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# Compendium of Library/Informatics Competencies for the Health Sciences Professions

Compiled by Jonathan D. Eldredge, Sarah K. Morley, Ingrid C. Hendrix, Richard D. Carr, and Jason Bengtson

University of New Mexico. Health Sciences Library and Informatics Center

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		Specific Competency Statements by Healthcare Professional Degree, Year & Organization	
Board Certification	2009	<p>Practice-based learning and improvement that involves investigation and evaluation of care for their patients, the appraisal and assimilation of scientific evidence, and improvements in patient care.</p> <p>Practice-based Learning and Improvement Residents must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and life-long learning. Residents are expected to develop skills and habits to be able to meet the following goals:</p> <p>(6) locate, appraise, and assimilate evidence from scientific studies related to their patients' health problems; (7) use information technology to optimize learning; and, (8) participate in the education of patients, families, students, residents and other health professionals.</p> <p><u>Documentation for EBM-related skills:</u> The Common PIF requests a description of one learning activity designed for residents to develop EBM abilities. (See PIF question below.) An appropriate learning activity could be structured EBM activities such as a journal club presentation, critical appraisal of a topic, or educational prescription with appropriate faculty oversight and formal assessment of skills. Additional documentation would be the written goals and objectives for this learning activity and how residents are assessed. Site visitors may verify through spot checks of resident files and interviews with residents and faculty as needed.</p> <p>PIF Question:</p>	ACGME

		Describe one example of a learning activity in which residents engage to develop the skills needed to use information technology to locate, appraise, and assimilate evidence from scientific studies and apply it to their patients' health problems. The description should include: (1) locating information (2) using information technology (3) appraising information (4) assimilating evidence information (from scientific studies) (5) applying information to patient care. <sup>1</sup>	
BSMLS	2008	Each student must have reasonable access to information resources containing current editions of books, periodicals and other reference materials in contemporary formats related to all content areas of the curriculum. <sup>2</sup>	NAACLS
BSMLS	2008	Students have access to and experience with contemporary computer technology. <sup>3</sup>	NAACLS
BSMLS	2008	Knowledge of research design/practice sufficient to evaluate published studies as an informed consumer. <sup>4</sup>	NAACLS
BSN	2008	Essential III: Scholarship for Evidence Based Practice Professional Nursing practice is grounded in the translation of current evidence into one's practice. The baccalaureate program prepares the graduate to: 4. Evaluate the credibility of sources of information, including but not limited to databases and Internet resources. 5. Participate in the process of retrieval, appraisal, and synthesis of evidence in collaboration with other members of the healthcare team to improve patient outcomes. 7. Collaborate in the collection, documentation, and dissemination of evidence. Sample Content methods for locating and appraising health and other relevant research literature and other sources of evidence locating and evaluating sources of evidence · electronic database search strategies (e.g., CINAHL, PubMed) levels of evidence: textbooks, case studies, reviews of literature, research critiques, controlled trials, evidence based clinical practice guidelines (www.guideline.gov), metaanalyses, and systematic reviews (e.g., the Cochrane Database of Systematic Reviews). <sup>5</sup>	AACN
BSN	2008	Essential IV: Information Management and Application of Patient Care Technology Rationale Knowledge and skills in information and patient care technology are critical in preparing baccalaureate nursing graduates to deliver quality patient care in a variety of healthcare settings (IOM, 2003a). Graduates must have basic competence in technical skills, which includes the use of computers, as well as the application of patient care technologies such as monitors, data gathering devices, and other technological	AACN

		<p>supports for patient care interventions. In addition, baccalaureate graduates must have competence in the use of information technology systems, including decision support systems, to gather evidence to guide practice. Specific introductory level nursing informatics competencies include the ability to use selected applications in a comfortable and knowledgeable way.</p> <p>Computer and information literacy are crucial to the future of nursing....</p> <p>Therefore, graduates of</p> <p>18</p> <p>baccalaureate programs must have competence in using both patient care technologies and information management systems</p> <p>6. Evaluate data from all relevant sources, including technology, to inform the delivery of care.</p> <p>Sample content</p> <p>computer skills that may include basic software, spreadsheet, and healthcare databases</p> <p>retrieval information systems, including access, evaluation of data, and application of relevant data to patient care</p> <ul style="list-style-type: none"> <li>· online literature searches</li> <li>· technological resources for evidence based practice</li> <li>· web-based learning and online literature searches for self and patient use</li> </ul> <p>information literacy<sup>6</sup></p>	
BSN	2010	Act as an evolving scholar who contributes to the development of the science of nursing practice by identifying questions in need of study, critiquing published research, and using available evidence as a foundation to propose creative, innovative, or evidence-based solutions to clinical practice problems. <sup>7</sup>	NLN
BSN, MSN, PhD	2009	<p>TIGER Informatics Competency Collaborative (TICC) Final Report</p> <p>Information literacy builds on computer literacy. Information literacy is the ability to</p> <ul style="list-style-type: none"> <li>- identify information needed for a specific purpose</li> <li>- locate pertinent information</li> <li>- evaluate the information</li> <li>- apply it correctly</li> </ul> <p>Information literacy is critical to incorporating evidence-based practice into nursing practice. The nurse/provider must be able to determine what information is needed. This involves critical thinking and assessment skills. Finding the information is based on the resources available, which can include colleagues, policies, and literature in various</p>	TIGER Technology Informatics Guiding Education Reform

		<p>formats. Evaluating or appraising the information also involves critical thinking and the ability to determine the validity of the source. The actual implementation of the information results in putting the information into practice or applying the information. The evaluation process is necessary to determine whether the information and its application resulted in improvements. Thus, information literacy competencies are fundamental to nursing and evidence-based practice.</p> <p><b>Recommendation</b></p> <p>All practicing nurses and graduating nursing students will have the ability to:</p> <ol style="list-style-type: none"> <li>1. Determine the nature and extent of the information needed</li> <li>2. Access needed information effectively and efficiently</li> <li>3. Evaluate information and its sources critically and incorporates selected information into his or her knowledge base and value system</li> <li>4. Individually or as a member of a group, use information effectively to accomplish a specific purpose</li> <li>5. Evaluate outcomes of the use of information</li> </ol> <p>Timeline for Adoption by January 2011<sup>8</sup></p>	
BSRS	2010	<p>The sponsor must have an accessible print and/or electronic library collection to foster an atmosphere of inquiry, study and learning. It should contain both current and historical books in addition to recent journals, periodicals and other reference materials related to all subject areas of the professional curriculum. (2011 Final Standards Sponsor Resources B.1.2).<sup>9</sup></p>	JRCNMT
BSRT	2010	<p>Standard 2.01- The sponsoring institution must ensure that fiscal, academic, and physical resources are sufficient to achieve the program's goals and objectives as defined in Standard III, regardless of location and instructional methodology used. Standard 4.07- Curricular Content in respiratory care must be periodically reviewed and revised to ensure its consistency with the competencies and duties performed by registered respiratory therapists in the workforce, as established by the national credentialing agency through its periodic job analysis and credentialing examinations specifications. For the polysomnography option, curricular content must be periodically reviewed and revised to ensure its consistency with the competencies and duties performed by sleep disorder specialists in the workforce, as established by the national credentialing agency through its periodic job analysis and outlined in its credentialing examination specifications. These nationally accepted standards provide the basis for formulating the objectives and</p>	COARC

