

Competency-Based Education: A Review of Policies and Implications for Respiratory Care Accreditation

Commission on Accreditation for Respiratory Care



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INTRODUCTION

As CoARC undergoes the process of revising its existing accreditation standards as well as begins the process of developing graduate level accreditation standards for an advanced practice respiratory therapist, it is important for the CoARC Board to consider the policy approaches covered in this report. Such approaches align with CoARC's continued emphasis on the importance of student learning outcomes that focus on the competencies and attainment levels reached by students upon completion of their program. The purpose of this report is to inform the CoARC Board and other key stakeholders in the respiratory care profession of the implications of competency-based education as it relates to the accreditation process. First, a description of the key characteristics of competency-based education will be provided. How competency-based education has become the recent focus of many health profession organizations will then be reviewed. Approaches by other specialized and professional health professions accreditors will also be reviewed. This will be followed by a review of the approaches to competency-based education for the respiratory care profession. A discussion of inter-professional competencies and its increasingly important role is summarized. The role that a differentiated practice model plays in a competency-based approach is also provided. The report concludes with some suggested evidence for evaluating a successful competency-based approach as well as some final comments to stimulate future dialogue on this topic.

WHAT IS COMPETENCY-BASED EDUCATION?

In a seminal article, Epstein and Hundert established a commonly cited definition of competency in the health care professions as the *“habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and the community being served”* (Epstein & Hundert, 2002, p. 226). Although there are many contextual variations when defining the term, a “competency” is generally viewed as encompassing the *“full array of knowledge, skills, attitudes, and other characteristics (KSAOs) for completing a task or course of study or performing a job, rather than simply knowledge alone”* (Calhoun, Wrobel, & Finnegan, 2011, p. 152). *Competency-based education* refers to educational programs designed to ensure that students achieve pre-specified levels of competence in a given field or training activity. A *core competency* is “the identified knowledge, ability, or expertise in a specific subject area or skill set that is shared across the health professions” (Institute of Medicine, 2003, p. 24). The term “competency” has also been used to refer to actual performance in a specific job duty or task, and competencies or competency areas are skills

considered necessary to perform a specific job or service (Kelly-Thomas, 1998). Gradations in the level of competence have also been described in the literature. Hubert and Stuart Dreyfus describe a model for skill acquisition that occurs in five stages along a continuum of learning. These stages include (1) novice; (2) advanced beginner; (3) competence; (4) proficiency; (5) expert (Dreyfus & Dreyfus, 1986). At the level of “competence”, a student can think conceptually and execute planned approaches to care based on the standards and rules they have learned (Gunderman, 2009, pp. 324-325).

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- Richards & Rogers 2001

The term “student learning outcomes” is often used synonymously with competencies. The Council for Higher Education Accreditation (CHEA) defines student learning outcomes *“in terms of the knowledge, skills, and abilities that a student has attained at the end (or as a result) of his or her engagement in a particular set of higher education experiences”* (CHEA, 2006, p. 1). In the 2001, the Council for Higher Education Accreditation (CHEA) published a policy document, *Accreditation and Student Learning Outcomes: A Proposed*

Point of Departure, which provided accrediting organizations with a conceptual framework and taxonomy for integrating student learning outcomes into the accreditation review process. In the document, Peter Ewell of the National Center for Higher Education Management Systems states that the student learning outcome approach requires institutions or programs to *“define learning goals from the outset as guides for instruction and for judging individual student attainment. Expressed in terms of competencies, moreover, such goals describe not only what is to be learned but also the specific levels of performance that students are expected to master”* (Ewell, 2001, p. 6). *The document also defines “certification”* to mean that the expected competencies have actually been attained. Bear in mind that not all outcomes in higher education are related to student learning. For instance, job placement rates, career mobility, retention,

higher income levels, etc. are examples of outcomes that are indirectly related to the learning process and educational experience. These metrics are more appropriate descriptors for evaluating institutional effectiveness rather than student learning and achievement. Similarly, student, graduate, and employer satisfaction surveys are important indicators of overall program effectiveness, but should not be confused with student learning (CHEA, 2006, p. 5).

The central focus of competency based education (CBE) is on student learning outcomes. In the context of accreditation, CBE addresses what graduates are expected to do (e.g., solve problems, communicate effectively, and provide appropriate care) upon completion of their program of study rather than on what they are expected to learn about during the course of their study. CBE is certainly not a new approach to education – it has been in existence for almost four decades- only in the past decade has it gained widespread acceptance in the higher education community. In a CBE framework, educational goals are defined in terms of precise measurable descriptions of knowledge, skills, and behaviors students should possess at the end of a course of study (Richards & Rogers, 2001). From the perspective of health professions education, CBE is a framework that focuses on the desired performance characteristics of health care professionals. CBE makes explicit what has been an implicit goal of traditional educational frameworks, by instituting observable and measureable outcomes that students are expected to achieve. The ability to perform to established expectations is the criteria by which a health professional is deemed competent. By placing emphasis on results rather than processes, CBE provides a substantial shift in what accreditors and other stakeholders look for in judging the effectiveness of educational programs (Gruppen, Mangrulkar, & Colars, 2010).

Traditionally, accreditation standards included a set of recommended or mandated courses of instruction that are based on the traditions, priorities, and values of the particular profession. Over time, the curriculum is slowly modified to accommodate new content in an attempt to keep pace with the rapidly changing, technology-driven health care environment. Competency-based accreditation standards focus on the requisite competencies needed for entry into a profession, allow flexibility in the curriculum to achieve competencies, and establish criteria to assess achievements and deficiencies by monitoring outcomes. By focusing on the outcomes of education, the approach is more transparent and therefore accountable to students, policymakers, and the public (Frenk, Chen, & et al., 2010). CBE's emphasis on student performance as evidence for having achieved a competency is predicated on the ability to accurately and validly measure performance in tasks and situations reflective of that competency (Gruppen, Mangrulkar, & Colars, 2010).

WHY COMPETENCY-BASED EDUCATION?

A review of the policies of various stakeholders in higher education reveals an increasing shift from a traditional, curriculum-centric approach of defining required courses to an outcomes-centric approach that establishes requisite competencies as the primary means to assess the achievement of expected student learning outcomes. The movement to competency-based education began in the 1970s and has since gained considerable momentum, particularly in the past decade due largely to growing concerns

about patient safety (Institute of Medicine, 2001). Furthermore, educators recognized the value of using the competency approach to guide educational program design—to develop specific learning objectives for each competency (AAMC-HHMI Committee, 2009). In today’s knowledge economy, it is not sufficient for a graduate to demonstrate adequate basic cognitive skills and professional competencies. The nature of the health care field also requires that the graduate be able to work in teams, be a creative problem solver, and communicate with a diverse set of colleagues and patients. Employers and higher education institutions have “become more cognizant of the role that such so-called ‘soft’ or non-cognitive skills play in the successful performance in both academic and nonacademic arenas” (Swyer, Millett, & Payne, 2006, p. 14).

Calls by the public and policymakers for increased transparency and accountability as well as heightened consumerism have also influenced the shift to a competency-centered, outcomes-based approach to accreditation and the emphasis for accreditors to focus their standards on assessing the degree to which the professions are creating a skilled, competent, and globally competitive workforce. In December 1998, the Pew Commission on the Health Professions published the report, *Recreating Health Professional Practice for a New Century*, that outlines a number of recommendations aimed at transforming the health professions workforce (O’ Neil & Pew Health Professions Commission, 1998). Among the recommendations was a call for health professions programs to “realign training and education to be more consistent with the changing needs of the care delivery system”. The four action steps for fulfilling this recommendation were:

1. Professional school faculties and administration should evaluate their current course of study to determine whether or not they are adequately preparing students to meet the challenges set forth in the competencies;
2. Professional associations should integrate the competencies into their accreditation and licensing processes, benchmarks for graduation, entry into professional practice and continuing competence;
3. Students should assess the quality of educational programs based on how well they will prepare them to apply the competencies in their careers;
4. Hospitals and other institutional providers should prefer partnerships with academic institutions that continuously revise their curricula to reflect changing market dynamics and that embody the competencies (O’ Neil & Pew Health Professions Commission, 1998, p. iii).

