursing organizations are beginning to interweave nursing informatics into their conferences and in webinars. The Association of periOperative Nurses (www.AORN.org) [9] is an example of an organization committed to continuing education and includes informatics content. Check with your specialty organization to see if continuing education in nursing informatics is offered.

There are stand-alone courses for nursing informatics like the Nursing Informatics Boot Camp (https://branded.me/susan-newbold) [10] and OnCourseLearning (http://www.nurse.com/focusedceseries) [11]. The Nursing Informatics Boot Camp is an intensive two day in person course which focuses on current informatics trends and issues in health. It includes content for nurses interested in becoming certified informatics nurses. It is held in various locations, primarily in the U.S.

The OnCourse Learning Nursing Informatics Certification Review Focused CE Series is a comprehensive learning experience that provides an extensive review of the nursing informatics board certification exam. In this six week web-based course, participants learn key concepts of NI including design, maintenance and support. Also, they discover how quality improvement is vital to patient and staff satisfaction from experts in the NI field.

PearlsReview overs a low cost, self paced, web based NI certification review course (http://www.pearlsreview.com/Informatics-Nursing-(RN-BC)) [12]. A Wolters Kluwer Journal – CIN: Computers Informatics Nursing (http://journals.lww.com/cinjournal/) [13] has occasional paid ANCC continuing education articles including a brief examination. See also

http://nursing.ceconnection.com/default [14] to browse other continuing education by Wolters Kluwer.

3. Certification in Nursing and Healthcare Informatics

In the United States (U.S.), the American Nurses Credentialing Center (ANCC), a subsidiary of the American Nurses Association, offers Registered Nurse Board Certified credentials (RN-BC) for nursing informatics professionals who pass a computer-based examination. To qualify for board certification, individuals must be registered nurses with a U.S. license who have completed a baccalaureate degree as well as at least 30 hours of continuing education in nursing informatics within the last three years. There is a newly announced option for international nurses to become certified by the ANCC. The ANCC certification is valid for five years, and the nurse is required to complete professional development courses with a minimum of 75 contact hours and one or more of the eight renewal categories with 1000 practice hours or retake the examination in order to renew. For further information on the ANCC certification, see http://nursecredentialing.org/InformaticsNursing [15].

Certification in nursing informatics has been available since 1995 with 1837 nurses certified by the ANCC as of December 31, 2015 (http://www.nursecredentialing.org/Certification/FacultyEducators/FacultyCategory/Statistics/2015-CertificationStatistics.pdf) [16]. In addition to certification, an Informatics Nurse can seek a certificate, master's degree, post master's degree, doctorate of nursing practice (DNP), or doctor of philosophy (PhD) in Nursing Informatics. The ANCC certification is the most prevalent certification for informatics nurses, but others are available and viable. See Table 1 for a list of Potential Certifications for the Informatics Nurse. Nurses can be certified by The American Health Information Management Association (AHIMA), the ANCC, AMIA, Healthcare Information and Management Systems Society (HIMSS), Health IT Certification, LLC, the National Association for Healthcare Quality or the Project Management Institute (PMI).

4. Continuing Education and Certification in Development

The publishers of the free Online Journal of Nursing Informatics (http://www.himss.org/ojni) are currently exploring the possibility of offering CE credit. This could be another source of free or low cost continuing education in informatics.

The United States Government contracted with seven universities to update health information technology education previously offered by community colleges called the National Health IT Workforce Curriculum. In addition, new content has been added in the areas of population health, care coordination and interoperable health IT systems, value-based care, patient-centered care, and healthcare data analytics. Updated materials and newly developed materials will be available June 2017 at https://www.healthit.gov/providers-professionals/workforce-development-programs. This content is offered by five universities and two colleges at no charge and offers a certificate of completion.

Table 1. Potential Certifications for the Informatics Nurse

Certification & Reference	Requirements	Topics	Cost

American Nurses Credentialing Center (ANCC) Nursing Informatics
 	
http://nursecredentialing.org/InformaticsNursing
	• RN License
	Hold a current, active RN license in a state or territory of the United States or hold the professional, legally recognized equivalent in another country.
	
	• Apply from Outside the U.S.
	Additional requirements for candidates outside the U.S.
	
	• Master's, Postgraduate, or Doctoral Degree
	Hold a bachelor's or higher degree in nursing or a bachelor's degree in a relevant field.
	
	Have practiced the equivalent of 2 years full-time as a registered nurse.
	
	Have completed 30 hours of continuing education in informatics nursing within the last 3 years.
	
