The Evolution of TIGER Competencies and Informatics Resources

Executive Supplemental Report

HIMSS
transforming health through IT™

Authors

Toria Shaw, MSW[1], Rachelle Blake, PA, MHA[2], Ursula Hübner, PhD[3], Christel Anderson, MA[4], Victoria Wangia-Anderson, PhD, FHIMSS[5], Beth Elias, PhD, MS[6]

[1]Healthcare Information and Management Systems Society, USA; [2]Omni Micro Systems und Omni Med Solutions GmbH, Germany and Omni Micro / Omni Med Solutions, Inc., USA; [3]University of Applied Sciences Osnabrück, Germany; [4]Healthcare Information and Management Systems Society, USA; [5]University of Cincinnati, OH; [6]Virginia Commonwealth University School of Nursing

The TIGER *(Technology Informatics Guiding Education Reform)* Initiative is focused on education reform, international community development and global workforce development utilizing an interprofessional approach. The guiding spirit of TIGER is to maximize the integration of technology and informatics into seamless practice, education and research resource development.

TIGER advances the integration of health informatics by enabling you to use informatics and technology to improve patient care and helping you foster a learning health system. For more information, please find us at www.himss.org/tiger.

A Shared History

In 2006, the TIGER Initiative convened a Summit of nursing stakeholders to develop, publish, and commit to an action plan to make healthcare safer, more effective, efficient, patient-centered, timely and equitable. As an outcome of the Summit, collaborative teams were formed to accelerate the action plan within nine key topic areas. All teams worked on identifying best practices from both education and practice related to their topic, so that this knowledge could be shared with others. The initiative thereby builds upon and recognizes the work of organizations, programs, research, and related initiatives in academia, practice, and government working together towards a common goal.

The TIGER Informatics Competencies Collaborative (TICC) was formed to develop informatics recommendations for all practicing nurses and nursing students. Following a review of the literature and a survey of nursing informatics education, research, and practice groups, the TIGER Nursing Informatics Competencies Model was developed and consists of three parts: 1) Basic Computer Competencies; 2) Information Literacy; and 3) Information Management (including use of an EHR). In 2011, the group published a landmark report *Informatics Competencies for Every Practicing Nurse: Recommendations from the TIGER Collaborative*.

A Collaborative Future

Today, it has been over seven years since the TICC was formed and we have experienced changes, including the need for updated informatics competencies. In a changing and dynamic environment, TIGER is continuing to encourage the adoption of informatics competencies through existing education, research, and work from practice groups. The informatics competencies conversation has shifted from the past with two notable expansions – this work has become both interprofessional and global through projects such as TIGER's International Competency Synthesis Project (ICSP), also discussed in this document.

With TIGER's ICSP, we aim to marry global and local educational needs. To this end, a global survey was conducted and national case studies were compiled. Based on the findings and results of the survey and case studies, a *Recommendation Framework* is being populated with international recommendations for cognitive competencies in nursing and interprofessional coordination of care, aimed at providing a grid to host knowledge about informatics competencies, professional roles, priorities and practical experience. It's also important to note that these project findings and case studies were leveraged as the foundation to begin the EU*US eHealth Work Project scope of work and deliverables also shared in-depth later in this report.

Previously a standalone Foundation, TIGER transitioned to the Health Information and Management Systems Society (HIMSS) effective September 22, 2014, supported by the Clinical Informatics department. With this transition came a shift to a new interprofessional, interdisciplinary approach. As TIGER has evolved, informatics pioneers such as Marion J. Ball, Michelle Troseth and countless others recognized the critical need for TIGER to grow into an interprofessional space that can engage with the evolving interprofessional model of healthcare.

TIGER now collaborates with and calls upon the work of the European Computer Driving License (EDCL), the Health IT Competencies Tool and Repository (HITComp), TIGER's Virtual Learning Environment (VLE), TIGER's International Competency Synthesis Project and the EU*US eHealth Work Project to continue the conversation around competencies as well as to add global, interdisciplinary and interprofessional perspectives. In this report, we will discuss each of the collaborative resources.

Table of Contents

ECDL/ICDL Health Information Systems Usage

The ECDL Foundation

The European Computer Driving License (ECDL) has the mission "to enable proficient use of Information and Communications Technology (ICT) that empowers individuals, organizations and society, through the development, promotion, and delivery of quality certification programs throughout the world." For more information, please visit www.ecdl.org.

The new ECDL is made up of a range of modules – each module provides a practical program of up-to-date skills and knowledge areas, which are validated by a test. The new ECDL enables you to develop and certify your computer skills in the subject areas of your choosing and to the level that you need – either for work, or for day-to-day life. Through the module combination that you choose, you can create an individualized ECDL Profile.

The ECDL/ICDL modules are categorized by the three competency levels: basic, intermediate, and advanced. Modules pertinent to health information systems fall under the intermediate category. Other intermediate topics include, using databases, IT Security, Web Editing, Project planning, ICT in Education, among others.

BASE MODULES	INTERMEDIATE MODULES	ADVANCED MODULES
Computer Essentials	Presentation	Advanced Word Processing
Online Essentials	Using Databases	Advanced Spreadsheets
Word Processing	IT Security	Advanced Database
Spreadsheets	Online Collaboration	Advanced Presentation
	Image Editing	
	Web Editing	
	Project Planning	
	2D Computer Aided Design	
	Health Information Systems Usage	
	ICT in Education	

Example: Health Information Systems Usage

The Health Information System Usage program is an intermediate module of the ECDL program, and has the most pertinent competencies for interdisciplinary health informatics. This module is aimed at users of patient information systems, such as physicians, nurses, other healthcare providers, as well as healthcare support staff. It defines the skills necessary to operate a Health Information System (HIS) efficiently and securely.

The module content recognizes the importance of educating and empowering the end-user at all levels and for all professions. It builds on and complements professional education and practice principles, and generic ICT skills. In addition, it covers the increasingly important area where computer systems used in the health sector may challenge both established professional practice and good data management.

Upon completion of this module the candidate will be able to:

- Understand the key features of an HIS
- Use an HIS safely and efficiently
- Understand the ethics, rules, and regulations relating to an HIS
- Understand confidentiality, security, and access control when using an HIS
- Understand and interpret electronically recorded data

The benefits of this particular module include the following:

- Provides a clear, easy-to-follow program
- Provides a comprehensive introduction to health information systems that can be applied to a range of health information systems software
- Certification covers the common international HIS requirements along with an understanding of key national legislation
- Certifies best practice in HIS software use
- Developed by an international expert group of health professional

Syllabus Overview:

CATEGORY	SKILLSET
Concepts	• Healthcare Information Systems (HIS) • HIS Types
Due Care	• Confidentiality • Access Control • Security
User Skills	• Navigation • Decision Support • Output Reports
Policy and Procedure	• Principles

HITCOMP Tool and Repository

HITComp – Health Information Technology (IT) Competencies

HITComp is a searchable repository designed for educators, workforce developers, current and future interdisciplinary workforce members, eHealth management, staffing experts and other interested parties in healthcare information technology/ eHealth. The repository provides information on skills and competencies needed for a variety of healthcare roles, levels and areas of knowledge, including over 250 competencies pertaining to direct patient care.