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- Recreating Health Professional Practice for a New Century

To assist in this process, the Pew Commission revised its 1993 competencies and identified twenty-one

competencies for a changing health care system:

1. Embrace a personal ethic of social responsibility and service;
2. Exhibit ethical behavior in all professional activities;
3. Provide evidence-based, clinically competent care;
4. Incorporate the multiple determinants of health in clinical care;
5. Apply knowledge of the new sciences;
6. Demonstrate critical thinking, reflection, and problem-solving skills;
7. Understand the role of primary care;
8. Rigorously practice preventive health care;
9. Integrate population-based care and services into practice;
10. Improve access to health care for those with unmet health needs;
11. Practice relationship-centered care with individuals and families;
12. Provide culturally sensitive care to a diverse society;
13. Partner with communities in health care decisions;
14. Use communication and information technology effectively and appropriately;
15. Work in interdisciplinary teams;
16. Ensure care that balances individual, professional, system and societal needs;
17. Practice leadership;
18. Take responsibility for quality of care and health outcomes at all levels;
19. Contribute to continuous improvement of the health care system;
20. Advocate for public policy that promotes and protects the health of the public;
21. Continue to learn and help others learn (O' Neil & Pew Health Professions Commission, 1998, pp. 29-43).

“The Pew Commission report also cited the changing health care delivery system as a contributing factor for the increased demand for allied health professionals who offer a wider range of clinical skills, better preparation in management, greater experience in independent practice, and more flexibility in adapting to various practice settings. The report also identifies the increased demand by employers for practitioners who are culturally sensitive, team-focused, and possess interpersonal and listening skills.”

*- O' Neil & Pew Health Professions
Commission, 1998, p. 47*

Interestingly, the Pew Commission report also cited the changing health care delivery system as a contributing factor for the increased demand for allied health professionals who offer a wider range of clinical skills, better preparation in management, greater experience in independent practice, and more flexibility in adapting to various practice settings. The report also identifies the increased demand by employers for practitioners who are culturally sensitive, team-focused, and possess interpersonal and listening skills (O' Neil & Pew Health Professions Commission, 1998, p. 47).

Shortly after the Pew Commission report was released, the Institute of Medicine (IOM) published a report, *Crossing the Quality Chasm: A New Health System for the 21st Century*, that recommended an interdisciplinary summit be held to develop next steps for reform of health professions education in order to enhance patient care quality and safety (Institute of Medicine, 2001). In June 2002, the IOM convened this summit, which included 150 participants across disciplines and occupations. In 2003, the US Institute of Medicine (IOM) called upon higher education institutions to not only increase the number of health professions graduates, but also to elevate graduates' knowledge, skills, and abilities needed for meeting the ever-changing health care field. In what has become a seminal document facilitating the movement to a competency-based approach to education and accreditation, the IOM detailed five core competencies needed across the health professions, expressed through a vision to be shared by all institutions of health professions education: *"All health professionals should be educated to deliver patient-centered care as members of an interdisciplinary team, emphasizing evidence-based practice, quality improvement approaches, and informatics."* (Institute of Medicine, 2003, p. 3). The five core competencies are described as follows:

"All health professionals should be educated to deliver patient-centered care as members of an interdisciplinary team, emphasizing evidence-based practice, quality improvement approaches, and informatics."

- Institute of Medicine, 2003, p. 3

1. **Provide patient-centered care.** *Identify, respect, and care about patients' differences, values, preferences, and expressed needs; relieve pain and suffering; coordinate continuous care; listen to, clearly inform, communicate with, and educate patients; share decision making and management; and continuously advocate disease prevention, wellness, and promotion of healthy lifestyles, including a focus on population health;*
2. **Work in interdisciplinary teams.** *Cooperate, collaborate, communicate, and integrate care in teams to ensure that care is continuous and reliable;*
3. **Employ evidence-based practice.** *Integrate best research with clinical expertise and patient values for optimum care, and participate in learning and research activities to the extent feasible;*
4. **Apply quality improvement.** *Identify errors and hazards in care; understand and implement basic safety design principles, such as standardization and simplification; continually understand and measure quality of care in terms of structure, process, and outcomes in relation to patient and community needs; and design and test interventions to change processes and systems of care, with the objective of improving quality;*
5. **Utilize informatics.** *Communicate, manage knowledge, mitigate error, and support decision making using information technology (Institute of Medicine, 2003, pp. 45-46).*

The IOM also encouraged educational accrediting agencies to expand from an assessment model focused on structure and process to one that includes evaluation of the institutions based on student-centered outcomes (Calhoun, Wrobel, & Finnegan, 2011, p. 15). Specifically, Recommendation #3 called on accreditors to: “*move forward expeditiously to revise their standards so that programs are required to demonstrate through process and outcome measures that they educate students in both academic and continuing education programs in how to deliver patient care using a core set of competencies. In so doing, these bodies should coordinate their efforts*” (Institute of Medicine, 2003, p. 8).

In response to the increasing role learning outcomes play in accreditation, CHEA, the non-governmental higher education organization that recognizes 60 institutional and programmatic accrediting organizations, published a set of statements “to provide a common platform upon which to develop appropriate policies and review processes that use evidence of student learning to improve practice, to improve communication with important constituents, and to inform judgments about quality” (CHEA, 2003, p. 1). The three key recommendations for accreditors outlined in the report are:

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- Institute of Medicine, 2003, p. 8

- 1. Accrediting organizations are responsible for establishing clear expectations that institutions and programs will routinely define, collect, interpret, and use evidence of student learning outcomes.** More specifically, accreditors should establish standards and review processes that visibly and clearly expect accredited institutions and programs to:
 - a. Regularly gather and report concrete evidence about what students know and can do as a result of their respective courses of study, framed in terms of established learning outcomes and supplied at an appropriate level of aggregation (e.g., at the institutional or program level);
 - b. Supplement this evidence with information about other dimensions of effective institutional or program performance with respect to student outcomes (e.g., graduation, retention, transfer, job placement, or admission to graduate school) that do not constitute direct evidence of student learning;
 - c. Prominently feature relevant evidence of student learning outcomes—along with other dimensions of effective institutional performance, as appropriate—in demonstrating institutional or program effectiveness (CHEA, 2003, p. 1).

- 2. Accrediting organizations are responsible for using evidence of student learning outcomes in making judgments about academic quality and accredited status.** Establish and apply standards, policies, and review processes that examine how institutions and

programs develop and use evidence of student learning outcomes for internal quality assurance and program improvement.

- Working with an institution or program, examine:
 - whether expectations of student learning outcomes are set at an appropriate level for the mission, student population, and resources of the institution or program;
 - whether the actual achievement levels of students against these standards are acceptable given the mission, student population and resources of an institution or program, and, in the case of the professions, the professional community served; and
 - whether the institution or program makes effective use of evidence of student learning outcomes to assure and improve quality.
- Ensure that using evidence of student learning outcomes plays a central role in determining the accredited status of an institution or program.

“Accrediting organizations are responsible for using evidence of student learning outcomes in making judgments about academic quality and accredited status. Establish and apply standards, policies, and review processes that examine how institutions and programs develop and use evidence of student learning outcomes for internal quality assurance and program improvement.”

- CHEA 2003, p. 2

3. Accrediting organizations should:

- establish standards, policies, and review processes that visibly and clearly expect institutions and programs to discharge the above responsibilities with respect to public communication about student learning outcomes,
- clearly communicate to accreditation’s constituents the fact that accredited status signifies that student achievement levels are appropriate and acceptable, and
- provide information about specific proficiencies or deficiencies in aggregate student academic performance, if these played a role in an accreditation action or decision about an institution or program (CHEA, 2003, p. 2)

With shortages in the health care workforce projected over the next couple of decades coupled with increasing demands by employers for graduates to possess a skillset needed to successfully deal with the health care needs of the 21st century, the Department of Education (DOE), under the leadership of Secretary Margaret Spellings, responded in 2006 with further recommendations for transforming the US higher education system that included, among others, that *“higher education institutions should measure and report meaningful student learning outcomes.”* Recommendation #3 of the report describes the changes to be instituted by accrediting organizations:

“Accreditation agencies should make performance outcomes, including completion rates and student learning, the core of their assessment as a priority over inputs or processes. A framework that aligns and expands existing accreditation standards should be established to (i) allow comparisons among institutions regarding learning outcomes and other performance measures, (ii) encourage innovation and continuous improvement, and (iii) require institutions and programs to move toward world-class quality relative to specific missions and report measurable progress in relationship to their national and international peers. In addition, this framework should require that the accreditation process be more open and accessible by making the findings of final reviews easily accessible to the public and increasing public and private sector representation in the governance of accrediting organizations and on review teams. Accreditation, once primarily a private relationship between an agency and an institution, now has such important public policy implications that accreditors must continue and speed up their efforts toward transparency as this affects public ends” (US Department of Education, 2006, p. 25).