		competencies of the program's curriculum. A review of the curricular content must be conducted after any revision in the credentialing exam specifications. -Interpretive Guideline Bullet Point 12 for this standard: promoting evidence-based practice by using established clinical practice guidelines and by evaluating published research for its relevance to patient care. Standard 4.11- The program must ensure that course content, learning experiences (didactic, laboratory, and clinical), and access to learning materials are substantially equivalent for each student regardless of location. Standard 5.15- Students must have access to the academic support services that are provided to other students in the institution. Interpretive guideline for this standard: Academic support services are those services available that facilitate faculty and students in any teaching/learning modality, including distance education, in achieving the expected outcomes of the program. These may include, but are not limited to, library, computer and technology resources, advising, counseling, and placement services. <sup>10</sup>	
BSRT	2007	Develop the ability to perceive, gather, organize and present information. (Required General Education, p.73.). <sup>11</sup>	ASRT
BSRT	2007	Use technology to retrieve, evaluate and apply information. (Required General Education, p. 73.). <sup>12</sup>	ASRT
BSRT	2007	<ul style="list-style-type: none"> <li>• Develop the knowledge base to use computerized systems.</li> <li>• Use technology to retrieve, evaluate and apply information. (Information Systems, p. 73.).<sup>13</sup></li> </ul>	ASRT
DDS	2007	Apply scientific principles to learning and oral health care. This includes using critical thinking, evidence or outcomes-based clinical decision-making, and technology-based information retrieval systems. <sup>14</sup>	CDA Commission on Dental Accreditation
DNP	2006	<p>Essentials of Doctoral Education for Advanced Nursing Practice</p> <p>Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice</p> <p>The DNP program prepares the graduate to:</p> <ol style="list-style-type: none"> <li>1. Use analytic methods to critically appraise existing literature and other evidence to determine and implement the best evidence for practice.</li> <li>5. Use information technology and research methods appropriately to: <ul style="list-style-type: none"> <li>• collect appropriate and accurate data to generate evidence for nursing practice</li> <li>• inform and guide the design of databases that generate meaningful evidence for nursing practice</li> <li>• analyze data from practice</li> <li>• design evidence-based interventions</li> <li>• predict and analyze outcomes</li> </ul> </li> </ol>	AACN

		<ul style="list-style-type: none"> <li>• examine patterns of behavior and outcomes</li> <li>• identify gaps in evidence for practice</li> </ul> <p>7. Disseminate findings from evidence-based practice and research to improve healthcare outcomes</p> <p>Essential IV: Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care</p> <p>5. Evaluate consumer health information sources for accuracy, timeliness, and appropriateness.<sup>15</sup></p>	
DPT	2011	<p>Commission on the Accreditation of Physical Therapy Education Accreditation Handbook Library</p> <p>R-5. The resources of the institutional library system and associated learning resources are adequate to support the educational and scholarship goals of the program, including both program faculty and student activities.</p> <p>Evidence of compliance:</p> <p>Narrative:</p> <ul style="list-style-type: none"> <li>• Describe the library resources, including the technological resources, available to the program faculty and students.</li> <li>• Describe the accessibility of library resources to program faculty and students.</li> <li>• Analyze the adequacy of the library resources and remote accessibility for the program needs.</li> </ul> <p>On-site:</p> <ul style="list-style-type: none"> <li>• List of the library resources related to program needs for both program faculty and students.<sup>16</sup></li> </ul>	CAPTE
DPT	2011	<p>Curriculum Content</p> <p>Professional Practice Expectation: Evidence-based Practice</p> <p>CC-5.21 Consistently use information technology to access sources of information to support clinical decisions.</p> <p>CC-5.22 Consistently and critically evaluate sources of information related to physical therapist practice, research, and education and apply knowledge from these sources in a scientific manner and to appropriate populations.</p> <p>CC-5.23 Consistently integrate the best evidence for practice from sources of information with clinical judgment and patient/client values to determine the best care for a patient/client.</p> <p>CC-5.24 Contribute to the evidence for practice by written systematic reviews of evidence or written descriptions of practice.</p> <p>CC-5.25 Participate in the design and implementation of patterns of best clinical practice for various populations.<sup>17</sup></p>	CAPTE

DPT	2005	<p>Curriculum Content</p> <p>Practice Management Expectation: Prevention, Health Promotion, Fitness, and Wellness</p> <p>CC-5.51 Promote health and quality of life by providing information on health promotion, fitness, wellness, disease, impairment, functional limitation, disability, and health risks related to age, gender, culture, and lifestyle within the scope of physical therapist practice.<sup>18</sup></p>	CAPTE
DPT		<p>Competencies of the Transition DPT Graduate</p> <p><b>Critical Inquiry and Clinical Decision Making</b></p> <p>Participate in the design and implementation of decision-making guidelines. (Guidelines include patient care management and administrative areas).</p> <p>Demonstrate clinical decision making skills, including clinical reasoning, clinical judgment, and reflective practice.</p> <p>Understand and apply the disablement and patient/client management models in physical therapist practice.</p> <p>Critically evaluate published studies related to physical therapy and demonstrate the ability to apply knowledge from these studies in a scientific manner and to appropriate populations.</p> <p>Secure and critically evaluate information in a timely manner related to new and established techniques and technology, legislation, policy, and environments related to physical therapy practice.</p> <p>Participate in scholarly activities to understand or contribute to the body of physical therapy knowledge (ie, case reports/collaborative research).<sup>19</sup></p>	APTA
EMT	2009	<p><u>Research</u> (p. 11)</p> <p>Emergency Medical Responder - simple depth, simple breadth. Impact of research on EMR care. Data collection</p> <p>Emergency Medical Technician - EMR Material PLUS: Evidence-based decision making</p> <p>Advance EMT - same as previous level</p> <p>Paramedic - AMET Material PLUS:</p> <p>Fundamental depth, foundational breadth. Research principles to interpret literature and advocate evidence-based practice</p> <p><u>Public Health</u> (p. 15)</p> <p>EMR - Have an awareness of local public health resources</p> <p>Paramedic - Applies fundamental knowledge of principles of public health and epidemiology including</p>	NHTSA



