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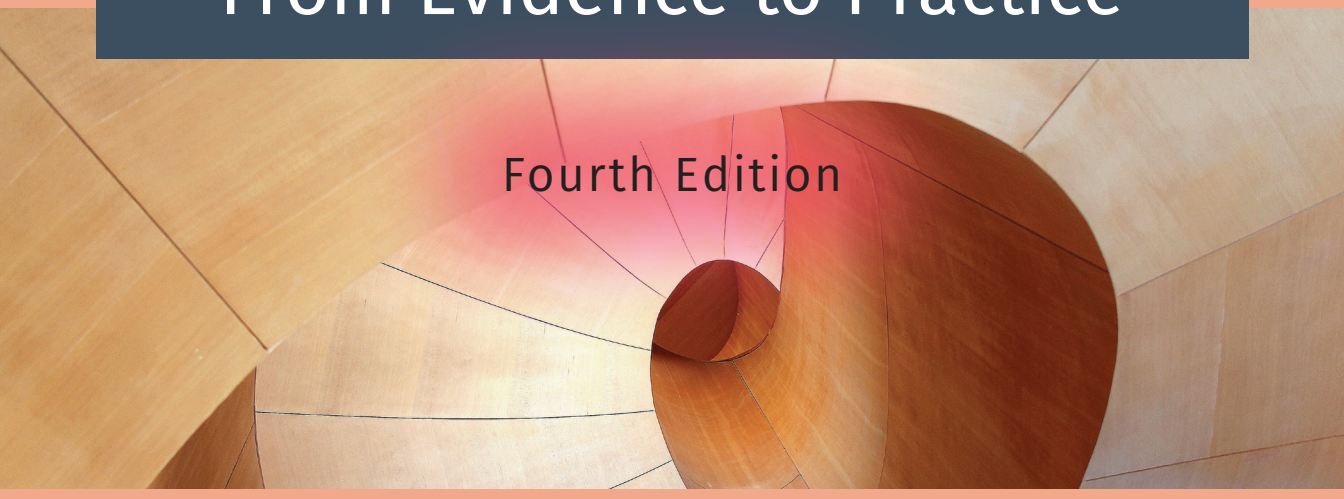
From Evidence to Practice



Fourth Edition

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RESEARCH FOR ADVANCED PRACTICE NURSES

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RESEARCH FOR ADVANCED PRACTICE NURSES

FROM EVIDENCE TO PRACTICE

FOURTH EDITION

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PREFACE

The increasing focus on evidence needed for practice decisions propels us to re-envision how we teach graduate students about research and evidence-based practice (EBP). This book serves as a resource for graduate students and practicing advanced practice registered nurses (APRNs) who contribute to the scholarly output in the discipline, particularly in the area of clinical practice. Similar to the previous editions, this book is unique because it is designed specifically for APRNs. Increasing numbers of APRNs are prepared with a doctorate in nursing practice (DNP) degree. DNP graduates are expert clinicians who have the knowledge and skills to address problems and improve outcomes in real-world health settings. APRNs prepared with a PhD degree are also engaged in practice scholarship. Collaborative teams, comprising APRNs prepared with master's and doctoral degrees, can accelerate the translation of evidence into practice to improve health outcomes. Therefore, this book teaches APRNs prepared at the master's and doctoral levels how to (a) find relevant and current evidence, (b) appraise the evidence, (c) translate evidence into practice to improve patient care and outcomes, and (d) disseminate findings. This book expands on the previous edition by:

- Providing a chapter on quality improvement (QI) models, processes, and tools
- Expanding Chapter 14 (systematic reviews) to include integrative and literature reviews
- Adding a chapter with exemplars of APRN-led initiatives that showcase improved processes and health outcomes

Part I: Evidence-Based Practice. The chapters in Part I focus on an overview of EBP: the definitions of EBP that have evolved over time, types of evidence, and models of EBP. Strategies for finding evidence are presented to guide the reader to respond to the mandate for EBP. Additionally, a brief history of QI is presented along with various models, processes, and tools. This information on EBP and QI is vital to graduate students who are developing skills that will prepare them to assume their advanced practice role in health care.