Both the European Union (EU) and the United States (US) are currently working to encourage more effective use of ICT in delivery of health services, including disease prevention and health promotion. In order to accomplish this, the EU (under the European Commission's Directorate General for Communication – (DG Connect)) and US (under the US Office of the National Coordinator of Health Information Technology (ONC-HIT)) collaborated and formed a Workforce Development Workgroup (WDW) in August 2013. This workgroup was founded as part of a formal Memorandum of Understanding (MoU) between the US and EU signed in December 2010. This workgroup consisted of a transatlantic community of public and private sector industry professionals; educators; eHealth, healthcare information technology and informatics professionals; clinicians; and Subject Matter Experts (SMEs) in information technology and communication within the healthcare sector.

This community worked together to identify approaches to achieving common goals for achieving a robust supply of highly proficient eHealth/health IT professionals and assuring health care, public health, and allied professional workforces have the eSkills needed to make optimum use of their available eHealth/health information technology. Additionally, this work identifies, addresses and bridges the gaps between competency and knowledge deficiencies among all staff in healthcare delivery, management, administration and support to ensure universal application of ICT solutions in health services. The workgroup completed Phase I of its work in May 2015.

Phase II of the work stream began in September 2016 with the commencement of the EU-US eHealth Work Project, a European Commission-funded project under the Horizon 2020 (H2020) program, to advance digital skills development for workforce members in the healthcare sector. The EU-US eHealth Work Project has a four-fold mission: to measure, inform, educate and advance eHealth skills, education and knowledge throughout the EU, US and globally. HITComp is a key component of that mission, as it ties together education, skills, competence and advancement for all members of the healthcare workforce.

HITComp is a searchable database designed for educators, workforce developers, current and future workforce members, students, eHealth managers, staffing experts and other interested parties in healthcare information technology/eHealth. The HITComp Tool and Repository can be used to compile information on skills and competencies needed for a variety of healthcare roles, levels and areas of knowledge. An individual can sort over 1,000 competencies in five domains – Direct Patient Care, Administration, Informatics, Engineering/ Information Systems (IS)/ICT and Research/Biomedicine. Competencies are associated with a particular level of skill (Baseline, Basic, Intermediate, Advanced and Expert).

Competencies are also mapped to over 250 health IT-impacted roles throughout the continuum of care (including Acute Care, Ambulatory Care, Emergency Medicine, Rehabilitation, Skilled Nursing, Research, Biomedicine, and more) in each of the five domains.

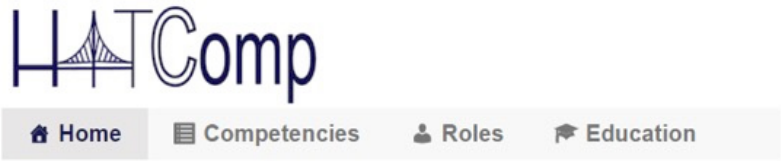
Education is also linked to competencies through mapping the Foundational Curriculum developed by the EU*US eHealth Work Project with each Area of Competency. All Baseline competencies are mapped, as well as competencies at other levels by extension to their appropriate area of competency.

The HITComp Tool and Repository is designed to complement workforce development initiatives. Although it is a stand-alone tool that can be used by healthcare workers, students, employers, educators and eHealth industry professionals, it is not meant to replace professional career development consultation, human resource management or formal instructional design. Academic programs might draw from this work as well as from Biomedical Informatics competencies published in the Journal of American Medical Informatics Association or other journals.

HITComp is open-source and available through the TIGER VLE and at www.hitcomp.org.

HITComp Instructions for Use

There are several ways to use the HITComp tool. There are four tabs (**Home, Competencies, Roles** and **Education)**.



After a user accesses the HITComp tool, he or she will always start on the Home page. This page contains an introduction, instructions, and a glossary of terms (the Glossary of Terms is available on all pages). The user can always navigate back to the Home page by clicking on the tab labeled **Home** for further information.

Both the **Competencies** and **Roles** tabs are organized similarly. The top portion of the page contains a list of *Filters* a user can use to narrow down a search.

On the Competencies tab, the filters that can be chosen from include: domain, level, competency quadrant, and area of competency. All filter choices are optional. Filters can be selected by clicking the box in front of the selection, which will toggle a check-mark on or off in the indicated box.

Competency Filters

- Domain: One of five areas of health information technology focus areas, including:
  - Direct Patient Care
  - Administration
  - Engineering/Information Systems/ICT
  - Informatics
  - Research/Biomedical

- Level: One of five grades of experience and skill for HIT competence and competencies (color-coded for ease of use), including:
  - Baseline (orange ■): A foundation level upon which all other skills and competencies are based.
  - Basic (green ■): An entry-level or beginning skill or competency level, equating to “understanding” and “knowing” in Bloom’s Taxonomy. Could potentially align with associate-level degree academic programs or curricular competencies in eHealth/HIT.
  - Intermediate (rose ■): A mid-level incumbent skill or competency level, equating to “applying” and “analyzing” in Bloom’s Taxonomy. Could potentially align with baccalaureate-degree level academic programs or curricular competencies in eHealth/HIT.
  - Advanced (blue ■): A high-level incumbent skill or competency level, equating to “evaluating” and “synthesizing” in Bloom’s Taxonomy. Could potentially align with baccalaureate- to master-degree level academic programs or curricular competencies in eHealth/HIT.
  - Expert (purple ■): The highest level of skill or competency level, also equating to “evaluating” and “synthesizing” in Bloom’s Taxonomy. Could potentially align with master- to post-doctoral-degree level academic programs or curricular competencies in eHealth/HIT.
  - Note/Disclaimer: Levels do not correspond one-to-one to job progression or role levels and can vary by role, organization and location.

- Competency Quadrant: One of six general areas of interactions between eHealth actors or areas of focus where competencies would be utilized, including:
  - Administrative
  - Clinical
  - Communication
  - Health Data
  - Operational
  - Patient

- Area of Competency: One of 33 specialized areas of competency, from access, to care coordination, to documentation, to privacy and security, to quality and safety, and others

Note: Additional areas of competency will be soon be synthesized within HITComp to conform to a more global standard. This synthetization follows the *International Framework for Recommendations of Core Competencies in Nursing and Interprofessional Informatics*.

To change options or start a new search, you can reset the filters in all of the above categories.