	Meet one of the following practice hour requirements:
	• Have practiced a minimum of 2,000 hours in informatics nursing within the last 3 years.
	• Have practiced a minimum of 1,000 hours in informatics nursing in the last 3 years and completed a minimum of 12 semester hours of academic credit in informatics
		For full outline see http://www.nursecredentialing.org/Informatics-TCO2014
		
		I. Foundations of Practice (47.33% or 71 questions)
		    A. Professional Practice
		    B. Models and Theories
		    C. Rules, Regulations, and Requirements
		
		II. System Design Life Cycle (26.00% or 39 questions)
		    A. Planning and Analysis
		    B. Designing and Building
		    C. Implementing and Testing
		    D. Evaluating, Maintaining, and Supporting
		
		III. Data Management and Health Care Technology (26.67% or 40 questions)
		    A. Data Standards
		    B. Data Management
		    C. Data Transformation
		    D. Hardware, Software, and Peripherals
			• $270 Member American Nurses Association
			• $395 non member
			• Valid 5 years then recertification

Certification & Reference	Requirements	Topics	Cost
	courses that are part of a graduate-level informatics nursing program. • Have completed a graduate program in informatics nursing containing a minimum of 200 hours of faculty-supervised practicum in informatics nursing.		

Healthcare Information and Management Systems Society (HIMSS)
 	
Certified Associate in Healthcare Information and Management Systems (CAHIMS)
 	
http://www.himss.org/health-it-certification/cahims
	High School Diploma or equivalent	I. General
		    Organizational Environment
		    Technology Environment
		II. Healthcare Information and Systems Management
		    Analysis
		    Design
		Selection, Implementation, Support, and Maintenance
		    Testing and Evaluation
		    Privacy and Security
		III. Administration
		    Leadership Support
		    Management Support
			HIMSS Individual Organizational Affiliate Member $140 U.S.
			
			HIMSS Regular, Corporate or Student Member $175 U.S.
			
			Non-Member $225 U.S.

Healthcare Information and Management Systems Society (HIMSS)
 	
Certified Professional in Healthcare Information and Management Systems (CPHIMS)
 	
http://www.himss.org/health-it-certification/cphims
	Eligibility for the CPHIMS Examination requires fulfilling one (1) of the following requirements:
	• Baccalaureate degree from an accredited college or university plus five (5) years of information and management systems experience, three (3) of those years in a healthcare setting.
	• Graduate degree or higher from an accredited college or university plus three (3) years of information and management systems experience, two (2) of those years in a healthcare setting
		I. General
		    Organizational Environment
		    Technology Environment
		II. Healthcare Information and Systems Management
		    Analysis
		    Design
		    Selection, Implementation, Support, and Maintenance
		    Testing and Evaluation
		    Privacy and Security
		III. Administration
		    Leadership Support
			HIMSS Individual Organizational Affiliate Member $270 U.S.
			
			HIMSS Regular, Corporate or Student Member $300 U.S.
			
			Non-Member $375 U.S.

Certification & Reference	Requirements	Topics	Cost
		Management Support	
Project Management Institute (PMI) Project Management Certifications Project Management Professional (PMP®) http://www.pmi.org/Certification/Project-Management-Professional-PMP.aspx	Prerequisite Skills: • Four-year degree, 4,500 hours in leading and directing projects, and 35 hours of project management education OR • Secondary degree (high school diploma, associate's degree, or equivalent), 7,500 hours leading and directing projects, and 35 hours of project management education	Exam Content Outline ©2015 Domain Percentage of Items on Test I. Initiating 13% II. Planning 24% III Executing 31% IV. Monitoring and Controlling 25% V. Closing 7% Total 100%	Computer-based exams: PMI member: $405 USD (retake $275) Non-PMI member: $555 USD (retake $375) Paper-based exams: PMI member: $250 USD (retake $150) Non-PMI member: $400 USD (retake $300)

Health IT Certification, LLC
 	
http://www.healthitcertification.com/overview.html
 	
Certified Professional in Health Information Technology (CPHIT)
 	
Certified Professional in Electronic Health Records (CPEHR)
 	
Certified Professional in Health Information Exchange (CPHIE)
	No specific educational or experiential requirements for taking the CPHIT, CPEHR, CPHIE or CPORA certification examinations. It is recommended that individuals either have healthcare experience with plans to participate in health information technology (HIT), electronic health record (EHR), health information exchange (HIE) and/or operating rules administration (ORA) acquisition/ implementation, use, and operations; or have information system experience with the intent of assisting healthcare organizations acquire and deploy an HIT, EHR, HIE or ORA.	Core Curricula for all exams:
		C-I. Overview of Health IT
		   A. Flow and Nature of Data in the Health Care
		     Delivery System
		   B. Definition of Terms
		   C. Conceptual Models of HIT, EHR, e-Rx,
		     Administrative Simplification, and HIE
		   D. Current Status of Adoption of EHR, personal
		     health records (PHR), Transactions, and HIE
		     in Various Health-related Settings
		C-II. Legal and Regulatory Aspects of Health IT
		   A. Sources of Law and Standards
		   B. Legal and Evidentiary Aspects
		   C. Authentication
		   D. Ethical Aspects of Health IT
		C-III. Goal Setting & Change Management for
		Health IT
			Each examination $495
			