		public health emergencies, health promotion, and illness and injury prevention. <sup>20</sup>	
MAOT	2008	<p>Accreditation Standards for a Master's Degree Level Educational Program for the Occupational Therapist</p> <p><b>B.1.0. FOUNDATIONAL CONTENT REQUIREMENTS</b></p> <p>B.1.2. Employ logical thinking, critical analysis, problem solving, and creativity</p> <p>B.1.3. Demonstrate competence in basic computer use, including the ability to use databases and search engines to access information, word processing for writing, and presentation software (e.g., PowerPoint).</p> <p><b>B.2.0. BASIC TENETS OF OCCUPATIONAL THERAPY</b> B.2.11 Analyze, synthesize, and apply models of occupational performance and theories of occupation.</p> <p><b>B.4.0. SCREENING, EVALUATION, AND REFERRAL</b></p> <p>The process of screening, evaluation, and referral as related to occupational performance and participation must be culturally relevant and based on theoretical perspectives, models of practice, frames of reference, and available evidence. The program must facilitate development of the performance criteria listed below. The student will be able to</p> <p>B.4.2. Select appropriate assessment tools based on client needs, contextual factors, and psychometric properties of tests. These must be relevant to a variety of populations across the life span, culturally relevant, based on available evidence, and incorporate use of occupation in the assessment process.</p> <p><b>B.5.0. INTERVENTION PLAN: FORMULATION AND IMPLEMENTATION</b></p> <p>The process of formulation and implementation of the therapeutic intervention plan to facilitate occupational performance and participation must be culturally relevant; reflective of current occupational therapy practice; based on available evidence; and based on theoretical perspectives, models of practice, and frames of reference. The program must facilitate development of the performance criteria listed below. The student will be able to</p> <p>B.5.26 Organize, collect, and analyze data in a systematic manner for evaluation of practice outcomes. Report evaluation results and modify practice as needed to improve outcomes.</p> <p><b>B.6.0. CONTEXT OF SERVICE DELIVERY</b></p>	AOTA

		<p>B.6.6. Use national and international resources in making assessment or intervention choices, and appreciate the influence of international occupational therapy contributions to education, research, and practice</p> <p><b>B.8.0. RESEARCH</b></p> <p>Application of research includes the ability to read and understand current research that affects practice and the provision of occupational therapy services. The program must facilitate development of the performance criteria listed below. The student will be able to</p> <p>B.8.1. Articulate the importance of research, scholarly activities, and the continued development of a body of knowledge relevant to the profession of occupational therapy.</p> <p>B.8.2. Effectively locate, understand, and evaluate information, including the quality of research evidence.</p> <p>B.8.3. Use research literature to make evidence-based decisions.</p> <p>B.8.4. Understand and use basic descriptive, correlational, and inferential quantitative statistics and code, analyze, and synthesize qualitative data.</p> <p>B.8.5. Understand and critique the validity of research studies, including designs (both quantitative and qualitative) and methodologies.</p> <p>B.8.6. Demonstrate the skills necessary to design a research proposal that includes the research question, relevant literature, sample, design, measurement, and data analysis.</p> <p>B.8.8. Demonstrate basic skills necessary to write a research report in a format for presentation or publication.</p> <p><b>B.9.0. PROFESSIONAL ETHICS, VALUES, AND RESPONSIBILITIES</b></p> <p>B.9.4. Discuss strategies for ongoing professional development to ensure that practice is consistent with current and accepted standards<sup>21</sup></p>	
MAOT	2008	Accreditation Standards for a Master's Degree Level Educational Program for the Occupational Therapist (Preamble)	AOTA

		A contemporary entry-level occupational therapist must: <ul style="list-style-type: none"> <li>• Be prepared to be a lifelong learner and keep current with evidence-based professional practice.</li> <li>• Be prepared to be an effective consumer of the latest research and knowledge bases that undergird practice and contribute to the growth and dissemination of research and knowledge.<sup>22</sup></li> </ul>	
MD	2010	A medical education program must have access to well-maintained library and information facilities that are sufficient in size, breadth of holdings, and information technology to support its educational and other missions. (ER-11) <sup>23</sup>	LCME
MD	2010	...there should be physical or electronic access to leading biomedical, clinical, and other relevant periodicals, the current numbers of which should be readily available. The library and other learning resource centers must be equipped to allow medical students to access information electronically and to use self-instructional materials. (ER-11) <sup>24</sup>	LCME
MD	2010	The library and information services staff at the medical education program must be responsive to the needs of the program's faculty, residents and medical students.(ER-12) <sup>25</sup>	LCME
MD	2010	...a professional staff should supervise the library and information services and provide training in information management skills. The library and information services staff should be familiar with current regional and national information resources and data systems and with contemporary information technology. (ER-12) <sup>26</sup>	LCME
MD	2010	Both medical education program officials and library and information services staff should facilitate access of faculty, residents, and medical students to information resources, addressing their needs for information during extended hours and at each instructional site. (ER-12) <sup>27</sup>	LCME
MD	1998	Support of life-long learning with information technology requires more than computer literacy. Other requirements include cognizance of the broad range of medical information resources available and their relative value for particular needs, the know-how to use them, and the motivation to use them routinely. <sup>28</sup>	AAMC
MD	1998	Demonstrate knowledge of the information resources and tools available to support life-long learning. Knowledge includes awareness of these resources, their content, and the information needs they can address. Relevant resources include MEDLINE and other relevant bibliographic databases, textbooks and reference sources, diagnostic expert systems, and medical Internet resources. <sup>29</sup>	AAMC
MD	1998	Retrieve information, demonstrating the ability to: <ol style="list-style-type: none"> <li>a. Perform database searches using logical (Boolean) operators, in a manner that reflects understanding of medical language, terminology and the relationships among medical terms and concepts.</li> <li>b. Refine search strategies to improve relevance and completeness of retrieved items.</li> <li>c. Use a standard bibliographic application to download citations from a search and organize them in a</li> </ol>	AAMC