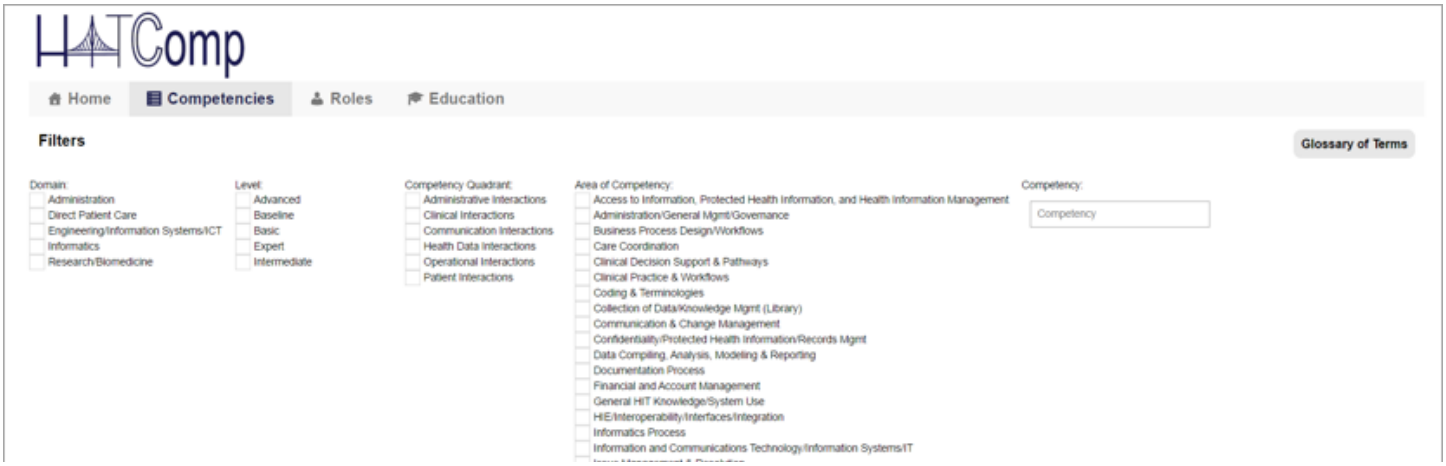
On the Competencies tab, there is also a free form text search field entitled "Competencies" that can be used to search for any known competency in the repository. Please enter the full competency, or a portion of it, into the box, for best results.

Below the filters, there is also a secondary search field that is included on the competencies, roles and education tabs. This search field allows you to enter free form text and search for any text string on the page.

The next portion of the page contains a line that lists the *data results* for a given search, stated as "Showing X to X, of 1,025 entries". By default, before any filters are chosen, the list displayed contains all competencies and roles.

On the right, new to HITComp, there is an icon list that allows you to export your list of competencies or roles based on your preferred method: Print (prints directly to the user's attached printer), Excel (saves as a Microsoft .xlsx file), CSV (comma-separated values – an alternative choice for Excel) or PDF (an Adobe Portable Document Format).

On the **Competency** tab, a user can perform a search from the database of competencies. With a competency search a user can aggregate results by domain, by level, or within the 33 areas of competency outlined previously.



Showing 1 to 35 of 35 entries (filtered from 1,025 total entries)

Print Excel CSV PDF

Search:

Domain	Level	Competency Quadrant	Area of Competency	Competency	Code
Research/Biomedicine	Advanced	Clinical Interactions	Clinical Decision Support & Pathways	Assess the impact of clinical decision making, diagnostic and therapeutic, and biomedical treatment strategies as it applies to the conclusions of your research	CA01
Direct Patient Care	Advanced	Clinical Interactions	Clinical Decision Support & Pathways	Develop decision support or alerts that can work in the medicines administration process with an eye for alert fatigue	CA02
Direct Patient Care	Advanced	Clinical Interactions	Clinical Decision Support & Pathways	Facilitate smooth workflows and processes for computerized provider order entry, clinical decision support and clinical pathways	CA03
Engineering/Information Systems/ICT	Advanced	Clinical Interactions	Clinical Decision Support & Pathways	From an information systems standpoint, work with interdisciplinary teams to automate clinical decisions support rules within a health IT/eHealth system	CA04
Informatics	Advanced	Clinical Interactions	Clinical Decision Support & Pathways	Lead the process of implementing, evaluating and maintaining clinical decision support tools	CA05
Direct Patient Care	Advanced	Clinical Interactions	Clinical Decision Support & Pathways	Participate in working with developers to implement clinical decision support within the health IT system to better patient care	CA06
Informatics	Advanced	Clinical Interactions	Clinical Decision Support & Pathways	Review and evaluate the use, value and impact of alerting and clinical decision support services, for your organization and stakeholders	CA07
Administration	Advanced	Clinical Interactions	Clinical Decision Support & Pathways	Simplify and streamline administrative, legal, financial and management workflows and processes for interdisciplinary/clinical staff	CA08
Direct Patient Care	Basic	Clinical Interactions	Clinical Decision Support & Pathways	Have awareness of expert and web based information systems and clinical care pathways in clinical practice	CB01
Engineering/Information Systems/ICT	Basic	Clinical Interactions	Clinical Decision Support & Pathways	Identify various types of clinical decision support systems	CB02
Direct Patient Care, Administration, Informatics, Research/Biomedicine	Basic	Clinical Interactions	Clinical Decision Support & Pathways	Describe evidence-based medicine, clinical practice guidelines, and quality indicators in medicine	CB03
Informatics	Expert	Clinical Interactions	Clinical Decision Support & Pathways	Delineate the sources of information that drive embedded decision support, and ensure they are integrated into design of HIT/eHealth systems	CE01
Informatics	Expert	Clinical Interactions	Clinical Decision Support & Pathways	Incorporate the cognitive aspects of human-decision-making and translate those aspects into clinical decision support development processes for your organization	CE02
Direct Patient Care	Expert	Clinical Interactions	Clinical Decision Support & Pathways	Promote the use of effective clinical alerts balanced with the tendency for alert fatigue when developing and deploying clinical decision systems	CE03
Direct Patient Care, Administration, Informatics, Engineering/Information Systems/ICT, Research/Biomedicine	Baseline	Clinical Interactions	Clinical Decision Support & Pathways	Understand the concept of business process and decision making tools within EHRs	CL01
Informatics	Intermediate	Clinical Interactions	Clinical Decision Support & Pathways	Be aware of potential quality and safety issues as related to clinical decision support	CN01
Direct Patient Care	Intermediate	Clinical Interactions	Clinical Decision Support & Pathways	Compare and contrast the benefits and risks associated with clinical decision support systems, and demonstrate methods in which these risks can be identified and	CN02

On the **Roles** tab, a user can perform a search of eHealth impacted job roles in healthcare. The user can filter and sort a search by domain, by job type and service category, and by matching competency levels. The user can also display the equivalent role in five European languages (English UK, French, German, Italian and Spanish). A description of each role is given. Finally, the user can export search results from either tab to a file for his or her own use.