In late 2006, a DOE accreditation forum was held to introduce the resulting recommendations to key stakeholders and to explore implementation strategies. The onus for implementing these recommendations was placed on the accrediting organizations (Calhoun, Wrobel, & Finnegan, 2011).

“Accreditation agencies should make performance outcomes, including completion rates and student learning, the core of their assessment as a priority over inputs or processes.”

- Department of Education, 2006, p. 25

COMPETENCY-BASED EDUCATION IN THE HEALTH PROFESSIONS

Many US accrediting agencies have responded to the recommendations from the Pew Commission, IOM, CHEA, and DOE by enacting significant changes to their accreditation standards and review processes. While almost all of the eight regional accrediting agencies have recently modified their standards and evaluation processes to increase the emphasis on student learning outcomes (Ewell, 2001), the past five years have also seen acceleration in the development of competencies and review processes for specialized and professional accreditors- particularly in the health professions. Many of these efforts have been driven by the professional organizations themselves, in an attempt to define expected knowledge, skills and behaviors of graduates entering practice (Gruppen, Mangrulkar, & Colars, 2010). The accrediting organizations for dentistry, health care management, medicine, nursing, pharmacy, physician assistant, athletic training, health information management, occupational therapy, physical therapy, dietetics, acupuncture and oriental medicine, nuclear medicine technology, and public health currently all require that core and/or specific competencies be achieved as stated in their respective accreditation documents, or alternately require individual programs to develop, implement, and document their own individualized competencies.

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- Gruppen, Mangrulkar, & Colars, 2010

It should be mentioned that shifting the accreditation review process from a traditional model to a competency-based model does have its challenges. Lack of faculty familiarity with CBE learning and assessment methods appears to be the primary constraint to successful implementation (Calhoun, Wrobel, & Finnegan, 2011). The time required for restructuring course curricula to include essential team-based and integrative learning methods, competing priorities, and overall resistance to change can also impede implementation. Other challenges to the establishment of a successful CBE include failure to appropriately address community health needs, competencies that are inadequately defined or too broad, and deficiencies or absence of assessment methods to determine when competencies have been achieved (Gruppen, Mangrulkar, & Colars, 2010).

The remaining section of this report provides a summary of the approaches to competency-based education by the various health professions and their respective accrediting agencies.

Medicine

In 1996, the American Association of Medical College’s (AAMC) Medical School Objectives Project (MSOP) was established to help medical schools determine the outcomes of the medical student education program. The MSOP project and other competencies explicitly recognize the need to change and adapt competencies to meet changing educational, science, and health care developments (AAMC-HHMI Committee, 2009, p. 37). The MSOP developed basic and clinical science competencies for admission into and graduation from medical school. The first eight competencies focused on the sciences basic to medicine that students must gain by the completion of medical school. In what follows, the committee first presents those competencies deemed important for medical school education, followed by those identified for entering medical students. The competencies and their corresponding learning objectives are accompanied by examples of a few ways the competency could be included in an educational program (AAMC-HHMI Committee, 2009, p. 7).

The Accreditation Council for Graduate Medical Education (ACGME) began its general competency and outcome initiative in 1998. This initiative, called the Outcome Project, requires that US graduate medical education programs foster resident physicians’ development of competencies in six domains and collect performance data that reliably and accurately depicts residents’ ability to care for patients and to work effectively in healthcare delivery systems. This approach assumes that quality patient care results

when residents acquire and apply competencies effectively (Swing, 2007, p. 648). The ACGME and American Board of Medical Specialties (ABMS) jointly identified six domains of general competencies (and 24 competencies). Beginning in 2001, medical residents, and subsequently in 2008, one-year fellows, are evaluated on these six core competency domains (competency statements for one-year fellows are provided in bulleted format):

(1) Patient care (compassionate, appropriate, effective)

- Provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health;

(2) Medical knowledge (biomedical, clinical, cognate sciences, and their application)

- Demonstrate knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences, as well as the application of this knowledge to patient care;

(3) Practice-based learning and improvement (investigation and evaluation, appraisal and assimilation of evidence)

- Develop skills and habits to be able to meet the following goals:
 - systematically analyze practice using quality improvement methods, and implement changes with the goal of practice improvement, and
 - locate, appraise, and assimilate evidence from scientific studies related to their patients' health problems;

(4) Interpersonal and communication skills (effective information exchange, teaming with patients and families)

- Demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals;

(5) Professionalism (carrying out professional responsibilities, ethics, sensitivity)

- Demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles; and

(6) Systems-based practice (awareness and responsiveness to larger context and system of health care, use of system resources)

- Demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care (Accreditation Council for Graduate Medical Education, 2012, pp. 4-5)

Nursing

The American Association of Colleges of Nursing (AACN) publishes curricular and competency requirements (i.e., "Essentials") for the baccalaureate, master's, and doctoral programs in nursing. *The 2011 Essentials of Master's Education in Nursing* emphasizes that the master's-prepared nurse will be able to:

1. Lead change for quality care outcomes;
2. Advance a culture of excellence through lifelong learning;
3. Build and lead collaborative inter-professional care teams;
4. Navigate and integrate care services across the healthcare system;
5. Design innovative nursing practices; and
6. Translate evidence into practice.

Master's degree nursing programs "*prepare graduates with enhanced nursing knowledge and skills to address the evolving needs of the healthcare system*" (American Association of Colleges of Nursing, 2012, pp. 3-4). The nine "Essentials" addressed in this document delineate the knowledge and skills that all nurses prepared in master's nursing programs acquire:

1. Essential I: Background for Practice from Sciences and Humanities

- Recognizes that the master's-prepared nurse integrates scientific findings from nursing, bio psychosocial fields, genetics, public health, quality improvement, and organizational sciences for the continual improvement of nursing care across diverse settings;

2. Essential II: Organizational and Systems Leadership

- Recognizes that organizational and systems leadership are critical to the promotion of high quality and safe patient care. Leadership skills are needed that emphasize ethical and critical decision making, effective working relationships, and a systems-perspective;

3. Essential III: Quality Improvement and Safety

- Recognizes that a master's-prepared nurse must be articulate in the methods, tools, performance measures, and standards related to quality, as well as prepared to apply quality principles within an organization;

4. Essential IV: Translating and Integrating Scholarship into Practice

- Recognizes that the master's-prepared nurse applies research outcomes within the practice setting, resolves practice problems, works as a change agent, and disseminates results;

5. Essential V: Informatics and Healthcare Technologies

- Recognizes that the master's-prepared nurse uses patient-care technologies to deliver and enhance care and uses communication technologies to integrate and coordinate care;

6. Essential VI: Health Policy and Advocacy

- Recognizes that the master's-prepared nurse is able to intervene at the system level through the policy development process and to employ advocacy strategies to influence health and health care.

7. Essential VII: Inter-professional Collaboration for Improving Patient and Population Health Outcomes

- Recognizes that the master's-prepared nurse, as a member and leader of inter-

professional teams, communicates, collaborates, and consults with other health professionals to manage and coordinate care;

8. Essential VIII: Clinical Prevention and Population Health for Improving Health

- Recognizes that the master's-prepared nurse applies and integrates broad, organizational, client-centered, and culturally appropriate concepts in the planning, delivery, management, and evaluation of evidence-based clinical prevention and population care and services to individuals, families, and aggregates/identified populations;

9. Essential IX: Master's-Level Nursing Practice

- Recognizes that nursing practice, at the master's level, is broadly defined as any form of nursing intervention that influences healthcare outcomes for individuals, populations, or systems. Master's-level nursing graduates must have an advanced level of understanding of nursing and relevant sciences as well as the ability to integrate this knowledge into practice. Nursing practice interventions include both direct and indirect care components (AACN, 2011, pp. 4-5).