		personal database. d. Identify and acquire full-text electronic documents available from the World Wide Web or a local “virtual” library. <sup>30</sup>	
MD	1998	Filter, evaluate, and reconcile information, demonstrating the following: a. Knowledge of the factors that influence the accuracy and validity of information in general. b. The ability to discriminate between types of information sources in terms of their currency, format (for example, a review vs. an original article), authority, relevance, and availability. c. The ability to weigh conflicting information from several sources and reconcile the differences. d. The ability to critically review a published research report. e. Knowledge of copyright and intellectual property issues, especially with a regard to materials that are retrieved electronically. <sup>31</sup>	AAMC
MD	1998	Exhibit good “information habits.” These reflect attitudes that support the effective use of information technology, and include: a. Using multiple information resources for problem solving. b. Maintaining a healthy skepticism about the quality and validity of all information. (This includes recognition that technology which provides new capabilities also has the potential to introduce new sources of error). c. Making decisions based on evidence, when such is available, rather than opinion. d. An awareness of the many ways information becomes lost or corrupted and the need to take appropriate preventative action (for example, routinely employing backup procedures for personal and institutional data). e. Effectively using security procedures (for example, choosing “good” passwords, not sharing them, and changing them often). f. Protecting confidentiality of private information obtained from patients, colleagues, and others. <sup>32</sup>	AAMC
MD	1998	Students must have certain basic skills before they can develop higher level informatics competencies. Many students will acquire them during their premedical education. The skills should be assessed at the start of medical school and deficiencies should be addressed early in the first year. Upon entry into medical school, students should be able to demonstrate basic computer literacy, including the following abilities: a. To launch a computer application b. To save work to a computer file. c. To print a file. d. To copy a file for use on another computer.	AAMC

		e. To use a standard word processing program to create and edited a formatted document using tables and graphics. f. To use electronic mail effectively, including proper etiquette. g. To access and use the World Wide Web. <sup>33</sup>	
MD	2008	Recommends for the USMLE research to “develop assessments focusing on the doctor’s ability to access relevant information, evaluate its quality, and apply it to solving clinical problems” <sup>34</sup>	NBME
MD	2010	“...if it proves possible, test formats that require appropriate use of online database searches to make clinical judgments will be included in the examination.” <sup>35</sup>	NMBE
MPH	2006	The ability to collect, manage and organize data to produce information and meaning that is exchanged by use of signs and symbols; to gather, process and present information to different audiences in-person, through information technologies, or through media channels....(p. 10). <sup>36</sup>	ASPH
MPH	2006	Apply basic informatics techniques with vital statistics and public health records in the description of public health characteristics and in public health research and evaluation.” (p. 12). <sup>37</sup>	ASPH
MPH	2006	Identify key sources of data for epidemiologic purposes (p. 14). <sup>38</sup>	ASPH
MPH	2006	Describe how the public health information infrastructure is used to collect, process, maintain, and disseminate data (p. 17). <sup>39</sup>	ASPH
MPH	2006	Discuss the influences of social, organizational and individual factors on the use of information technology by end users (p. 17). <sup>40</sup>	ASPH
MPH	2006	Collaborate with communication and informatics specialists in the process of design, implementation, and evaluation of public health programs (p. 17). <sup>41</sup>	ASPH
MPH	2006	Use information technology to access, evaluate, and interpret public health data (p. 17). <sup>42</sup>	ASPH
MPH	2006	Use informatics methods and resources as strategic tools to promote public health (p. 17). <sup>43</sup>	ASPH
MPH	2006	Use informatics and communications methods to advocate for community public health programs and policies (p. 17). <sup>44</sup>	ASPH
MPH	2006	Apply evidence-based principles and the scientific knowledge base to critical evaluation and decision-making in public health (p. 21). <sup>45</sup>	ASPH
MPH	2006	Value commitment to lifelong learning.... (p. 21). <sup>46</sup>	ASPH
MPH	2005	Requirements: 1.6 j. A concise statement of library/information resources available for program use, including description of library capabilities in providing digital (electronic) content, access mechanisms and guidance in using them, and document delivery services (p. 12). <sup>47</sup>	CEPH
MPH	2005	A research or academic degree program is one that, based on its learning objectives and the paths its graduates follow, prepares students for scholarly careers, particularly in academia and other research	CEPH

		settings; it typically prepares students to investigate, acquire, organize, analyze and disseminate new knowledge in a discipline or field of study (p. 12). <sup>48</sup>	
MPH	2008	Conduct a thorough search of the scientific literature and public health databases using search engines and methods relevant to specific problems. Verify the completeness and accuracy of searches of literature and public health databases. (I. Assessment and Analysis. A.1.d). <sup>49</sup>	CDC/CSTE
MPH	2008	Evaluate the need for further investigation or other public health action on the basis of results of literature review and assessment of current data. (I. Assessment and Analysis. A.2.e). <sup>50</sup>	CDC/CSTE
MPH	2008	Assist in developing recommended evidence-based interventions and control measures in response to epidemiologic findings. (I. Assessment and Analysis. H). <sup>51</sup>	CDC/CSTE
MPH	2008	Apply principles of informatics, including data collection, processing, and analysis, in support of epidemiologic practice. (II. Basic Public Health Sciences. C.). <sup>52</sup>	CDC/CSTE
MPH	2008	Use software tools that support online searching, public health data acquisition, entry, abstraction, management, analysis, planning, mapping, and reporting. (II. Basic Public Health Sciences. C.2). <sup>53</sup>	CDC/CSTE
MPH	2008	Provide epidemiologic and evidence-based information and data in the development of new policies, including data that demonstrate the need for change in existing policies. (VIII. Policy Development. A.1.c). <sup>54</sup>	CDC/CSTE
MSCR	2010	Identify basic and preclinical studies that are potential testable clinical research hypotheses. <sup>55</sup>	NCRR
MSCR	2010	Prepare the background and significance sections of a research proposal. <sup>56</sup>	NCRR
MSCR	2010	Critique clinical and translational research questions using data-based literature searches. <sup>57</sup>	NCRR
MSCR	2010	Extract information from the scientific literature that yields scientific insight for research innovation. <sup>58</sup>	NCRR
MSCR	2010	Conduct a comprehensive and systematic search of the literature using informatics techniques. <sup>59</sup>	NCRR
MSCR	2010	Describe the mechanism of a clinical problem reviewed in a manuscript. <sup>60</sup>	NCRR
MSCR	2010	Use evidence as the basis of the critique and interpretation of results of published studies. <sup>61</sup>	NCRR
MSCR	2010	Identify potential sources of bias and variations in published studies. <sup>62</sup>	NCRR
MSCR	2010	Identify gaps in knowledge within a research problem. <sup>63</sup>	NCRR
MSCR	2010	Formulate a well-defined clinical or translational research question to be studied in human or animal models. <sup>64</sup>	NCRR
MSCR	2010	Describe trends and best practices in informatics for the organization of biomedical and health information. <sup>65</sup>	NCRR
MSCR	2010	Describe the essential functions of the Electronic Health Record (EHR) and the barriers to its use. <sup>66</sup>	NCRR
MSCR	2010	Explain the role that health information technology standards have on the interoperability of clinical systems, including health IT messaging. <sup>67</sup>	NCRR