HITComp

Home | Competencies | Roles | Education

Localization

Glossary of Terms

Add role translations by clicking on a button to toggle that column on/off:

EU Role(s) (FR) | EU Role(s) (DE) | EU Role(s) (IT) | EU Role(s) (ES)

Filter

Domain:
- Administration
- Direct Patient Care
- Engineering/IS/ICT
- Informatics
- Research/Biomedicine

Role Type:
- Executive
- Operational-Technical
- Professional
- Supervisory-Managerial

Level:
- Advanced
- Baseline
- Basic
- Expert
- Intermediate

Service Category:
- Ancillary
- Engineering/ICT/IS
- Nursing
- Physician/Provider/Medical Staff

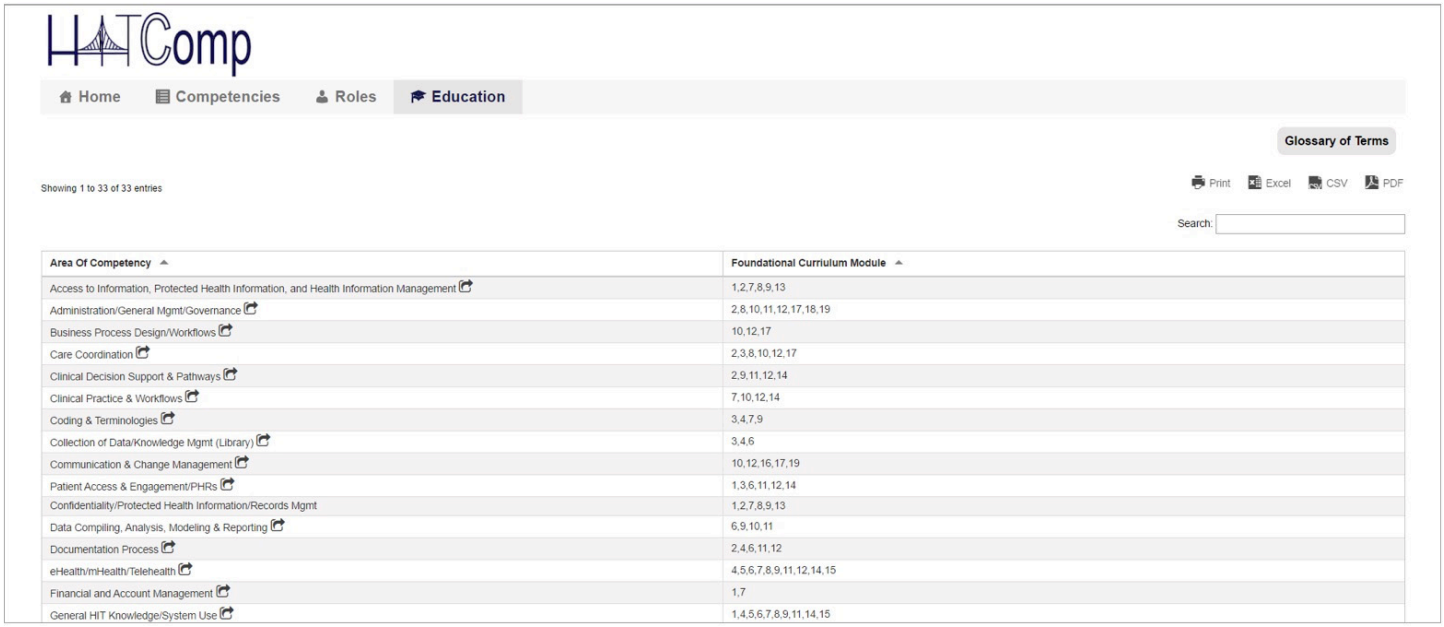
Showing 1 to 268 of 268 entries

Print Excel CSV PDF

Search:

US Role(s)	EU Role(s) (English)	Definition	Domain	Role Type	Level	Service Category
Anesthesiologist	Anesthesiologist (Doctor)	Anesthesiologists are physicians who administer anesthetics prior to, during, or after surgery or other medical procedures. Like other physicians, they evaluate and treat patients and direct the efforts of those on their staffs. They confer with other physicians and surgeons about appropriate treatments and procedures before, during, and after operations. These critical care specialists are responsible for maintenance of the patient's vital life functions—heart rate, body temperature, blood pressure, breathing—through continual monitoring and assessment during surgery. They often work outside of the operating room, providing pain relief in the intensive care unit, during labor and delivery, and for those who suffer from chronic pain.	Direct Patient Care	Professional	Intermediate	Physician/Provider/Medical Staff

On the **Education** tab, a user can research where to find training within the Foundational Curricula for each Area of Competency, and ultimately, for each competency within that area.



Area Of Competency	Foundational Curriulum Module
Access to Information, Protected Health Information, and Health Information Management	1,2,7,8,9,13
Administration/General Mgmt/Governance	2,8,10,11,12,17,18,19
Business Process Design/Workflows	10,12,17
Care Coordination	2,3,8,10,12,17
Clinical Decision Support & Pathways	2,9,11,12,14
Clinical Practice & Workflows	7,10,12,14
Coding & Terminologies	3,4,7,9
Collection of Data/Knowledge Mgmt (Library)	3,4,6
Communication & Change Management	10,12,16,17,19
Patient Access & Engagement/PHRs	1,3,6,11,12,14
Confidentiality/Protected Health Information/Records Mgmt	1,2,7,8,9,13
Data Compiling, Analysis, Modeling & Reporting	6,9,10,11
Documentation Process	2,4,6,11,12
eHealth/mHealth/Telehealth	4,5,6,7,8,9,11,12,14,15
Financial and Account Management	1,7
General HIT Knowledge/System Use	1,4,5,6,7,8,9,11,14,15

HITComp has specific use cases for competency, role and education searches that can be requested by inquiry to info@hitcomp.org.

We encourage you to explore HITComp today. Share feedback at info@hitcomp.org.

TIGER's Virtual Learning Environment (VLE)

TIGER's Virtual Learning Environment

Powered by HIMSS, the TIGER Virtual Learning Environment (VLE) is a one-stop online health IT education portal for academic professionals, students, adult learners, and clinical educators. The VLE contains resources reflective of ***core international competencies*** designed to take you from A to Z in Health IT. Access to the VLE is purchased through a one year online $40 subscription that includes the webinar series and archive as well as certificates of completion tied to two HIMSS courses.

The VLE is a personalized learning experience designed to expand your informatics skillset and knowledge on important health IT subjects:

- Easily integrate health IT modules and resources into your curriculum
- Self-paced learning format that enables subscribers to learn at their own pace
- Earn Certified Professional (CP)-Health Information and Management Systems (HIMS) and Certified Associate (CA)-HIMS enduring credits and prepare for the CAHIMS certification
- HIMSS courses tied to certificates of completion

To find more information about CP-CAHIMS certification, please visit www.himss.org/health-it-certification.

Open Source Collaboration

The VLE features the work of open source collaborators so organizations don't have to sift through terabytes of health IT information and resources to find viable content. For example, within the VLE, you will find curriculum from the ONC (Office of the National Coordinator), pharmacy curriculum developed by Partners in E, Quality and Safety Education for Nurses (QSEN) curriculum and courses developed by HIMSS amongst others. The VLE is an affordable online health IT learning solution designed to expand skillset and knowledge base on important health IT and informatics topics.