			Two and a half day Curriculum Training Only for CPHIT, CPEHR, and CPHIE: $1,495
			
			Two day Curriculum Training Only for CPORA: $1,095

Certification & Reference	Requirements	Topics	Cost
Certified Professional in Operating Rules Administration (CPORA)		A. Strategic Planning/Migration Path B. Visioning and Readiness Assessment C. Goal Setting D. Change Management Principles and Strategies C-IV. Workflow & Process Improvement for Health IT A. Workflow and Process Improvement for Clinical Transformation B. Workflow and Process Management C. Workflow and Process Analysis D. Workflow and Process Redesign E. Complementary Techniques to Support Workflow and Process Improvement Additional curricula depending upon the examination.	
National Association for Healthcare Quality (NAHQ) Certified Professional in Healthcare Quality® (CPHQ) http://www.nahq.org/certify/content/index.html	Self-assess readiness to take the examination. Two years of experience suggested.	1. Quality Leadership and Structure (20 Items) A. Leadership B. Structure 2. Information Management (25 Items) A. Design and Data Collection B. Measurement and Analysis 3. Performance Measurement and Process Improvement (52 Items) A. Planning B. Implementation and Evaluation C. Education and Training D. Communication 4. Patient Safety (28 Items) A. Assessment and Planning B. Implementation and Evaluation	NAHQ Member: $399 Nonmember: $469

Certification & Reference	Requirements	Topics	Cost

The American Health Information Management Association (AHIMA)
 	
Registered Health Information Administrator (RHIA®)
 	
http://www.ahima.org/certification/RHIA
	RHIA applicants must meet one of the following eligibility requirements:
	    Successfully complete the academic requirements, at the baccalaureate level, of an HIM program accredited by the Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM). OR •Graduate from an HIM program approved by a foreign association with which AHIMA has a reciprocity agreement.[2]
	    The academic qualifications of each candidate will be verified before a candidate is deemed eligible to take the examination. All first-time applicants must submit an official transcript from their college or university.
		1. Data Content, Structure & Standards (Information Governance) (18–22%)
		2. Information Protection: Access, Disclosure, Archival, Privacy & Security (23–27%)
		3. Informatics, Analytics & Data Use (22–26%)
		4. Revenue Management (12–16%)
		5. Leadership (12–16%)
			$299 for members

The American Health Information Management Association (AHIMA) Certified Healthcare Technology Specialist (CHTS) Exams http://www.ahima.org/certification/chts Six focus areas: 1. Clinician/Practitioner Consultant (CHTS-CP) 2. Practice Workflow and Information Management Redesign Specialist (CHTS-PW) 3. Implementation Manager	None required.	See the candidate guide for the specific exam blueprint for the examination in question. http://www.ahima.org/~/media/AHIMA/Files/Certification/CHTS%20Candidate%20Guide.ashx	$299 each examination

Certification & Reference	Requirements	Topics	Cost
(CHTS-IM) 4. Implementation Support Specialist (CHTS-IS) 5. Technical/Software Support Staff (CHTS-TS) 6.Trainer (CHTS-TR) http://www.ahima.org/certification/chts			
American Medical Informatics Association, www.amia.org Advanced Health Informatics Certification (AHIC) [In development November 2016]	1) Practice focus on information and knowledge problems that directly impact the practice of healthcare, public health, and personal health, 2) Education in primary health fields and health informatics at the graduate level, and, 3) Significant experience in health informatics establishing an advanced level of real-world accomplishment.	In development November 2016.	In development November 2016.

AMIA is developing an Advanced Health Informatics Certification (AHIC) (https://www.amia.org/advanced-health-informatics-certification) which is thought to include nurses for an advanced level certification not offered by the ANCC. According to AMIA, the certification is intended for informatics professionals representing the spectrum of primary disciplines. Eligibility requirements include a practice focus, education, and significant experience in health informatics.

5. Conclusion

The ANA Scope and Standards of Practice: Nursing Informatics [2] encourages lifelong learning for self and others related to informatics. There are many opportunities for nurses for continuing education in healthcare information technology. There are also several opportunities for informatics nurses to seek voluntary certification.

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NOTE Other online reference links are available in Table 1.