MSCR	2010	Retrieve medical knowledge through literature searches using advanced electronic techniques. <sup>68</sup>	NCRR
MSCR	2010	Assure the need for privacy protection throughout all phases of a study. <sup>69</sup>	NCRR
MSDH	2004	Core competencies: C.3 Provide dental hygiene care to promote patient/client health and wellness using critical thinking and problem solving in the provision of evidence based practice; C.4 Use evidence-based decision making to evaluate and incorporate emerging treatment modalities. Glossary: Evidence-based. "A paradigm for the delivery of health care that involves: defining the patients'/clients' problems; identifying the information required to solve the problem; conducting an efficient search of the literature; selecting the best of the relevant studies...and applying the information to the patient/client problem." <sup>70</sup>	ADEA
MSDH	2006	Critical thinking is "the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action." <sup>71</sup>	ADEA
MSDH	2006	Because critical thinking involves a special way of gathering and considering information and responding, it is different from the mere acquisition of information or possession of a set of skills. <sup>72</sup>	ADEA
MSDH	2006	Scriven and Paul describe the mature critical thinker as one who: (1) raises vital questions and problems, formulating them clearly and precisely; (2) gathers and assesses relevant information, using abstract ideas to interpret it effectively and come to well-reasoned conclusions and solutions, testing them against evidence, criteria, and standards... <sup>73</sup>	ADEA
MSDH	2006	The explosion of scientific knowledge makes it impossible for students to comprehend and retain all the information necessary for a lifetime of practice during the four years of the dental school curriculum. Students must "learn how to learn," and faculty must serve as role models who understand and value scientific discovery. <sup>74</sup>	ADEA
MSDH	2006	The American Dental Association (ADA) defines evidence-based dentistry (EBD) as an approach to oral health care that requires the judicious integration of systematic assessments of clinically relevant scientific evidence, relating to the patient's oral and medical condition and history, with the dentist's clinical expertise and the patient's treatment needs and preferences. EBD is based on using thorough, unbiased reviews and critical appraisal of the best available scientific evidence in combination with clinical and patient factors to make informed decisions about appropriate health care for specific clinical circumstances. EBD relies on the role of individual professional judgment in this process. The content of dental curricula should be based on the principles of evidence-based inquiry... <sup>75</sup>	ADEA
MSMLS	2008	Each student must have reasonable access to information resources containing current editions of books,	NAACLS

		periodicals and other reference materials in contemporary formats related to all content areas of the curriculum. <sup>76</sup>	
MSMLS	2008	Students have access to and experience with contemporary computer technology. <sup>77</sup>	NAACLS
MSMLS	2008	Knowledge of research design/practice sufficient to evaluate published studies as an informed consumer. <sup>78</sup>	NAACLS
MSN	2008	<p>Concepts and Tools from Information Science and Computer Science</p> <p>Tools and methods from computer and information sciences are fundamental to NI, including: Information technology, information structures, information management and information communication. Information technology includes computer hardware, software, communication, and network technologies, derived primarily from computer science. The other three elements are derived primarily from information science. Information structures organize data, information and knowledge for processing by computers. Information management is an elemental process by which one files, stores, and manipulates data for various uses. Information communication enables systems to send data and to present information in a format that improves understanding. The use of information technology distinguishes informatics from more traditional methods of information management.<sup>79</sup></p>	ANA
MSN	2008	<p>Education and Professional Development</p> <p>The INS must consider information competency as well as literacy. Computer literacy is a core competency needed in health care, and should be taught in nursing curricula at all levels. In addition, information literacy must be integrated into practice and used to support knowledge management. These are the foundations of information competencies.<sup>80</sup></p>	ANA
MSN	2010	Contributes to the science of nursing in one's specialty area of practice by analyzing underlying disparities in knowledge or evidence; formulating research questions; and systematically evaluating the impact on quality when evidence-based solutions to nursing problems are implemented. <sup>81</sup>	NLN
MSN	2011	<p>Essentials of Master's Education in Nursing</p> <p><b>Essential IV: Translating and Integrating Scholarship into Practice</b></p> <p><i>Rationale</i></p> <p>Professional nursing practice at all levels is grounded in the ethical translation of current evidence into practice. Fundamentally, nurses need a questioning/inquiring attitude toward their practice and the care environment.</p> <p>The master's-prepared nurse examines policies and seeks evidence for every aspect of practice, thereby translating current evidence and identifying gaps where evidence is lacking. These nurses apply research outcomes within the practice setting, resolve practice problems (individually or as a member of the healthcare team), and disseminate</p>	AACN