The Commission on Collegiate Nursing Education (CCNE), an accrediting agency that ensures the quality and integrity of baccalaureate, graduate, and residency programs in nursing publishes the *Standards for Baccalaureate and Graduate Nursing Programs*. While there are no defined competencies statements in this document, the CCNE requires programs to incorporate the *Essentials* document that corresponds to the degree program(s) that are offered by the institution. Specifically, Standard III B states that:

“Expected individual student learning outcomes are consistent with the roles for which the program is preparing its graduates. Curricula are developed, implemented, and revised to reflect relevant professional nursing standards and guidelines, which are clearly evident within the curriculum, expected individual student learning outcomes, and expected aggregate student outcomes (CCNE, 2009, p. 13).

Another accrediting agency for the nursing profession, the National League for Nursing Accrediting Commission (NLNAC) publishes accreditation Standards and criteria for nursing programs at the practical, diploma, associate, baccalaureate, master's, and clinical doctorate levels. Standards refer to competencies established by the profession however no specific competencies are defined (NLNAC, 2008).

Physician Assistant

In an effort to define physician assistant competencies in response to similar efforts being conducted within other health care professions and growing demand for accountability and assessment in clinical practice, the physician assistant (PA) profession identifies core competencies for practicing PAs. The American Academy of Physician Assistants (AAPA), the Accreditation Review Commission on Education for the Physician Assistant (ARC-PA), the National Commission on Certification of Physician Assistants (NCCPA), and the Physician Assistant Education Association (PAEA) disseminated the document

Competencies for the Physician Assistant Profession in the spring of 2006 (AAPA, ARC-PA, NCCPA, & PAEA, 2005). Specifically, the PA competencies include the following six domains similar to the ACGME core competencies:

1. Medical knowledge

- An understanding of pathophysiology, patient presentation, differential diagnosis, patient management, surgical principles, health promotion and disease prevention. Physician assistants must demonstrate core knowledge about established and evolving biomedical and clinical sciences and the application of this knowledge to patient care in their area of practice. In addition, physician assistants are expected to demonstrate an investigatory and analytic thinking approach to clinical situations;

2. Interpersonal and communication skills

- Encompassing verbal, nonverbal and written exchange of information. Physician assistants must demonstrate interpersonal and communication skills that result in effective information exchange with patients, their patients' families, physicians, professional associates, and the health care system;

3. Patient care

- Includes age-appropriate assessment, evaluation and management. Physician assistants must demonstrate care that is effective, patient-centered, timely, efficient and equitable for the treatment of health problems and the promotion of wellness;

4. Professionalism

- The expression of positive values and ideals as care is delivered. Foremost, it involves prioritizing the interests of those being served above one's own. Physician assistants must know their professional and personal limitations. Professionalism also requires that PAs practice without impairment from substance abuse, cognitive deficiency or mental illness. Physician assistants must demonstrate a high level of responsibility, ethical practice, sensitivity to a diverse patient population and adherence to legal and regulatory requirements;

5. Practice-based learning and improvement

- Includes the 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. Physician assistants must be able to assess, evaluate and improve their patient care practices;

6. Systems-based practice

- Encompasses the societal, organizational and economic environments in which health care is delivered. Physician assistants must demonstrate an awareness of and responsiveness to the larger system of health care to provide patient care that is of optimal value. PAs should work to improve the larger health care system of which their practices are a part. (AAPA, ARC-PA, NCCPA, & PAEA, 2005, pp. 1-5).

The ARC-PA defines competencies as “the knowledge, interpersonal, clinical and technical skills, professional behaviors, and clinical reasoning and problem solving abilities required for PA practice” (ARC-PA, 2011, p. 24). The ARC-PA accreditation standards provide specific reference to competencies (but not specific reference to the competency document). For example, Standard B1.09 states that:

“For each didactic and clinical course, the program must define and publish instructional objectives that guide student acquisition of required competencies. ANNOTATION: Instructional objectives stated in measurable terms allow assessment of student progress in developing the competencies required for entry into practice. They address learning expectations of students and the level of student performance required for success (ARC-PA, 2011, p. 14).

Further, Standard B3.02 refers to competencies in relation to the clinical portion of the curriculum:

“Supervised clinical practice experiences must enable students to meet program expectations and acquire the competencies needed for clinical PA practice” (ARC-PA, 2011, p. 16).

The ARC-PA also publishes a document comparing its accreditation standards to the competencies document (ARC-PA, 2010). While the purposes of the two documents are different and do not have word for word correlation, they are complimentary.

Athletic Training

The Professional Education Council (PEC) of the National Athletic Trainers Association (NATA) is responsible for developing the most recent edition of its professional competencies. Those involved in its development included practicing athletic trainers, educators, and administrators. Consideration was given to the existing healthcare environment as well as current best practices in athletic training. The AT competencies include all tasks identified in the role delineation study/practice analysis conducted by its credentialing board, the Board of Certification for the Athletic Trainer (BOC). The AT competency document identifies seven foundational behaviors of professional practice: **(1) primacy of the patient, (2) team approach to practice, (3) legal practice, (4) ethical practice, (5) advancing knowledge, (6) cultural competence, (7) professionalism** (NATA, 2011, p. 9). In addition, the document establishes eight competency domains as well as detailed competency statements for each domain. The eight domains are:

- (1) evidence-based practice;
- (2) prevention and health promotion;
- (3) clinical examination and diagnosis;
- (4) acute care of injuries and illnesses;
- (5) therapeutic interventions;

- (6) psychosocial strategies and referral;
- (7) healthcare administration; and
- (8) professional development and responsibility (NATA, 2011, pp. 10-30).

The AT competencies serve as a companion document to the accreditation standards, which identify the requirements to acquire and maintain accreditation, published by the Commission on Accreditation of Athletic trainers (CAATE). The CAATE Standards provide specific reference to the NAATE competencies document. For example, Standard I3 states that:

“The content of the curriculum must include formal instruction in the expanded subject matter as identified in the Athletic Training Educational Competencies. Formal instruction must involve teaching of required subject matter with instructional emphasis in structured classroom and laboratory environments (CAATE, 2008, p. 9).

Further, Standard J2 states that:

“Clinical experiences must provide students with opportunities to practice and integrate the cognitive learning, with the associated psychomotor skills requirements of the profession, to develop entry-level clinical proficiency and professional behavior as an Athletic Trainer as defined by the NATA Educational Competencies (CAATE, 2008, p. 10).

Public Health

The Council on Education for Public Health (CEPH) accreditation standards continues to require curriculum content and coursework based on five core areas of public health knowledge for programs offering the Masters of Public Health degree: (1) biostatistics, (2) epidemiology, (3) environmental health sciences, (4) health services administration, and (5) social and behavior sciences (Council on Education for Public Health, 2006).

CEPH does not define a standardized list of competencies required for public health professionals graduating from accredited programs and institutions. Instead, the accreditation standards stress the importance of the required competencies related to the core knowledge areas for both guiding curriculum planning processes and serving as the primary measures against which student achievement is measured. For example, Standard 2.6 states that:

“For each degree program and area of specialization within each program identified in the instructional matrix, there shall be clearly stated competencies that guide the development of degree programs. The school must identify competencies for graduate professional public health, other professional and academic degree programs and specializations at all levels (bachelor’s, master’s and doctoral)” (CEPH, 2011, p. 18).