Courses tied to Certificates of Completion

There are two HIMSS courses within the VLE that are tied to certificates of completion:

- *Health Information Technology Foundations:* A foundational course for interprofessionals new to the health IT field, intended to create familiarity with applications of health IT in care delivery. This course offers an overview of healthcare, health information technology, and health information management systems. The focus is on the role and responsibilities of entry-level health IT specialists in each phase of the health information management systems lifecycle. The curriculum is aligned to the new Certified Associate in Healthcare Information and Management Systems (CAHIMS) certification administered by the Healthcare Information and Management Systems Society (HIMSS). This certificate of completion is designed for students who have previous experience in IT or healthcare and it is designed to serve as a pathway into health IT careers.
- *Information Technology in Healthcare:* An intermediate course for experienced interprofessionals interacting with health IT and integrating it into workflow. This course features modules that investigate the healthcare environment, health IT acquisition and implementation, e-health implementation, and organizational considerations, as well as a case study on Allina Health's " One Patient, One Record" EMR initiative

Certificates of completion for both courses are awarded upon completion of all course modules and the associated assessment with a passing score of 80%. Discounts for the TIGER VLE are available on bundles of ten or more subscriptions.

Resource and Curriculum Organization

The TIGER VLE Resources *Library* contains thematically organized curriculum based on basic, intermediate, and advanced user levels:

- The *Basic Health IT Competencies* folder contains resources appropriate for interprofessionals new to health IT, entry level health IT specialists and/or students. These learners need basic, gap level training to help them become acquainted with the core concepts around the application of health IT in care delivery.
- The *Information Literacy* folder contains resources appropriate for intermediate level audiences. These learners are experienced in interacting with health IT and how to integrate it into their workflow; they may also be looking to transition to a role as an informaticist or analyst.
- The *Information Management* folder is for advanced level audiences; interprofessionals in senior level health IT roles that are shaping IT strategy, selection and implementation for their organizations.

Tips for Maximizing Time Spent Navigating the Portal & Leveraging Resources

- Download the User Guide. It provides an overview of the VLE and teaches the ins and outs of navigation. It will walk you through creating a user profile and then how to leverage the VLE's most important resources and features like certificates of completion tied to HIMSS courses, how to network with other subscribers, and how to contact staff for technical support.
- Download the Resource Index. The Index outlines every item in the Resource Library along with a short description that contains key, searchable words. You can use the Search feature to find a resource with these key, searchable words instead of searching by folder in the Resource Library.
- Attend TIGER community webinars. These events are ideal for getting to know leaders in various interprofessional fields, knowledge expansion, and staff development/training. CPHIMS/CAHIMS enduring credit are designated for 1 hour per event. Visit www.himss.org/Events to discover upcoming VLE events.

To access the TIGER VLE, please visit onlinexperiences.com/Launch/Event.htm?ShowKey=9320. If you are not currently subscriber, visit bit.ly/2sv9V64 to access the registration page.

Get Involved with the VLE Community

There are a few ways to network and privately communicate within the portal: Subscribers can share virtual business cards, send messages, and/or initiate the instant chat feature. To access these features, select the *Profile* tab on the top navigation tool bar. From there, you will be able to reach the *Communication Center*. Detailed instructions are also included in the *VLE User Guide*. If you have a collaboration VLE story to share, please send us a recap at tiger@himss.org. We'd love to share your story with our global community!

Have a webinar idea or suggest a speaker (yourself included!)? If your idea or speaker is selected, you'll be given the opportunity to moderate the event. Email us your topic or speaker idea today at tiger@himss.org.

In 2015, TIGER solicited institutional pilot partnerships to join us on our journey of education reform. Pilot partnerships stories will be shared via the webinar series to inspire others on how to leverage VLE curriculum and resources throughout 2017.

For information on how you can integrate TIGER tools & resources into your curriculum or to request 30-day complimentary trial access to this dynamic education portal, contact TIGER at tiger@himss.org.

TIGER's International Competency Synthesis Project (ICSP)

TIGER's International Competency Synthesis Project

TIGER is close to completing an innovative, International Competency Synthesis Project (ICSP) that highlights recommended core informatics competencies as we recognize the role of education as a powerful enabler and change agent. Based on this recognition, TIGER continues to focus on education reform, interprofessional community development and workforce development to maximize the integration of technology and informatics into seamless practice, education, and research resource development.

In 2015, members of the TIGER International Committee, now representing 24 countries, began comprehensive activities to compile recommended competencies reflective of many countries, scientific societies, and research projects. This endeavor was comprised of three components:

1. Compilation of national case studies written by committee members from Brazil, China/Taiwan, Finland, Germany (inclusive of Austria and Switzerland), Ireland, New Zealand, the Philippines, Portugal, Scotland and the United States, reflective of country specific competencies based on country requirements, curriculum, and education.

2. Deployment of a survey to evaluate and prioritize a broad list of core competencies. Based on the results of this survey, TIGER identified core informatics competencies of health care professionals within the five domains: 1) nursing management 2) IT management in nursing (e.g. nurse informatics officer) 3) quality management 4) interprofessional coordination of care 5) clinical nursing.

3. And lastly, we are putting the final touches on a *Recommendation Framework* populated by case study and survey findings to provide guidance to the global TIGER community.

TIGER's international activities aim to develop a framework for informatics core competencies, to derive recommendations for education, and finally, to show best practice examples on how to make use of these recommendations. The Committee took a unique approach with this project as we believe it's the first to collect various competencies across countries to identify global commonalities and differences. Finally, harmonization will help determine how TIGER recommended competencies are identified and compiled in the future. Case studies are featured on TIGER's ICSP landing page on HIMSS.org (www.himss.org/professional-development/tiger-initiative/tiger-international-informatics-competency-synthesis-project) and continue to be brought to life via the TIGER VLE webinar series and archive. You can access these events on demand within the education portal and stay tuned for upcoming events through 2017. Major project findings have been shared at international conferences: 13th International Conference in Nursing Informatics (NI2016), Medical Informatics Europe (MIE2016 & MIE2017) and will be showcased at 16th World Congress on Medical and Health Informatics (MEDINFO 2017) in Hangzhou, China this August 2017 via program panel *The Quest for eHealth Enabled Inter-professionalism: A TIGER, IMIA and AHIMA/IFHIMA Joint Action on Education Recommendations*. Published papers for each conference can also be accessed from the ICSP landing page referenced above.

Results from the International Informatics Competency Survey

Out of the 72 experts invited for participation, 43 responded. They came from 21 countries: Americas (4 countries), Europe (10 countries), Asia (5 countries) and Australia/Pacific (2 countries). Table 1 shows the top six core competencies per domains. Each domain was characterised by one to three lead core competencies with (nearly) the same mean percentage of relevance (in italics Tab. 1) and by a specific profile of core competencies. There was a mixture of genuine IT competencies (e.g. information and communication systems), IT related management competencies (e.g. strategic management and leadership), and legal and ethical issues. The least relevant core competency was biomedical image and signal processing for nearly all roles. For clinical nursing, financial management related to IT was found the least important.