	<p>results both within the setting and in wider venues in order to advance clinical practice. Changing practice locally, as well as more broadly, demands that the master's-prepared nurse is skilled at challenging current practices, procedures, and policies. The emerging sciences referred to as implementation or improvement sciences are providing evidence about the processes that are effective when making needed changes where the change processes and context are themselves evidence based (Damschroder et al., 2009; Sobo, Bowman, &amp; Gifford, 2008; van Achterberg, Schoonhoven, &amp; Grol, 2008). Master's 16 prepared nurses, therefore, must be able to implement change deemed appropriate given context and outcome analysis, and to assist others in efforts to improve outcomes. Master's-prepared nurses lead continuous improvement processes based on translational research skills. The cyclical processes in which these nurses are engaged includes identifying questions needing answers, searching or creating the evidence for potential solutions/innovations, evaluating the outcomes, and identifying additional questions. Master's-prepared nurses, when appropriate, lead the healthcare team in the implementation of evidence-based practice. These nurses support staff in lifelong learning to improve care decisions, serving as a role model and mentor for evidence based decision making. Program graduates must possess the skills necessary to bring evidence-based practice to both individual patients for whom they directly care and to those patients for whom they are indirectly responsible. Those skills include knowledge acquisition and dissemination, working in groups, and change management. The master's-degree program prepares the graduate to:</p> <ol style="list-style-type: none"> <li>1. Integrate theory, evidence, clinical judgment, research, and interprofessional perspectives using translational processes to improve practice and associated health outcomes for patient aggregates.</li> <li>2. Advocate for the ethical conduct of research and translational scholarship (with particular attention to the protection of the patient as a research participant).</li> <li>3. Articulate to a variety of audiences the evidence base for practice decisions, including the credibility of sources of information and the relevance to the practice problem confronted.</li> <li>4. Participate, leading when appropriate, in collaborative teams to improve care outcomes and support policy changes through knowledge generation, knowledge dissemination, and planning and evaluating knowledge implementation.</li> <li>5. Apply practice guidelines to improve practice and the care environment.</li> </ol>	
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	<p>6. Perform rigorous critique of evidence derived from databases to generate meaningful evidence for nursing practice.</p> <p><i>Sample Content:</i></p> <ul style="list-style-type: none"> <li>• Research process</li> <li>• Implementation/Improvement science</li> <li>• Evidence-based practice:</li> </ul> <p>17</p> <ul style="list-style-type: none"> <li>_ Clinical decision making</li> <li>_ Critical thinking</li> <li>_ Problem identification</li> <li>_ Outcome measurement</li> <li>• Translational science: <ul style="list-style-type: none"> <li>_ Data collection in nursing practice</li> <li>_ Design of databases that generate meaningful evidence for nursing practice</li> <li>_ Data analysis in practice</li> <li>_ Evidence-based interventions</li> <li>_ Prediction and analysis of outcomes</li> <li>_ Patterns of behavior and outcomes</li> <li>_ Gaps in evidence for practice</li> <li>_ Importance of cultural relevance</li> </ul> </li> <li>• Scholarship: <ul style="list-style-type: none"> <li>_ Application of research to the clinical setting</li> <li>_ Resolution of clinical problems</li> <li>_ Appreciative inquiry</li> <li>_ Dissemination of results</li> </ul> </li> <li>• Advocacy in research</li> <li>• Research ethics</li> <li>• Knowledge acquisition</li> <li>• Group process</li> <li>• Management of change</li> <li>• Evidence-based policy development in practice</li> <li>• Quality improvement models/methodologies</li> <li>• Safety issues in practice</li> </ul>	
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		<ul style="list-style-type: none"> <li>• Innovation processes<sup>82</sup></li> </ul>	
MSN	2011	<p>Essential V: Informatics and Healthcare Technologies</p> <p>Rationale</p> <p>Informatics and healthcare technologies encompass five broad areas:</p> <ul style="list-style-type: none"> <li>• Use of patient care and other technologies to deliver and enhance care;</li> <li>• Communication technologies to integrate and coordinate care;</li> <li>• Data management to analyze and improve outcomes of care;</li> <li>• Health information management for evidence-based care and health education;</li> </ul> <p>and</p> <p>18</p> <ul style="list-style-type: none"> <li>• Facilitation and use of electronic health records to improve patient care.</li> </ul> <p>Knowledge and skills in each of these four broad areas is essential for all master's-prepared nurses. The extent and focus of each will vary depending upon the nurse's role, setting, and practice focus.</p> <p>Knowledge and skills in information and healthcare technology are critical to the delivery of quality patient care in a variety of settings (IOM, 2003a). The use of technologies to deliver, enhance, and document care is changing rapidly. In addition, information technology systems, including decision-support systems, are essential to gathering evidence to impact practice. Improvement in cost effectiveness and safety depend on evidence-based practice, outcomes research, interprofessional care coordination, and electronic health records, all of which involve information management and technology (McNeil et al., 2006). As nursing and healthcare practices evolve to better meet patient needs, the application of these technologies will change as well.</p> <p>As the use of technology expands, the master's-prepared nurse must have the knowledge and skills to use current technologies to deliver and coordinate care across multiple settings, analyze point of care outcomes, and communicate with individuals and groups, including the media, policymakers, other healthcare professionals, and the public.</p> <p>Integral to these skills is an attitude of openness to innovation and continual learning, as information systems and care technologies are constantly changing, including their use at the point of care.</p> <p>Graduates of master's-level nursing programs will have competence to determine the appropriate use of technologies and integrate current and emerging technologies into one's practice and the practice of others to enhance care outcomes. In addition, the</p>	AACN

	<p>master's-prepared nurse will be able to educate other health professionals, staff, patients, and caregivers using current technologies and about the principles related to the safe and effective use of care and information technologies.</p> <p>Graduates ethically manage data, information, knowledge, and technology to communicate effectively with healthcare team, patients, and caregivers to integrate safe and effective care within and across settings. Master's-prepared nurses use research and clinical evidence to inform practice decisions.</p> <p>Master's-degree graduates are prepared to gather, document, and analyze outcome data that serve as a foundation for decision making and the implementation of interventions or strategies to improve care outcomes. The master's-prepared nurse uses statistical and epidemiological principles to synthesize these data, information, and knowledge to evaluate and achieve optimal health outcomes.</p> <p>The usefulness of electronic health records and other health information management systems to evaluate care outcomes is improved by standardized terminologies. Integration</p> <p>19</p> <p>of standardized terminologies in information systems supports day-to-day nursing practice and also the capacity to enhance interprofessional communication and generate standardized data to continuously evaluate and improve practice (American Nurses Association, 2008). Master's-prepared nurses use information and communication technologies to provide guidance and oversight for the development and implementation of health education programs, evidence-based policies, and point-of-care practices by members of the interdisciplinary care team.</p> <p>Health information is growing exponentially. Health literacy is a powerful tool in health promotion, disease prevention, management of chronic illnesses, and quality of life—all of which are hallmarks of excellence in nursing practice. Master's-prepared nurses serve as information managers, patient advocates, and educators by assisting others(including patients, students, caregivers and healthcare professionals) in accessing, understanding, evaluating, and applying health-related information. The master's-prepared nurse designs and implements education programs for cohorts of patients or other healthcare providers using information and communication technologies.</p> <p>The master's-degree program prepares the graduate to:</p> <ol style="list-style-type: none"> <li>1. Analyze current and emerging technologies to support safe practice environments, and to optimize patient safety, cost-effectiveness, and health outcomes.</li> </ol>	
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	<p>2. Evaluate outcome data using current communication technologies, information systems, and statistical principles to develop strategies to reduce risks and improve health outcomes.</p> <p>3. Promote policies that incorporate ethical principles and standards for the use of health and information technologies.</p> <p>4. Provide oversight and guidance in the integration of technologies to document patient care and improve patient outcomes.</p> <p>5. Use information and communication technologies, resources, and principles of learning to teach patients and others.</p> <p>6. Use current and emerging technologies in the care environment to support lifelong learning for self and others.</p> <p>Sample Content</p> <ul style="list-style-type: none"> <li>• Use of technology, information management systems, and standardized terminology</li> </ul> <p>20</p> <ul style="list-style-type: none"> <li>• Use of standardized terminologies to document and analyze nursing care outcomes</li> <li>• Bio-health informatics</li> <li>• Regulatory requirements for electronic data monitoring systems</li> <li>• Ethical and legal issues related to the use of information technology, including copyright, privacy, and confidentiality issues</li> <li>• Retrieval information systems, including access, evaluation of data, and application of relevant data to patient care</li> <li>• Statistical principles and analyses of outcome data</li> <li>• Online review and resources for evidence-based practice</li> <li>• Use and implementation of technology for virtual care delivery and monitoring</li> <li>• Electronic health record, including policies related to the implementation of and use to impact care outcomes</li> <li>• Complementary roles of the master's-prepared nursing and information technology professionals, including nurse informaticist and quality officer</li> <li>• Use of technology to analyze data sets and their use to evaluate patient care outcomes</li> <li>• Effective use of educational/instructional technology</li> </ul>	
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		• Point-of-care information systems and decision support systems <sup>83</sup>	
MSN	1996	<p>Essentials of Master's Education For Advanced Practice Nursing</p> <p>I. Research</p> <p>The purpose of research at the master's level is to prepare a practitioner for the utilization of new knowledge to provide high quality health care, initiate change, and improve nursing practice. The goal of the research component of the curriculum should be to prepare a clinician who is proficient at the utilization of research including the evaluation of research, problem identification within the clinical practice setting, awareness of practice outcomes, and the clinical application of research. Research findings should serve as the basis for clinical and organization decision making. Separate or distinct course work in this area is deemed essential in addition to the integration of this content into other didactic and clinical course work.</p> <p>In order to accomplish that end, course work should provide graduates with the knowledge and skills to:</p> <ol style="list-style-type: none"> <li>1. access current and relevant data needed to answer questions identified in one's nursing practice;</li> <li>2. utilize new knowledge to analyze the outcomes of nursing interventions, to initiate change, and to improve practice;</li> <li>3. use computer hardware and appropriate software, and to understand statistics and research methods;</li> <li>4. utilize information systems for the storage and retrieval of data, consistent with the particular population focus;</li> <li>5. initiate a line of inquiry into comprehensive databases in order to utilize available research in the practice of nursing; and</li> <li>6. write and communicate effectively—identify a clinical problem, demonstrate an understanding of the research related to this problem, critically analyze the problem and current knowledge, and develop a strategy for the incorporation of the research into the treatment regimen (p.6-7)<sup>84</sup></li> </ol>	AACN
MSPA	2005	Make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence, and clinical judgment (Patient Care). <sup>85</sup>	NCCPA
MSPA	2005	Practice-based learning and improvement includes processes through which clinicians engage in critical analysis of their own practice experience, medical literature and other information resources for the purpose of self-improvement (Practice-Based Learning and Improvement). <sup>86</sup>	NCCPA
MSPA	2005	Physician assistants are expected to locate, appraise, and integrate evidence from scientific studies related to their patients health problems (Practice-Based Learning and Improvement). <sup>87</sup>	NCCPA
MSPA	2005	Physician assistants are expected to obtain and apply information about their own population of patients and the larger population from which their patients are drawn (Practice-Based Learning and Improvement). <sup>88</sup>	NCCPA