Pharmacy

The Accreditation Council for Pharmacy Education (ACPE) defines three professional competencies, eleven other “knowledge, skills, attitudes, and values,” and two sub-competencies (Standard 12.1) in its accreditation standards for doctor of pharmacy degree programs. The three professional competencies specified in Standard 12 that must be achieved by graduates are:

- (1) Provide patient care in cooperation with patients, prescribers, and other members of an inter-professional health care team based upon sound therapeutic principles and evidence-based data, taking into account relevant legal, ethical, social, cultural, economic, and professional issues, emerging technologies, and evolving biomedical, pharmaceutical, social/behavioral/administrative, and clinical sciences that may impact therapeutic outcomes;***
- (2) Manage and use resources of the health care system, in cooperation with patients, prescribers, other health care providers, and administrative and supportive personnel, to promote health; to provide, assess, and coordinate safe, accurate, and time-sensitive medication distribution; and to improve therapeutic outcomes of medication use; and***
- (3) Promote health improvement, wellness, and disease prevention in cooperation with patients, communities, at-risk populations, and other members of an inter-professional team of health care providers.***

Standard 12 further states that:

“These professional competencies must be used to guide the development of stated student learning outcome expectations for the curriculum. To anticipate future professional competencies, outcome statements must incorporate the development of the skills necessary to become self-directed lifelong learners” (ACPE, 2007, p. 18).

Acupuncture and Oriental Medicine

The Accreditation Commission for Acupuncture and Oriental Medicine (ACAOM) is the national accrediting agency of first-professional master's degree and professional master's-level certificate and diploma programs in acupuncture and Oriental medicine, and professional post-graduate doctoral programs in acupuncture and in Oriental medicine (DAOM), as well as freestanding institutions and colleges of acupuncture and Oriental medicine that offer such programs. ACAOM Accreditation Criterion 7-2 describes the professional competencies required of graduates in three categories (1) patient care; (2) systems based medicine; and (3) professional development along with a number of domains and specific competency statements for each domain. For patient care, the eight competency domains are: (1)

Foundational Knowledge, (2) Critical Thinking/Professional Judgment, (3) History Taking and Physical Examination, (4) Diagnosis, (5) Case Management, (6) AOM Treatment, (7) Emergency Care, and (8) Advanced Diagnostic Studies. For systems-based medicine, the three competency domains are: **(1) Education and Communication, (2) Patient Care Systems, and (3) Collaborative Care.** For professional development, the three competency domains are: **(1) Ethics and Practice Management, (2) Formulating and Implementing Plans for Individual Professional Development, and (3) Incorporating Scholarship, Research and Evidence-Based Medicine/Evidence-Informed Practice into Patient Care** (ACAOM, 2011, pp. 25-35).

Dental Hygiene

Standard 2-6 of the revised Dental Hygiene Standards published by the Commission on Dental Accreditation (CODA) requires its associate and baccalaureate degree programs to:

“Define and list the competencies needed for graduation. The dental hygiene program must employ student evaluation methods that measure all defined program competencies. These competencies and evaluation methods must be written and communicated to the enrolled students (CODA, 2013, p. 18).

CODA also defines three general competency domains: **(1) patient care, (2) ethics and professionalism, and (3) critical thinking.** CODA further defines each of the competency domains as follows:

Patient Care Competencies (Standard 2-16)

- (1) Graduates must be competent in providing dental hygiene care for the child, adolescent, adult and geriatric patient;*
- (2) Graduates must be competent in assessing the treatment needs of patients with special needs;*
- (3) Graduates must be competent in providing the dental hygiene process of care which includes (Standard 2-17):*
 - a) comprehensive collection of patient data to identify the physical and oral health status;*
 - b) analysis of assessment findings and use of critical thinking in order to address the patient’s dental hygiene treatment needs;*
 - c) establishment of a dental hygiene care plan that reflects the realistic goals and treatment strategies to facilitate optimal oral health;*
 - d) provision of patient-centered treatment and evidence-based care in a manner minimizing risk and optimizing oral health;*
 - e) measurement of the extent to which goals identified in the dental hygiene care plan are achieved;*
 - f) complete and accurate recording of all documentation relevant to patient care;*

- (2) *Graduates must be competent in providing dental hygiene care for all types of classifications of periodontal disease including patients who exhibit moderate to severe periodontal disease (Standard 2-18);*
- (3) *Graduates must be competent in interpersonal and communication skills to effectively interact with diverse population groups and other members of the health care team (Standard 2-19);*
- (4) *Graduates must be competent in assessing, planning, implementing and evaluating community-based oral health programs including, health promotion and disease prevention activities (Standard 2-20);*
- (5) *Graduates must be competent in providing appropriate life support measures for medical emergencies that may be encountered in dental hygiene practice (Standard 2-21);*

Ethics and Professionalism

- (1) *Graduates must be competent in the application of the principles of ethical reasoning, ethical decision making and professional responsibility as they pertain to the academic environment, research, patient care and practice management (Standard 2-22);*
- (2) *Graduates must be competent in applying legal and regulatory concepts to the provision and/or support of oral health care services (Standard 2-23);*

Critical Thinking

- (1) *Graduates must be competent in the application of self-assessment skills to prepare them for life-long learning (Standard 2-24);*
- (2) *Graduates must be competent in the evaluation of current scientific literature (Standard 2-25);*
- (3) *Graduates must be competent in problem solving strategies related to comprehensive patient care and management of patients (CODA, 2013, pp. 21-25).*

Healthcare Management

In its revised accreditation criteria for fall 2013, the Commission on Accreditation of Healthcare Management Education (CAHME) will require its master's degree programs to "*adopt a set of competencies that align with the mission and types of jobs graduates enter...*" and "*...use the competencies as the basis of the curriculum, course content, learning objectives, and teaching and assessment methods*" (CAHME, 2012, p. 5). While CAHME does not define specific competency statements in its standards, it establishes four major competency domains: **(1) communication and interpersonal effectiveness; (2) critical thinking, analysis, and problem-solving; (3) management and leadership; and (4) professionalism and ethics** (CAHME, 2012, p. 5). CAHME also requires programs to base their curricula and outcomes assessments on existing evidence-based core competency models, or their own scientifically-derived model. CAHME does not mandate a standardized model for its accredited programs in order to create an opportunity for the practicing community to jointly partner with educational programs in producing the future generation of competent graduates (Calhoun, Wrobel, & Finnegan, 2011, p. 153).

Health Information Management

The American Health Information Management Association (AHIMA) publishes *The AHIMA Curriculum Competencies and Knowledge Clusters*. These documents are also referred to as a “curriculum maps.” Curriculum maps are provided for programs that offer associate, baccalaureate, and master’s degrees. The Health Informatics Management (HIM) Entry-Level Competency Domains for the associate degree programs include: **(1) Health Data Management, (2) Health Statistics, Biomedical Research and Quality Management, (3) Health Services Organization and Delivery, (4) Information Technology & Systems, (5) Data Storage and Retrieval, and (6) Organizational Resources**. The document includes sub-domains and competency statements for each domain as well as corresponding curricular components (AHIMA, 2012).

The Commission on Accreditation for Health Informatics and Information Management (CAHIIM) provides specific reference to these competencies in its accreditation standards. For example, Standard 7 state that:

“The program must provide assurance that the educational needs of students are met and that graduates demonstrate at least the AHIMA entry-level curriculum competencies. The program must assess through goals and target outcomes that student learning outcomes are examined and demonstrate progress toward achievement of entry-level competencies. These assessments must demonstrate that graduates meet entry-level competencies” (CAHIIM, 2012, p. 5).

Further, Standard 24 states that:

“The program must demonstrate that the curriculum meets or exceeds the professional course content as published in the AHIMA HIM entry-level curriculum competencies and knowledge clusters for associate degree programs. The curriculum syllabi and course content must ensure concise and adequate coverage of the AHIMA HIM entry-level curriculum competencies and knowledge clusters for associate degree programs. Each course syllabus must be evaluated against the required knowledge clusters, and demonstrate learning progression to achieve the stated entry-level curriculum competencies (CAHIIM, 2012, p. 9).