Table 1. Top six core competencies in the five domains (mean percentage of relevance {0...100%})

Role/domain	Top 1	Top 2	Top 3	Top 4	Top 5	Top 6
Clinical nursing [n = 41]	*Nursing documentation* (94.4%)	Information knowledge managemen (82.2%)	Principles of nursing informatics (80.5%)	Data protection and security (80.0%)	Ethics and IT (79.5%)	Information communication systems (75.1%)
Quality management [n = 41]	*Quality management* (96.1%)	Process management (86.5%)	Nursing documentation (84.4%)	Information knowledge management (83.2%)	Information communication systems (82.0%)	Principles of nursing informatics (80.2%)
Inter-professional coordination [n = 41]	*Data protection and security* (85.9%)	*Information knowledge management* (85.4%)	Nursing documentation (83.4%)	Process management (83.2%)	Information communication systems (81.5%)	Ethics and IT (78.8%)
Nursing management [n = 43]	*Nursing documentation* (92.1%)	Principles of management (87.9%)	Strategic management and leadership (86.7%)	Quality management (85.1%)	Human resource management (84.4%)	Change management stakeholder management (84.2%)
IT Management in Nursing [n = 43]	Information communication systems (89.5%)	Principles of nursing informatics (89.5%)	Data protection and security (89.0%)	IT risk management (86.8%)	Project management (86.8%)	Process management and information knowledge management (86.1%)

All 24 informatics core competencies were rated above a 50% relevance rate in IT management in nursing, nursing management, and inter-professional coordination of care. In clinical nursing, only two core competencies could not reach the average level of 50% importance and in quality management, one did not do so. These included the least important items and additionally biostatistics/statistics in clinical nursing.

Case Studies: National Informatics Core Competencies

Case studies from Austria, Finland, Germany, Ireland, New Zealand, Philippines, Portugal, and Switzerland findings were compiled to comprise Table 1. The material synthesised from these countries includes published recommendations from previously consolidated activities (Ireland, New Zealand), survey data (Austria, Germany, Switzerland), competencies based on academic programs (Finland, Portugal), and research project results (Philippines). Several case studies took relevant international literature into account (Austria, Germany, Ireland, New Zealand, Philippines, Switzerland) and founded their recommendations based on cited literature. Furthermore, Ireland, Philippines and Portugal distinguished between competencies on two to three education levels.

Synergy between Survey Data & Case Studies

All of the core competencies listed in the case studies were also reflected within the survey. However, the case study competencies demonstrated greater detail and better illustrated the impact and meaning of core competencies. For example, “Uses strategies to optimize application use after implementation (benefits realization)” and “Participates in budget activities for procurement and maintenance of the system” were listed as activities under the financial management competency in the Philippine case study. Both the survey and case studies showed that not only IT related competencies were recommendable but also competencies rooted in management (such as change management), which were disclosed in seven out of the eight case studies. Only the case studies for Austria, Germany and Switzerland and the survey data could be compared because of utilising the same questionnaire. This comparison yielded commonalities such as data protection and security and nursing documentation, which were found among the three most relevant core competencies in inter-professional coordination of care. There were also differences to highlight such as the number of informatics core competencies rated as 50% and more in the clinical nursing domain. In Austria, Germany and Switzerland, the ratio was 12:24 versus 22:24 in the international survey.

Discussion

The TIGER ICSP could provide insight into what nurses should know with regard to nursing and interprofessional informatics when they are working in and across the defined domains. Based on this international survey, educators get an idea about the relevance of certain topics and have the chance to think out of the box. In conclusion to the survey, informatics core competencies were found highly important for roles of nurses outside of the confined IT arena, i.e. in providing and coordinating care and across management roles. Likewise, informatics core competencies rated highly relevant did not only embrace technology but also highlighted management issues closely related to IT (such as stakeholder management and process management). In regard to curricula and course design, the country specific case studies yielded good insight into national priorities. If global and national perspectives match, then this study provides good reasons to pursue the recommended approach. If they differ, it provides a good argument to analyse the discrepancy and then decide.

There are limitations with regard to our methodology. Core competencies are abstract in nature and may be understood differently among different groups of people. We tried to avoid this limitation by presenting examples of competencies at a lower level. Another problem arose from the fact that the case studies could not be compared entirely due to different schemes. However, it is remarkable that the terms in the case studies matched the ones in the survey. This is very likely due to the same literature foundation.

Conclusion

This project is taking a unique approach as it is the first international effort to identify core informatics competencies for nurses in various roles inclusive of inter-professional coordination of care and quality management. Based on the project findings, the priorities found will guide us towards an international framework of recommendations that will help health care professionals to better meet the requirements of an inter-professional process and outcome-oriented way of providing modern care.

Stay tuned for additional project findings, country specific case studies, and our published *Recommendation Framework*. Are you signed up to the TIGER listserv? If so, you will receive our bi-weekly newsletter with project updates, events and community news directly in your inbox. If not, sign up today at tiger@list.himss.org.

EU*US eHealth Work Project & Consortium

EU*US eHealth Work Project & Consortium

Building on its grassroots foundation and community support, the TIGER mission continues to advance through its global outreach and stakeholder adoption. In September 2016, TIGER was co-awarded funding to address the need, development, and deployment of workforce IT skills, competencies, and training programs for trained eHealth workers from the European Commission's Horizon 2020 research and innovation grant program. The 18-month EU*US eHealth Work Project, spanning from September 2016 to February 2018, will work to measure, inform, educate and advance development of a skilled eHealth workforce throughout the European Union, United States and globally. The overall project goal is to create a legacy of digitally empowered health care professionals now and in the future.

Consortium member organizations include:

- Omni Micro Systems and Omni Med Solutions (OMS-GmbH) of Germany *project coordinator*
- European Health Telematics Association (EHTEL) of Belgium
- Steinbeis 2i (S2i) of Germany
- Stiftung Fachhochschule Osnabrück (FH OS), University of Applied Sciences, Osnabrück, Germany
- Tampere University of Technology (TUT) of Finland
- HIMSS Foundation *(project execution by TIGER)*

With burgeoning global demand for skilled healthcare workers, the TIGER Initiative joins other members of the EU*US eHealth Work Consortium to address the need, development and deployment of workforce IT skills, competencies and training programs.

This Consortium and its stakeholders, yourselves included, are poised to uniquely answer the Horizon 2020 call. Together, we form a network of partners from academia, healthcare providers and industry, providing access to a rich wealth of experience and knowledge in health informatics education and training. We are working together toward the common goal of positively impacting the healthcare IT workforce by heightening skills and knowledge.

The EU*US eHealth Work Project is meant to reach a large audience, including students, new and incumbent healthcare workers and practitioners, educators, governments and industry. The project will encompass five work plans: Management, Mapping, Access, Assessment and Dissemination. In this project, the Consortium is not planning to "reinvent the wheel", but proposes to leverage work that has already been done in various areas. The Consortium intends to utilize its "network of networks" to disseminate and exploit the results of this collective work to create an enduring legacy. Under the scope of work of this project, TIGER will execute project deliverables globally on behalf of the HIMSS Foundation.

The EU-US eHealth Work Project is an incredible opportunity for HIMSS & TIGER to collaborate with our European partners on an international level. As a Consortium member of the EU-US eHealth Work Project, we are transforming health through IT in workforce development. By mapping, quantifying, and projecting the need, supply, and demand for competencies and for developing IT skills, we are closer to realizing a trained and skilled transatlantic eHealth workforce.