MSPA	2005	Physician assistants are expected to apply information technology to manage information, access on-line medical information, and support their own education (Practice-Based Learning and Improvement). <sup>89</sup>	NCCPA
MSPA	2005	Physician assistants are expected to use information technology to support patient care decisions and patient education (Systems-Based Practice). <sup>90</sup>	NCCPA
MSPA	2010	The sponsoring institution <i>must</i> provide the program with the academic resources needed by the program, staff and students to operate the educational program and to fulfill obligations to matriculating and enrolled students. ANNOTATION: Academic resources include computer and audio/visual equipment; instructional materials; technological resources that provide access to the Internet, medical information and current literature; the full text of current books, journals, periodicals and other reference materials related to the curriculum. <sup>91</sup>	ARC-PA
MSPT		<p>MINIMUM REQUIRED SKILLS OF PHYSICAL THERAPIST GRADUATES AT ENTRY-LEVEL</p> <p><a href="http://www.apta.org/uploadedFiles/APTAorg/About_Us/Policies/BOD/Education/MinReqSkillsPTGrad.pdf">http://www.apta.org/uploadedFiles/APTAorg/About_Us/Policies/BOD/Education/MinReqSkillsPTGrad.pdf</a></p> <p>Evidence-Based Practice</p> <ul style="list-style-type: none"> <li>• Impact of Research on Practice</li> </ul> <ol style="list-style-type: none"> <li>1. Discriminate among the levels of evidence (eg, Sackett).</li> <li>2. Access current literature using databases and other resources to answer clinical/practice questions.</li> <li>3. Read and critically analyze current literature.</li> <li>4. Use current evidence, patient values, and personal experiences in making clinical decisions.*</li> <li>5. Prepare a written or verbal case report.</li> <li>6. Share expertise related to accessing evidence with colleagues.<sup>92</sup></li> </ol>	APTA
PA	2005	Make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence, and clinical judgment (Patient Care). <sup>93</sup>	NCCPA
PA	2005	Practice-based learning and improvement includes processes through which clinicians engage in critical analysis of their own practice experience, medical literature and other information resources for the purpose of self-improvement (Practice-Based Learning and Improvement). <sup>94</sup>	NCCPA
PA	2005	Physician assistants are expected to locate, appraise, and integrate evidence from scientific studies related to their patients health problems (Practice-Based Learning and Improvement). <sup>95</sup>	NCCPA

PA	2005	Physician assistants are expected to obtain and apply information about their own population of patients and the larger population from which their patients are drawn (Practice-Based Learning and Improvement). <sup>96</sup>	NCCPA
PA	2005	Physician assistants are expected to apply information technology to manage information, access on-line medical information, and support their own education (Practice-Based Learning and Improvement). <sup>97</sup>	NCCPA
PA	2005	Physician assistants are expected to use information technology to support patient care decisions and patient education (Systems-Based Practice). <sup>98</sup>	NCCPA
PA	2010	The sponsoring institution <i>must</i> provide the program with the academic resources needed by the program, staff and students to operate the educational program and to fulfill obligations to matriculating and enrolled students. ANNOTATION: Academic resources include computer and audio/visual equipment; instructional materials; technological resources that provide access to the Internet, medical information and current literature; the full text of current books, journals, periodicals and other reference materials related to the curriculum. <sup>99</sup>	ARC-PA
PharmD	2006	The college or school should provide organized programs to teach faculty, preceptors, and students the effective and efficient use of the library and educational resources. <sup>100</sup>	ACPE
PharmD	2006	The college or school must ensure that graduates are competent to: retrieve, analyze, and interpret the professional, lay, and scientific literature to provide drug information and counseling to patients, their families or care givers, and other involved health care providers: demonstrate expertise in informatics[1]. [1] Competencies in informatics include basic terminology (data, information, knowledge, hardware, software, networks, information systems, information systems management); reasons for systematic processing of data, information and knowledge in health care; and the benefits and current constraints in using information and communication technology in health care. (Adapted from recommendations of the International Medical Informatics Association). <sup>101</sup>	ACPE
PharmD	2007	LIBRARIES and EDUCATIONAL RESOURCES SUPPLEMENTAL EDUCATIONAL OUTCOMES BASED on CAPE 2004  1. PHARMACEUTICAL CARE Provide pharmaceutical care in cooperation with patients, prescribers, and other members of an interprofessional health care team based upon sound therapeutic principles and evidence-based data, taking into account relevant legal, ethical, social, economic, and professional issues, emerging technologies, and evolving biomedical, sociobehavioral, and clinical sciences that may impact therapeutic outcomes. a. Provide patient-centered care.[NOTE: Many of the same 17 statements are also grouped under the sub-	AACP



head “Provide population-based care” (under Pharmaceutical Care) and under the main headers Systems Management and Public Health.

i. Design, implement, monitor, evaluate, and adjust pharmaceutical care plans that are patient specific and evidence-based.