Nuclear Medicine Technology

The Joint Review Committee on Educational Programs in Nuclear Medicine Technology (JRCNMT) *Standards* provides a framework for accredited programs to follow so that graduates can accomplish commonly accepted technical competencies of the entry-level nuclear medicine technologist. These competency domains, as defined by the JRCNMT, are located in Appendix I of their accreditation manual (a separate document from their accreditation standards) along with detailed competency statements. These

technical competencies include the following domains: **(1) Patient Care; (2) Professionalism; (3) Radiation Safety; (4) Instrumentation Utilization and Quality Control; (5) Radiopharmaceuticals and Pharmaceuticals; (6) Diagnostic Procedures; (7) Radionuclide Therapy** (JRCNMT, 2012, pp. 21-26). The JRCNMT provides specific reference to these technical competencies in its accreditation standards. For example, Standard C2.5 states that:

“A program’s professional curriculum must address all JRCNMT-recognized educational competencies, as published in the accompanying JRCNMT Accreditation Manual (JRCNMT, 2011, p. 8).

Physical Therapy

In 2004, the American Physical Therapy Association (APTA) held a consensus conference to identify the minimum required skills for physical therapist (PT) graduates. Subsequently, the APTA published the *Minimum Required Skills of Physical Therapist Graduates at Entry-Level*. In 2009, a similar conference was held to identify the minimum required skills for physical therapist assistants (PTAs). Following this conference, the APTA published the *Minimum Required Skills of Physical Therapist Assistant Graduates at Entry-Level*. Minimum skills were defined in the PT document as the “*foundational skills that are indispensable for a new graduate physical therapist to perform on patients/clients in a competent and coordinated manner*” (APTA, 2009, p. 1). The PTA document added “*...under the direction and supervision of the physical therapist*” to the definition (APTA, 2009, p. 1). The documents provided skill categories, analogous to competency domains, in the following areas and also included descriptions for each category:

Minimum Skills Categories for the PT	Minimum Skills Categories for the PT
<ol style="list-style-type: none"> 1. Plan of Care Review; 2. Provision of Procedural Interventions; 3. Patient Instruction; 4. Patient Progression; 5. Data Collection; 6. Documentation; 7. Safety, CPR, and Emergency Procedures; 8. Healthcare Literature; 9. Education; 10. Resource Management; 11. Behavioral Expectations; 12. Communication; 13. Promotion of Health, Wellness, and Prevention; 14. Career Development (APTA, 2009, pp. 2-12). 	<ol style="list-style-type: none"> 1. Screening; 2. Examination/Reexamination; 3. Evaluation; 4. Diagnosis; 5. Prognosis; 6. Plan of Care; 7. Interventions; 8. Outcomes Assessment; 9. Education; 10. Practice Management; 11. Professionalism: Core Values; 12. Consultation; 13. Evidence-Based Practice; 14. Communication; 15. Cultural Competence; 16. Promotion of Health, Wellness, and Prevention (APTA, 2009, pp. 2-18)

The Commission on Accreditation in Physical Therapy Education (CAPTE) publishes the Evaluative Criteria for doctoral degree PT Programs as well as the *Evaluative Criteria* for associate degree PTA Programs. While the CAPTE *Evaluative Criteria* do not specifically reference the *APTA Minimum Required Skills* documents, there are a number of criteria that refer to expected student outcomes. Expected student outcomes are defined in the *Evaluative Criteria* as the:

“Competencies that the program expects students to have achieved at completion of the program, as well as stated expectations for graduate success in relationship to graduation rates, licensure rates, and employment rates. Expected student outcomes are a subset of the expected outcomes of the program” (CAPTE, 2011, p. xi).

CAPTE Criteria CP-2.2 requires programs to provide ***“Statements of expected student outcomes at the completion of the program”*** (CAPTE, 2011, p. 24). Further, Criteria CC-5.18 references cultural competence as a professional practice expectation: ***“Identify, respect, and act with consideration for patients’/clients’ differences, values, preferences, and expressed needs in all professional activities”*** (CAPTE, 2011, p. 31).

Occupational Therapy

While the Commission on Continuing Competence and Professional Development (CCCPD), a subgroup of the American Occupational Therapy Association (AOTA), is responsible for developing and maintaining the *Standards for Continuing Competence*, the Accreditation Council for Occupational Therapy Education (ACOTE) is responsible for developing and maintaining the Standards and Interpretive Guidelines for programs offering the associate degree for occupational therapy assistants as well as the master’s and doctoral degrees for occupational therapists (ACOTE, 2012). Skills, knowledge, and competencies for entry-level practice are derived from AOTA practice documents and National Board for Certification in Occupational Therapy (NBCOT) practice analysis studies. The curricular content requirements in the ACOTE accreditation standards are written as expected student learning outcomes. Specific competency statements are included under each domain with some differences based on degree level (i.e., higher order competencies with higher degree requirements.)

The competency domains for the occupational therapy assistant include:

- (1) Foundational content;***
- (2) Basic tenets of occupational therapy;***
- (3) Occupational therapy theoretical perspectives;***
- (4) Screening, evaluation, and referral (For OTA programs, screening and evaluation only);***
- (5) Intervention plan: formulation and implementation (For OTA programs, intervention and implementation only);***
- (6) Context of service delivery***
- (7) Leadership and management (doctoral OT); Leadership and management of occupational therapy services (Master’s OT); Assistance with management of occupational therapy***

- services (OTA programs);*
(8) Scholarship; and
(9) Professional ethics, values, and responsibilities (ACOTE, 2012, pp. 17-31).

Dietetics

The Accreditation Council for Education in Nutrition and Dietetics (ACEND), formerly known as the Commission on Accreditation for Dietetics Education (CADE) describes a set of “Core Knowledge and Competencies” in its accreditation standards for dietitian education programs for registered dietitians. Specifically, Standard 10 states that:

“The program must map its curriculum around ACEND’s Core Knowledge and Competencies using sound educational methodology to prepare graduates to enter dietetics practice in any setting and produce optimal client or patient outcomes”
(ACEND, 2012, p. 23)

Appendix A of the Standards describes in detail, by means of general and specific competency statements, the Core Knowledge and Competencies for the registered dietitian. The core knowledge domains include: **(1) Scientific and Evidence Based of Practice- Integration of scientific information and research into practice (2) Professional practice expectations- beliefs, values, attitudes and behaviors for the professional dietitian level of practice, (3) clinical and customer services- development and delivery of information, products and services to individuals, groups and populations; (4) practice management and use of resources- strategic application of principles of management and systems in the provision of services to individuals and organizations; (5) Support Knowledge- knowledge underlying the requirements specified above** (ACEND, 2012, pp. 54-58).

COMPETENCY-BASED EDUCATION IN RESPIRATORY CARE

Originally issued in 1998 and later revised in November 2011, the American Association for Respiratory Care (AARC) published the position statement, *Competency Requirements for the Provision of Respiratory Care Services*, which describes the essential role that competency plays in the profession:

“The complexities of respiratory care are such that the public is at risk of injury, and health care institutions are at risk of liability when respiratory care is provided by inadequately educated and unqualified health care providers rather than by practitioners appropriately educated in the specialty of Respiratory care. All health care practitioners providing respiratory care services to patients, regardless of the care setting and patient demographics, shall successfully complete training and demonstrate initial competence prior to assuming those duties. This training and demonstration of competence shall be required of any health care provider regardless of credential, degree, or license. Formal education is defined as a systematic educational activity in the affective, psychomotor and

cognitive domains. It is intended to develop new proficiencies with an application in mind, and is presented with attention to needs, objectives, activities and a defined method of evaluation. The education shall be approved by a national accrediting entity. In the allied health fields, this training includes supervised pre-clinical (didactic and laboratory) and clinical activities, as well as documentation of competence accredited by an independent accrediting entity to be valid and reliable. The qualifications of the faculty providing this training shall be documented and also meet accreditation standards. AARC, therefore, supports recognition of individuals with competencies from the aforementioned accredited formal education programs for the purpose of providing care which includes a subsection of the respiratory care scope of practice with the caveat that such provision be limited to the elements contained within each credentialing examination's matrix respectively" (AARC, 2012).

The AARC also published position statements on ethics and professional conduct as well promoting diversity education and cultural competence in its professional education programs (AARC, 2010).