TIGER is an ideal partner of the EU*US eHealth Work Project for several reasons: we have strong global alliances with healthcare professionals rooted in the heart of care delivery, education and training. We are capitalizing on the TIGER's ICSP underway which includes global case studies and survey results that define a framework of core competency areas in informatics and to learn from local and national perspectives from a global viewpoint. And finally, we will leverage the TIGER VLE to aid the development of key project deliverables outlined below.

Key Project Deliverables

- Survey of Current State of Needs of the eHealth Workforce, with Gap Analysis that leads to Case Studies with Recommendations for Gap Closure and Mitigation
- Several presentations, publications and white papers detailing the synthesis of eHealth workforce initiatives with milestones and advancements in health informatics
- Development of Foundational Curricula for eHealth for European States and US
- Interactive Website Platform integrated with HITComp and TIGER's Virtual Learning Environment (VLE)
- HIT Skills and Knowledge Assessment and Development Framework (Workforce Communication and Career Development Matrix Tool for eHealth)

To download the EU*US eHealth Work Project Schedule with anticipated dates for resources and tools outlined above, please visit: www.himss.org/professionaldevelopment/tiger-eu-us-project-resources.

How You Can Support This Project

We need your help, now, during the project, and after its completion:

- Log on to our website: www.ehealthwork.org or www.ehealthwork.eu
- Visit TIGER's landing page: www.himss.org/tiger
- Sign up for the TIGER listserv: tiger@list.himss.org
- Sign up for the EU*US eHealth Work Project Newsletter: info@ehealthwork.org
- Help us in our efforts to:
  - Inform and educate current and future eHealth workers
  - Participate as a stakeholders in our events
  - Help disseminate and use your networks to exploit the results of this important work to make an impact in eHealth

The EU*US eHealth Works to Improve Global Workforce Development white paper discusses the ways in which the EU*US eHealth Work Project, in cooperation with its Consortium members and a large stakeholder community, will work to measure, inform, educate and advance development of a skilled eHealth workforce throughout the European Union, United States and globally. Learn how the EU-US eHealth Work Consortium was formed to uniquely answer this call. To download the white paper, please visit: www.himss.org/library/euus-ehealth-works-improve-global-workforce-development.

Conclusion

This report is not all inclusive; it is a living document that will continuously evolve over time as reflected in competency development efforts to assist interprofessionals with using informatics and emerging technologies to better patient care and make healthcare safer, more effective, timely and equitable. As important changes are made and new resources identified, we will make updates to this supplemental report.

It has been eleven years since TIGER formalized as an initiative in 2006. In that time, many volunteer hours and efforts have helped advance the TIGER cause and shape competency development. A special thank you goes to all of the countless individuals and organizations who have contributed to TIGER's competency development and recommendation journey. We look forward to future collaborations and successes. To learn more about TIGER and discover ways to get involved, visit www.himss.org/tiger.

Report Appendix

EU-US Workforce Development Work Group Members represented 13 countries/regions, including: Canada, England, Finland, France, Germany, Greece, Ireland, Israel, Italy, Mexico, Norway, Scotland, and the United States of America.

EU-US Workforce Development Work Group included representation from the following academic organizations:

- University of Texas Health School of Biomedical Informatics (Houston, Texas)
- Renton Technical College (Renton, Washington)
- University of Victoria (British Columbia, Canada)
- Tampere University of Technology (Tampere, Finland)
- Mt. Hood Community College (Mt. Hood, Oregon)
- University of Edinburgh (Edinburgh, Scotland)
- Bellevue Community College (Bellevue, Washington)
- University of Nottingham (Nottingham, England)
- Irish Computer Society/ICS Skills (Dublin, Ireland)

Transatlantic Collection of Health Informatics Competencies

Värri, A., Blake, R., Jean Roberts, Fenton, S. H., Cleary, M., Zacks, S. F.,...Cunningham, F. (2016). Transatlantic collection of health informatics competencies. Finnish Journal of eHealth and eWelfare, 8, 127-136. https://presentations.inxpo.com/Shows/Himss/Events/TransatlanticCollHIcompetencies2016.pdf

Helpful Terms Used on the HITComp Site

Terms	Definition & Notes
Advanced	A high-level incumbent skill or competency level, equating to "evaluating" and "synthesizing" in Bloom's Taxonomy. Could potentially align with baccalaureate- to masters-degree level academic programs or curricular competencies in eHealth/HIT.
Baseline	A foundation level upon which all other skills and competencies are based.
Basic	An entry-level or beginning skill or competency level, equating to "understanding" and "knowing" in Bloom's Taxonomy. Could potentially align with associate-level degree academic programs or curricular competencies in eHealth/HIT.
Competency	The combination of observable and measurable abilities, skills and attributes that contribute to aggregated knowledge, job performance and ultimately organizational success.
Competency Category	One of 33 specialized areas of competency, from access, to care coordination, to documentation, to privacy and security, to quality and safety, and others.
Competency Code	A unique identifier for each HITComp competency. This code allows the competency to be referenced, correlated with other programs and competencies, aligned with curricula, educational and training resources, etc.
Competency Level	One of five grades of experience and skill for HIT competence and competencies. Note/Disclaimer: Levels do not correspond one-to-one to job progression or role levels and can vary by role, organization and location.
Domain	One of five areas of health information technology focus areas, including Direct Patient Care (includes nursing, medicine, allied health, etc.); Administration (includes health administration, finance, law, management, and revenue); Engineering/Information Systems (includes engineering, information and computer technology [ICT], information systems and information technology); Informatics (includes health informatics, clinical informatics, nursing informatics, medical informatics, etc.); and Research/Biomedical (includes areas of focus in research, development, biomedicine, etc.)
Expert	The highest level of skill or competency level, also equating to "evaluating" and "synthesizing" in Bloom's Taxonomy. Could potentially align with masters- to post-doctoral-degree level academic programs or curricular competencies in eHealth/HIT.
Health Care Setting	One of several environments for health care work, including acute care (also called inpatient places of service [POS]), ambulatory care (includes primary and specialty care practices and clinics, also called outpatient POS), skilled nursing facilities and rehabilitation, emergency medicine, surgical and operative theaters, etc.
Intermediate	A mid-level incumbent skill or competency level, equating to "applying" and "analyzing" in Bloom's Taxonomy. Could potentially align with baccalaureate-degree level academic programs or curricular competencies in eHealth/HIT.
Role	One of over 250 job types in the acute care setting of health care, whose work could potentially touch eHealth/health IT. The job roles include equivalent names in five major European languages, along with a comprehensive description of each role.
Role Service Category	One of three types of primary acute care services: ancillary (allied health or non-direct patient care), nursing or physician/provider/medical staff.