1. Understand and use principles of evidence-based medicine to assess information needs, formulate focused queries, acquire the best available evidence, evaluate the evidence, and apply clinical expertise in using the evidence in providing patient-centered care.

2. Maintain awareness of evidence-based information resources. Identify and locate the best evidence on clinical questions, including systematic reviews, meta-analyses, practice guidelines, and randomized controlled trials.

3. Identify and regularly use information resources that enhance the pharmacist's understanding of patient viewpoints, beliefs, and attitudes.

4. Effectively communicate research findings at appropriate levels for patients and healthcare professionals.

5. Understand and use principles of evidence-based medicine to assess information needs, formulate focused queries, acquire the best available evidence, evaluate the evidence, and apply clinical expertise in using the evidence in providing patient-centered care.

6. Maintain awareness of evidence-based information resources. Identify and locate the best evidence on clinical questions, including systematic reviews, meta-analyses, practice guidelines, and randomized controlled trials.

7. Identify and regularly use information resources that enhance the pharmacist's understanding of patient viewpoints, beliefs, and attitudes.

8. Effectively communicate research findings at appropriate levels for patients and healthcare professionals.

9. Identify, evaluate and regularly use a variety of information resources, including those intended for lay people and those written for healthcare professionals and including reference books, fulltext databases, websites, and primary literature.

10. Demonstrate proficiency in searching the biomedical literature using a variety of resources and interfaces, including MedLine, via PubMed or other interfaces: Build search strategies using Boolean operators, controlled vocabularies where available (e.g. National Library of Medicine Medical Subject Headings (MeSH)), database limiting capabilities and field searching. Refine and implement effective search strategies for different purposes.

		<p>11. Use available services of librarians and other information professionals to supplement information retrieval and to learn about new resources or enhancements to existing resources.</p> <p>12. Determine accuracy of information by investigating authority of resources, effectiveness of search strategy, and potential biases or conflicts of interest in the information retrieved.</p> <p>13. Determine applicability of the information to specific clinical questions and draw conclusions from new information to build on previous knowledge base.</p> <p>14. Understand issues of privacy, copyright, plagiarism and other issues involved in the legal and ethical uses of information.</p> <p>15. Use available services of librarians and other information professionals to supplement information retrieval and to learn about new resources or enhancements to existing resources.</p> <p>16. Practice life-long learning by maintaining records of information retrieval processes and by updating and refining information search and retrieval skills to maintain awareness of current issues, products and services.</p> <p>17. Use current awareness tools such as journal and database alerting services.<sup>102</sup></p>	
PharmD	2004	Retrieve, analyze, and interpret the professional, lay, and scientific literature to provide drug information to patients, their families, and other involved health care providers. <sup>103</sup>	AACP
PharmD	2004	Manage human, physical, medical, informational, and technological resources. <sup>104</sup>	AACP
PharmD	2004	Maintain professional competence by identifying and analyzing emerging issues, products, and services that may impact management of human, physical, medical, informational, and technological resources in the provision of patient care. <sup>105</sup>	AACP
PhD	2002	<p>AACN Position Statement</p> <p>Indicators of Quality in Research-Focused Doctoral Programs in Nursing</p> <p>Research methods and scholarship appropriate to inquiry</p> <p>Resources</p> <p>1. Sufficient human, financial, and institutional resources are available to accomplish the goals of the unit for doctoral education and faculty research.</p> <p>3. Library and database resources are sufficient to support the scholarly endeavors of faculty and students.<sup>106</sup></p>	AACN
PhD	2010	Disseminate practice-based knowledge by engaging in practice with an open mind; systematically studying the practice of other nurses; and reviewing extant research to formulate evidence-based proposals	NLN

		enhancing nursing practice, nursing education, or the delivery of nursing services. <sup>107</sup>	
PhD	2010	Engage in the science of discovery by designing and implementing research studies and disseminating findings to improve nursing practice, nursing education, or the delivery of nursing services. <sup>108</sup>	NLN

**Explanatory Table One: Professional Degrees Used in Table Three**

Board Certification	Board Certified Medical Specialist (post-M.D.)
BSMLS	B.S., Medical Laboratory Science
BSN	B.S., Nursing
BSRS	B.S., Radiologic Sciences
BSRT	B.S., Respiratory Therapy
DDS	Doctor of Dental Surgery
DNP	Doctor of Nursing Practice
DPT	Doctor of Physical Therapy
EMT	Emergency Medical Technician
MAOT	Master of Occupational Therapy
MD	Doctor of Medicine
MSMLS	M.S., Medical Laboratory Science
MPH	Master of Public Health
MSCR	M.S., Clinical Research
MSDH	M.S., Dental Hygiene
MSN	M.S., Nursing
MSPA	M.S., Physician Assistant
MSPT	M.S., Physical Therapy
PA	Physician Assistant (Bachelor)
PharmD	Doctor of Pharmacy
PhD	Doctor of Nursing

**Explanatory Table Two: National Association Initialisms or Acronyms:****Master Table of Organizational Abbreviations**

<b>Abbreviation</b>	<b>Organization</b>
AACN	American Association of Critical-Care Nurses
AACP	American Association of Colleges of Pharmacy
AAMC	Association of American Medical Colleges
ACGME	Accreditation Council for Graduate Medical Education
ACPE	Accreditation Council for Pharmacy Education
ADEA	American Dental Education Association
ANA	American Nurses Association
AOTA	American Occupational Therapy Association
APTA	American Physical Therapy Association
ARC-PA	Accreditation Review Commission on Education for the Physician Assistant
ASCLS	American Society for Clinical Laboratory Science
ASPH	Association of Schools of Public Health
ASRT	American Society of Radiologic Technologists
CAPTE	Commission on Accreditation in Physical Therapy Education
CDA	Commission on Dental Accreditation
CDC/CSTE	Centers for Disease Control and Prevention/Council of State and Territorial Epidemiologists
CEPH	Council on Education for Public Health
COARC	Committee on Accreditation for Respiratory Care
JRCNMT	Joint Review Committee on Educational Programs in Nuclear Medicine
LCME	Liaison Committee on Medical Education
NAACLS	National Accrediting Agency for Clinical Laboratory

	Sciences
NBME	National Board of Medical Examiners
NCCPA	National Commission on Certification of Physician Assistants
NCRR	National Center for Research Resources
NHTSA	National Highway Traffic Safety Administration
NLN	National League for Nursing
TIGER	Technology Informatics Guiding Education Reform

File: [Compendium Library Informatics Competencies 2011](#)

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