Part II: Building Blocks for Evidence. The section starts with appraising a single research article, a building block for evidence. Components of the research process are presented from a reviewer's perspective of using the article as supporting evidence for practice in subsequent chapters. One of the documented barriers to EBP is that practitioners feel inadequate reading and interpreting research findings. Gaining knowledge about the research process is crucial for practitioners who must read, interpret, and determine the relevance of research findings (evidence) to practice.

Part III: Using Available Evidence. Meta-analyses, systematic reviews, integrative reviews, and practice guidelines from various sources, such as professional organizations and government websites, are other types of evidence that may be used in establishing EBP. Appraising information

from these sources is suggested in this section. Program evaluation provides an opportunity for use of evidence. Considerations when planning and implementing EBP activities are also included in this section—that is, identifying the focus of EBP activities (unit or organizational) and developing an EBP protocol.

Part IV: Evaluating the Impact of Evidence-Based Practice, Ethical Aspects of a Study, and Communicating Results. Cost, outcomes, and ethical aspects are essential components of EBP and QI. Communicating ideas through oral and written avenues is valuable in making EBP and QI a reality. Techniques for acquiring oral and written methods for presenting ideas are included; such techniques are helpful in writing protocols and reporting outcomes of EBP and QI activities. This section concludes with exemplars of APRN-led initiatives that highlight improved healthcare processes, outcomes, and resultant dissemination.

Although graduate students are the primary audience for this book—a textbook for a graduate course in nursing research or an interdisciplinary health care course—nurses in clinical settings will also find the book helpful in fulfilling their research role toward achieving hospital Magnet® status. Our hope is that the information presented in this book will be used to provide optimal cost-efficient care to patients, which will increase their quality of life.

We acknowledge the work of Marquis D. Foreman, PhD, RN, FAAN, for his contributions to previous editions of this book.

Beth A. Staffileno
Marcia Pencak Murphy
Susan Weber Buchholz

EVIDENCE-BASED PRACTICE

1

OVERVIEW OF EVIDENCE-BASED PRACTICE

MARY D. BONDMASS

INTRODUCTION

This chapter begins with an overview of evidence-based practice (EBP) including generally accepted definitions, central tenets, barriers and facilitators, and trends over time. Additionally, an overview of the necessary underlying components of EBP are explored, these being the actual providers of EBP and the competencies required of EBP providers, specifically advanced practice registered nurses (APRNs).

EBP DEFINITIONS

Multiple definitions of EBP have been proposed and have evolved over the years. One of the most common definitions of EBP in use today was derived from an initial proposal for evidence-based medicine by Sackett et al. (2000). Over time the Sackett et al.'s definition evolved, such that many contemporary texts and publications agree on the definition of EBP to be "the integration of best research evidence with clinical expertise and patient values and circumstances" (Straus et al., 2005, p. 1). While many other excellent definitions are used in the literature, most would agree that Straus et al.'s definition is inclusive enough for universal use.

Regardless of the exact definition, or which discipline supports which nomenclature, there exists today much discussion and debate about implementation, barriers, facilitators, evaluation, and perhaps more importantly, the health outcomes for patients in an EBP environment. Positive health outcomes should logically result from knowledge generated from research and be reflective of an effective EBP environment; however, positive health outcomes in the United States lag far behind what we know about safe and effective healthcare, especially considering the high cost of U.S. healthcare. The knowledge-to-practice gap is even more apparent when health status outcomes are compared with those of other countries. Current data from the Organisation for Economic Cooperation and Development (OECD, 2019), indicate that the worldwide spending on health is about $4,000 per person (adjusted for purchasing power) on average across OECD countries (Figure 1.1), but the United States spends more than all other countries by a considerable margin, at over $10,000 per resident (Institute of Medicine [IOM], 2015b; OECD, 2019). Indeed the United States spends more than twice as much on healthcare than other developed countries, yet according to multiple indicators of health status, the United States is ranked considerably lower (OECD, 2019). Unsurprisingly, studies continue to indicate that the U.S. health system is inefficient. In 2013, the IOM estimated that upward of $750 billion of healthcare spending could be attributed to excess costs. Moreover, despite an increased knowledge base and a