In 2008, the AARC convened three conferences involving various stakeholders from the education, management, accreditation, credentialing, and practice sectors to identify potential new roles and responsibilities of respiratory therapists (RTs) in 2015 and beyond. The first conference confirmed that the healthcare system in the United States is on the verge of dramatic change, driven by the need to decrease costs and improve quality. Use of evidence-based protocols that follow a nationally accepted standard of practice and application of biomedical innovation continue to be important competency areas for RTs. The goal of the second conference was to identify specific competencies needed to assure safe and effective execution of RT roles and responsibilities in the future. The third conference addressed the education needed by the workforce to assume the new responsibilities emerging as the healthcare system changes. The goal of the small groups in Conference 2 was to identify the competencies needed by new graduate RTs in 2015 and to identify the minimum competencies required of experienced RTs (Barnes, Gale, Kacmarek, & Kageler, 2010, p. 603). The sense of the group was that, upon entry into practice in 2015, a graduate RT and RTs already in the workforce must possess 69 competencies in 7 major domains: **(1) diagnostics; (2) disease management; (3) evidence-based medicine and respiratory care protocols; (4) patient assessment; (5) leadership; (6) emergency and critical care; and (7) therapeutics** (Barnes, Gale, Kacmarek, & Kageler, 2010, p. 604).

"All health care practitioners providing respiratory care services to patients, regardless of the care setting and patient demographics, shall successfully complete training and demonstrate initial competence prior to assuming those duties. This training and demonstration of competence shall be required of any health care provider regardless of credential, degree, or license."

- AARC Position Statement: Competency Requirements for the Provision of Respiratory Care Services

While the overall goal of Conference 3 was to determine what changes in the profession are necessary to position respiratory therapists to fulfill the roles and responsibilities identified in Conference 1 and to ensure that future and practicing respiratory therapists in 2015 and beyond acquire the competencies identified in Conference 2, there did not appear to be any consideration regarding which competencies identified by the communities of interest are considered essential for the new graduate versus those considered essential for continued competence in the workforce. CoARC believes that identifying any such differences is critical for the programs it accredits to effectively develop future competencies needed for entry into the profession. In order to effectively address the issue, CoARC must either clearly specify the student learning outcomes we require programs to address, or must require programs to do so. Given the important nature of this issue, CoARC has recently recommended to the AARC to conduct a follow-up survey that asks whether the competencies should be expected upon graduation (i.e., entry into the profession), should be expected after a defined period of professional practice, or should be considered an advanced competency. Once the competencies for entry into the profession have been defined and approved, one of the crucial questions which CoARC will address will be how to measure these competencies and what evidence would be considered acceptable to ensure that program graduates have attained the levels of competence needed for effective professional practice.

CoARC defines competencies as the *“written statements describing the measurable set of specific knowledge, skills, and affective behaviors expected of graduates”* (CoARC, 2010, p. 10). While the 2010 CoARC Accreditation Standards for the Profession of Respiratory Care currently do not mandate a specific set of established competencies required for graduates entering the profession, CoARC does require programs to provide evidence of student learning outcomes (i.e., competencies) as an integral part of its standards and processes for review. These student learning outcomes encompass the integration of a specialized set of knowledge, skills, and abilities that students have attained at the completion of their professional program and that are required for entry into the profession. Specifically, CoARC Standard 4.01 requires that programs ***“prepare students to meet the recognized competencies for registered respiratory therapists identified in these Standards”*** (CoARC, 2010, p. 23). Documentation of competencies encompassing knowledge, technical proficiency, and behaviors expected of program graduates as well as evaluation mechanisms designed to monitor knowledge, performance, and behavior are the minimal evidence of compliance associated with this Standard. Programs may select the types of learning activities and assessments that will indicate compliance with recognized competencies. To prepare competent respiratory therapists, the curriculum should be the framework for a deliberate and systematic educational process in the affective, psychomotor, and cognitive domains. It is intended to develop new proficiencies with an application in mind, and is presented with attention to needs, objectives, activities, and a defined method of evaluation. The curriculum should include supervised pre-clinical (didactic and laboratory) and clinical activities, as well as documentation of progress towards achieving competency.

Further, Standard 4.02 requires programs to ***“define and list the competencies it requires for graduation. The program must employ student evaluation methods that measure all defined program competencies. These competencies and evaluation methods must be written and communicated to the enrolled students”*** (CoARC, 2010, p. 23). Evaluation mechanisms designed to monitor knowledge,

performance, and behaviors as well as published materials demonstrating communication of competencies to students are the minimal evidence of compliance associated with this *Standard*. The educational competencies for the respiratory care education program should include the preparation of graduates who possess the knowledge, skills and values to practice respiratory care. The evaluation methods used in the program should include process and end-product assessments of student performance (e.g., competency checklists), as well as a variety of objective testing measures. These mechanisms will provide student performance data related to measuring defined program competencies throughout the program for the students, faculty and college administration. The program should provide evidence that each student is made aware of (i.e., written acknowledgment) the competencies required for completion of the program.

Bear in mind that CoARC is currently undergoing a *Standards* revision process this year. CoARC will provide adequate opportunity for broad comment from its communities of interest prior to adoption of proposed changes to the *Standards*. CoARC will continue its outcomes-centered approach to the accreditation review process. Given the significant shifts to a competency-based approach to accreditation as discussed in this report, revisions to the 2010 *Standards* will likely reflect an increased emphasis on student learning outcomes that focus on the competencies and attainment levels reached by respiratory care students upon completion of their first professional degree program.

A RENEWED EMPHASIS ON INTER-PROFESSIONAL COMPETENCIES

Inter-professional competencies are defined as the “*integrated enactment of knowledge, skills, and values/attitudes that define working together across the professions, with other health care workers, and with patients, along with families and communities, as appropriate to improve health outcomes in specific care contexts.*”

- IEC Expert Panel, 2011, p.2

Originally defined by the Pew Commission and IOM in the context of “working in interdisciplinary teams”, the term *inter-professional competence* has gained prominence in recent years as a critical knowledge, skill, and ability required of health care professionals in an ever-increasingly complex health care system. In 2011, the American Association of Colleges of Nursing, American Association of Colleges of Osteopathic Medicine, American Association of Colleges of Pharmacy, American Dental Education Association, Association of American Medical Colleges, and Association of Schools of Public Health published a report on inter-professional collaborative practice that identified a set of inter-professional competencies to be adopted by health professions. Preparing all health professions students to be able to work effectively as members of clinical teams with the goal of providing a safer, patient-centered health care system is a central tenet of inter-professional education.

Inter-professional competencies are defined as the “*integrated enactment of knowledge, skills, and values/attitudes that define working together across the professions, with other health care workers, and with patients, along with families and communities, as appropriate to improve health outcomes in specific care contexts*” (IEC Expert Panel, 2011, p. 2). The four

inter-professional competency domains identified in the report are built upon the framework of the five core competencies for all health professionals established by the IOM in 2003. The four core competency domains (and general competency statements) include:

(1) Values/ethics for inter-professional practice

- *Work with individuals of other professions to maintain a climate of mutual respect and shared values;*

(2) Roles/responsibilities

- *Use the knowledge of one's own role and those of other professions to appropriately assess and address the healthcare needs of the patients and populations served;*

(3) Inter-professional communication

- *Communicate with patients, families, communities, and other health professionals in a responsive and responsible manner that supports a team approach to the maintenance of health and the treatment of disease; and*

(4) Teams and teamwork

- *Apply relationship-building values and the principles of team dynamics to perform effectively in different team roles to plan and deliver patient-/population-centered care that is safe, timely, efficient, effective, and equitable (IEC Expert Panel, 2011, pp. 17-25).*

THE DIFFERENTIATED PRACTICE MODEL AND ITS ROLE IN CBE

In 1984, the Kellogg Foundation funded a three-year project entitled the National Commission on Nursing Implementation Project (NCNIP). One of the purposes of that project was to facilitate differentiated practice in nursing in response to recommendations by the 1983 Institute of Medicine (IOM) report, *Nursing and Nursing Education: Public Policies and Private Actions*, and the National Commission on Nursing's (NCN) 1983 publication, *Summary Report and Recommendations*. The NCN report recommended the development of differentiated practice competencies. Two types of differentiated practice were defined by NCNIP: assessment-based and education-based. Education-based practice was differentiated according to the educational credentials of the care provider. Assessment-based differentiation was based upon the education and experiential learning that the provider brought to the care environment. The latter was deemed the most commonly used form of differentiation (AACN, 1995, p. 5).