A note about the Areas of Competency on HITComp:

- Current Areas of Competency are one of 33 specialized areas of health IT competency, including:
  - Access to Information, Confidentiality, Protected Health Information, Health Information Management
  - Administration/General Management/Governance
  - Business Process Design/Workflows
  - Care Coordination
  - Clinical Decision Support & Pathways
  - Clinical Practice & Workflows

- Coding & Terminologies
- Collection of Data/Knowledge Management (Library)
- Communication & Change Management
- Patient Access & Engagement/PHRs
- Confidentiality/Protected Health Information/Records Management
- Data Compiling, Analysis, Modeling & Reporting
- Documentation Process
- eHealth/mHealth/Telehealth
- Financial and Account Management
- General HIT Knowledge/System Use
- Informatics Process
- Information and Communications Technology/Information Systems/IT
- HIE/Interoperability/Interfaces/Integration
- Issue Management & Resolution
- Legal
- Medications & Allergies
- Order Entry
- Patient Centered Interactions/Patient Identification
- Policies & Procedures
- Population Management/Public Health
- Privacy & Security
- Project/Program Management
- Quality & Safety
- Research/Biomed
- Risk and Compliance
- Standards and Protocols
- Systems Development and Implementation

- Upon complete integration of the EU*US eHealth Work Foundational Curriculum with HITComp, additional areas of competency will be synthesized to conform to a more global standard. This synthetization follows the International Framework for Recommendations of Core Competencies in Nursing and Interprofessional Informatics[1]. These additional areas will include 40 areas in total, including:
  - Access to Information, Confidentiality, Protected Health Information, and Health Information Management
  - Administration, Principles of Management, Strategic Management, and Governance of eHealth
  - Business Process Design and Business Workflows
  - Care Coordination
  - Clinical Decision Support and Pathways

[1]TIGER Initiative: *Towards an International Framework for Recommendations of Core Competencies in Nursing and Interprofessional Informatics: The TIGER Competency Synthesis Project.* June 2017. www.himss.org/library/towards-international-framework-recommendations-core-competencies-nursing-and-interprofessional

- Clinical Practice and Workflows; Evidence-Based Medicine
- Coding and Terminologies
- Collection of Data, Knowledge Management and Library Skills (Curation and Preservation)
- Communication, Change and Stakeholder Management
- Consumer Health Informatics, Patient Access and Engagement and Patient Health Records
- Data Analytics, Modeling and Reporting
- Documentation Process
- eHealth and mHealth
- Ethics in eHealth
- Financial and Account Management in eHealth
- General eHealth Knowledge, System Use and Applied Computer Science
- Informatics in Active and Healthy Ageing
- Informatics Process and Principles of Health Informatics
- Information and Communications Technology/Information Systems/Information technology (applications and architecture)
- Interoperability, Interfaces and Integration
- Issue Management & Resolution
- Leadership in eHealth
- Learning techniques in eHealth training
- Legal Topics in eHealth
- Medical Technology, Assistive Technologies and Device Integration
- Medications and Allergies
- Order Entry
- Patient Centered Interactions and Patient Identification
- Policies and Procedures
- Population Management and Public Health Informatics
- Privacy and Data Protection/Security
- Project and Program Management
- Quality and Safety
- Research and Biomedicine
- Resource Planning and Management
- Risk and Compliance
- Standards and Protocols
- System Development and Implementation/System Lifecycle Management
- Teaching, Training and Education in eHealth
- Telematics and Telehealth

Abbreviations & Acronyms

Acronym	Description
CPHIMS/CAHIMS	Certified Professional in Healthcare Information and Management Systems/ Certified Associate in Healthcare Information and Management Systems
CSV	Comma-Separated Values
DG Connect	Directorate General for Communication
EC	European Commission
ECDL	European Computer Driving License
EHEALTH	See HIT
EHTEL	European Health Telematics Association
EMR/EHR	Electronic Medical Records/Electronic Health Records
ESKILLS	Electronic Skills
EU-US	European Union-United States
EU*US eHealth Work	EU-US eHealth Work Consortium and Project (under Horizon 2020 grant #727552 funded by the European Commission)
FH OS	Stiftung Fachhochschule Osnabrück (University of Applied Sciences, Osnabruck, Germany)
H2020	Horizon 2020 research and innovation grant program
HIMSS FDN	Healthcare Information and Management Systems Society Foundation
HIS	Health Information System
HIT	Health Information Technology, or health IT
HITComp	Health IT Competencies Tool and Repository
ICDL	International Computer Driving License
ICSP	International Competency Synthesis Project
ICT	Information and Communications Technology
IS	Information Systems
JSON	JavaScript Object Notation
MEDINFO	16th World Congress on Medical and Health Informatics
MIE2016/2017	Medical Informatics Europe (2016/2017)
MoU	Memorandum of Understanding
NI2016	13th International Conference in Nursing Informatics
OMS-UG	Omni Micro Systems/Omni Med Solutions GmbH (formerly UG)
ONC-HIT	Office of the National Coordinator – Health Information Technology
QSEN	Quality and Safety Education for Nurses
S2i	Steinbeis 2i, Germany
SME	Subject Matter Expert
TICC	TIGER Informatics Competencies Collaborative
TIGER	Technology Informatics Guiding Education Reform
TUT	TTY-SAATIO (Tampere University of Technology)
VLE	HIMSS TIGER Virtual Learning Environment
WDW	Workforce Development Workgroup
XML	Extensible Markup Language

References

1. Collaborating to Integrate Evidence and Informatics into Nursing Practice and Education: An Executive Summary. Chicago: HIMSS; 2012 [cited 2017 March 23]. Available from http://www.himss.org/collaborating-integrate-evidence-and-informatics-nursing-practice-and-education-executive-summary.

2. The TIGER Initiative. Chicago: HIMSS; 2016 [cited 2017 March 23]. Available from http://www.himss.org/professional-development/tiger-initiative.

3. Ball, MJ, Douglas, JV, et.al. Nursing Informatics: Where Technology and Caring Meet. 4th ed. London: Springer-Verlag; 2011.

4. EU*US eHealth Works to Improve Global Workforce Development. Chicago: HIMSS; 2017 [cited 2017 April 3]. Available from http://www.himss.org/sites/himssorg/files/eu-us-ehealth-workforce-development.pdf.

5. Sensmeier, J., Anderson, C. & Shaw, T. History of the TIGER Initiative. HIMSS.org (2017) http://www.himss.org/sites/himssorg/files/TIGER%20History%202017.pdf

6. Sensmeier, J., Anderson, C. & Shaw, T. (2017). International Evolution of TIGER Informatics Competencies. In NI2016 Post Conference Proceedings: Informatics Competencies for Nurses in the Next Ten Years. Murphy, J., Weber, P., and Goossen, W. Editors, IOS Press

7. U.H. Hübner, T. Shaw T, M.J. Ball, The TIGER Initiative. Hospital Healthcare Europe (2016), 174-177. http://www.hospitalhealthcare.com/it/tiger-initiative

8. S. O'Connor, U. Hübner, T. Shaw, R. Blake, M.J. Ball, ROAR with TIGER: Technology Informatics Guiding Educational Reform. Nurse Education Today In Press

Special Acknowledgements

We would like to share a special acknowledgement to members of the FY16-17 TIGER Committee for their input and guidance throughout the development of this report and finally, many thanks to Joyce Sensmeier, RN-BC, MS, CPHIMS, FHIMSS, FAAN, Vice President, Informatics, HIMSS and TIGER Committee member Stephen Burrows, DPM, MBA, CPHIMS, FHIMSS, CPHIT, Chair & Program Director of Healthcare Informatics, Sacred Heart University, for their invaluable final document edits.