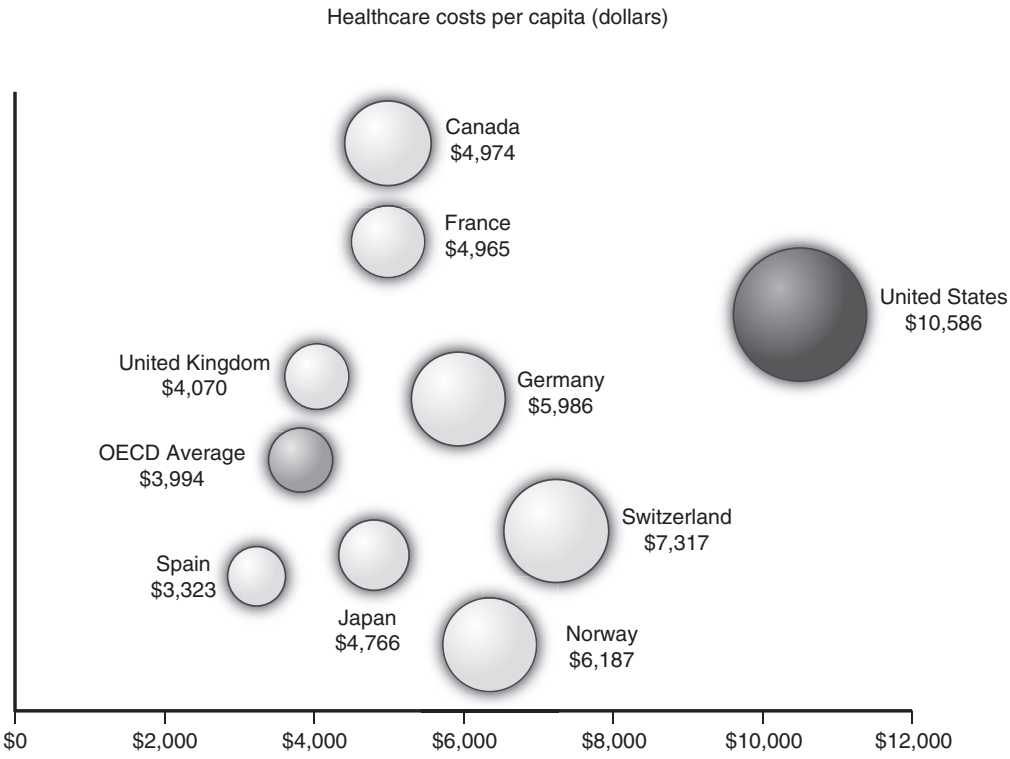

FIGURE 1.1 United States per capita healthcare spending is more than twice the average of other developed countries.

Source: Data from Organisation for Economic Co-operation and Development, OECD Health Statistics, 2019, November 2019.

Notes: Data are from 2018. Chart uses purchasing power parities to convert data into U.S. dollars.

considerable monetary investment, there is no corresponding improvement in U.S. health outcomes; in fact, the United States falls measurably behind our international peers across essential measures of access, equity, and efficiency (IOM, 2015b).

Extending back two decades, this concerning trend in the knowledge-to-practice gap has been acknowledged and written about (IOM, 2000, 2001, 2003, 2010, 2015a; OECD, 2019). While strategic direction from policymakers needs to continually address quality and safety issues at the system or macro level, nurses (academic educators, advanced practitioners, and hospital administrators) have a role in ensuring competent practice, to the end of improving various health-related outcomes. While some may be discouraged by the slow pace of EBP implementation, progress has been made regarding the competence and the competencies expected of the nursing healthcare workforce. Insistence on EBP competence and competencies are strategies that nurses may consider within our collective scope of practice.