“The differentiated practice approach adopted by those in the nursing, physical therapy, and occupational therapy professions, to name a few, distinguishes the roles and functions of the profession according to education, experience, and competency and is based on health care needs and market demands. The differentiated practice model establishes a hierarchical approach to patient care within the specified discipline that delineates the competencies required to practice at each level.”

- Boston, 1990

The differentiated practice approach adopted by those in the nursing, physical therapy, and occupational therapy professions, to name a few, distinguishes the roles and functions of the profession according to education, experience, and competency and is based on health care needs and market demands. The differentiated practice model establishes a hierarchical approach to patient care within the specified discipline that delineates the competencies required to practice at each level (Boston, 1990).

While the differentiated practice model has led, in some health professions like occupational and physical therapy, to the establishment of an “assistant” level distinct from the therapist, the nursing profession has managed to sustain a relatively successful differentiated practice model (i.e., ADN, BSN, MSN) without resorting to the creation of an “assistant” level for those who earn only the associate degree. The associate degree nurse (ADN) role functions primarily at the bedside in an institutional setting and in less complex patient care situations and whose practice is constrained to standards, protocols, and pathways. The Bachelor of Science in Nursing (BSN) role functions within a horizontal focus or across time from preadmission to post discharge and whose scope of practice encompasses care plan development and inter-professional collaboration to address complex health care needs. The advanced practice nurse (APN) role, based on Masters of Science in Nursing (MSN) competencies and whose scope encompasses creates and defines protocols and pathways, and assists with development of standards on emerging care issues, case management and coordinated care across all care settings (AACN, 1995, p. 26) The competency categories identified by the AACN-AONE Model for Differentiated Nursing Practice for the ADN and BSN include: Provision of Direct Care Competencies with a focus on care plans (AACN, 1995, p. 29); Communication Competencies and Management Competencies. AACN and AONE established a joint task force charged with developing a plan that would provide for rational workforce planning based upon a differentiated set of nursing personnel and differentiated practice expectations for a changing health care market (AACN, 1995, p. 3).

SUGGESTED EVIDENCE FOR MEASURING THE SUCCESS OF A CBE APPROACH

Without direct evidence of the student’s ability to achieve a given competency, it is impossible to evaluate the success of either that individual in meeting expected learning outcomes or the educational program in meeting its goals. Once competencies are defined and performance on these competencies evaluated, CBE requires clearly specified performance criteria on these assessments that enable faculty and other stakeholders to judge that the student has reached the minimal level of performance that qualifies as “competent.” It is important to recognize that performance criteria can be set only after the competencies have been defined and assessment methods developed and applied (Gruppen, Mangrulkar, & Colars, 2010, p. 19).

Evidence of student learning outcomes can take many forms, but should involve direct examination of student performance-either for individual students or for representative samples of students. Examples of the types of evidence that might be used to evaluate expected learning outcomes include (but are not limited to):

- Faculty-designed comprehensive or capstone examinations and assignments;
- Performance on licensing or other external examinations;
- Professionally judged performances or demonstrations of abilities in context;
- Portfolios of student work compiled over time;
- Case-based examinations;
- Literature searches involving critical reviews of peer-reviewed publications;
- Samples of representative student work generated in response to typical course assignments. (CHEA, 2006, p. 2).

“Without direct evidence of the student’s ability to achieve a given competency, it is impossible to evaluate the success of either that individual in meeting expected learning outcomes or the educational program in meeting its goals. Once competencies are defined and performance on these competencies evaluated, CBE requires clearly specified performance criteria on these assessments that enable faculty and other stakeholders to judge that the student has reached the minimal level of performance that qualifies as competent’.”

- Gruppen, Mangrulkar, & Colars, 2010,
p. 19

Higher order assessments would require direct observation, structured feedback on performance, or skills-based evaluations in simulated or real patients.

The self-study document in a competency-based accreditation review may include (but not be limited to) the following required documentation:

1. Identification of a set of competencies that all must attain at the completion of the program of study. There should be one set for each degree level offered by the program;
2. A curriculum matrix or map that identifies the learning experiences (e.g., specific course or activity within a course, practicum, culminating experience or other degree requirement) by which the identified competencies are met;
3. A detailed analysis of the completed matrix or map identifying deficiencies or gaps in the curriculum based on a comparison with the expected learning outcomes. If changes have been made in the curricula as a result of the analysis, such changes should also be described;
4. A description of the method in which competencies are developed, used and made available to students and the public;
5. A description of the manner in which the program periodically assesses changing practice or health needs and uses this information to revise the competencies;
6. A description of the procedures used for monitoring and evaluating student progress in achieving the expected competencies, including processes for identifying competency attainment;
7. Identification of outcomes that serve as measures by which the program will evaluate student achievement;
8. Student clinical evaluation mechanisms demonstrating student competence in clinical skills, communication and practice management, or other identified competency domains.

A successful tool that programs may use to evaluate the integration of the competencies, and the curriculum as a whole, is a curriculum map. A curriculum map traditionally provides a comprehensive overview of the content and the respective assessment tools used to measure student outcomes. Curriculum maps also provide programs with a tool to facilitate continuous curricular evaluation and identify potential areas for improvement (Essary & Statler, 2007, p. 22). CoARC currently uses a version of a curricular map, the *CRT/RRT Combined Detailed Content Outline Comparison*, which allows programs to compare the content areas of the National Board for Respiratory Care (NBRC) examination matrices with program course content areas in order to identify gaps in the curriculum.

CONCLUDING REMARKS

Federal and state policymakers as well as the public are holding higher education institutions and accreditors accountable for the measurement and reporting of student competencies and programmatic outcomes. Student learning outcomes are increasingly taking center stage as the principal indicator of higher education's effectiveness. Employers and elected officials have demanded that graduates should possess an increasingly specific set of higher order knowledge and skills that are readily adaptable to the workforce. Parents, students, and the public—acting as “consumers” of higher education—are looking not just at cost versus value, but at the underlying quality of a degree (Ewell, 2001).

A systematically different approach to the design of curricula is needed that provides greater alignment with what society needs from those that are responsible for its health. These health care needs should drive the desired competencies of graduates, which in turn should determine the curricula by which will result in the achievement of these competencies (Gruppen, Mangrulkar, & Colars, 2010). The competency-based accreditation review process centers on student learning outcomes as the key indicator of institutional quality and performance. A competency-based review process emphasizes outcomes more than resources and processes. Competency-based standards require demonstration and documentation of student competencies as central to determination of institutional quality (CHEA, 2000).

“A systematically different approach to the design of curricula is needed that provides greater alignment with what society needs from those that are responsible for its health. These health care needs should drive the desired competencies of graduates, which in turn should determine the curricula by which will result in the achievement of these competencies.”

- Gruppen, Mangrulkar, & Colars, 2010

When comparing CBE to some of the more traditional models of education, three fundamentally different characteristics emerge. First, CBE guides decisions about what graduates must be able to do, in order to appropriately address healthcare needs and market conditions. Second, CBE uses these expectations to then develop and implement learning experiences (i.e., the curriculum) designed to produce the requisite knowledge values, and skills in the graduates to achieve these competencies. Finally, CBE uses the same set of competencies to develop critical assessment programs to determine the extent to

which they meet stated goals (Gruppen, Mangrulkar, & Colars, 2010, p. 7).

For CoARC, the implications as well as opportunities are evident. How do respiratory care educational programs move beyond the dominance of knowledge-based curricula? How will best practices in evaluation be incorporated to support competency-based methods? A stepwise approach to curricular design appears to offer the best chance of success. The four steps are: 1) identify the competencies; 2) determine the components of each competency and the expected performance levels; 3) evaluate achievement of the competencies; and 4) assess the overall process (Carracio, Wolfsthal, & et al., 2002).

CoARC can continue to improve the efficiency and effectiveness of its mission through greater use of competency-based standards and a focus on the performance requirements for graduates entering the respiratory care profession. Establishing a common set of core competencies for respiratory care graduates would ostensibly enhance the accreditation review process. In addition, as more programs prepare for their next accreditation reviews and adopt or develop competencies for their curricula, the potential benefits of CBE will gain increased recognition.

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