Providers from many health-related professions believe the implementation of EBP promotes safety, quality of care, and consistency, and improves patient outcomes while decreasing healthcare costs (Aste et al., 2020; Copeland et al., 2020; Jin & Yi, 2019; Lewis et al., 2019; Melnyk, 2016; Taxman, 2018). The IOM further recommended that 90% of clinical decisions be evidence-based by 2020 (IOM, 2010). Despite this recommendation, a persistent gap remains between what care providers do and what care providers should do based on the best available evidence (IOM, 2010; Melnyk et al., 2018), yet barriers to EBP implementation persist.

BARRIERS AND FACILITATORS

Regardless of profession or country of practice, much has been written over the past 20-plus years about the barriers and facilitators to implementing EBP. Data relating to EBP barriers and facilitators were found in the literature even before the first of the IOMs sentinel reports and extend through today. Primarily, lack of general EBP knowledge and skills (e.g., searching and critically appraising the literature) lead the list of barriers and overcoming these barriers is believed to be the most effective way to facilitate an EBP environment (Al-Jamei et al., 2019; Alqahtani et al., 2020; Baig et al., 2016; Bhor et al., 2019; Bianchi et al., 2018; Garcia et al., 2019; Hallum-Montes et al., 2016; Haynes & Haines, 1998; Hong et al., 2019; Labrague et al., 2019; Newman et al., 1998; Nolan et al., 1998; Oliver & Lang, 2018; Renolen et al., 2020; Rojjanasrirat & Rice, 2017; Rossi et al., 2020; Shayan et al., 2019; Skela-Savič et al., 2017; Youssef et al., 2018). Other barriers include difficulty with time constraints, limited support from organizations (Connor et al., 2016; Melnyk et al., 2012), and perhaps the most disheartening of all, resistance from colleagues (Melnyk et al., 2012).

However, despite the barriers, when nurses specifically are surveyed about their beliefs and attitudes toward EBP, they continue to indicate that they value EBP and that critical appraisal of the literature is essential to translate current knowledge into practice to produce positive patient outcomes (Alqahtani et al., 2020; Azmoude et al., 2018; Bhor et al., 2019; Li et al., 2019; Stokke et al., 2014; van Der Goot et al., 2018).

EVIDENCE-BASED PRACTICE COMPETENCE AND COMPETENCIES FOR EDUCATION AND PRACTICE

Core practice needs were identified in 2001, indicating that healthcare should be safe, effective, patient-centered, timely, efficient, and equitable. Subsequently, in 2003, five core competencies were recommended by the IOM for the healthcare education curriculum with a focus on EBP. Today, as the latest edition of this text is prepared for publication, EBP, and the need for an effective EBP curriculum in healthcare education, still exist. Data are clear and compelling that healthcare education must produce competent practitioners to meet the needs of EBP (IOM, 2010, 2015a; Melnyk et al. 2018; QSEN Institute, 2012; Stevens, 2009). Following the implementation of the 2010 legislation of the Health Care and Education Reconciliation Act and the Affordable Care Act, nursing is at the forefront of leading this change in both education and practice. *The Future of Nursing: Leading Change, Advancing Health* report from the IOM (2010), and the *Quality and Safety Education for Nurses* (QSEN) initiative from the University of North Carolina and the American Association of Colleges of Nursing (AACN, 2012), are two examples of exciting initiatives available to advise and guide nursing on leading change in education and on EBP (IOM, 2010, 2015a; QSEN Institute, 2012).

COMPETENCY/COMPETENCE DEFINITIONS

Most might agree that the general definition of competency or competence is the ability or capability to accomplish something. Merriam-Webster defines competence as ". . . possession of sufficient knowledge or skill . . ." and competency ". . . as a specific area of competence . . ." (Merriam-Webster, 2020). More specifically, for our profession, the American Nurses

Association (ANA, 2014, p. 64) define competency as "an expected and measurable level of nursing performance that integrates knowledge, skills, abilities, and judgment, based on established scientific knowledge and expectations for nursing practice." Moreover, in the past two decades, multiple authors, from various disciples, have published similar definitions of competence or competencies when teaching or evaluating EBP (Claus et al., 2020; Kim et al., 2015; Jin & Yi, 2019; Lee & Seomun, 2016; Melnyk, 2016, 2017; Odhwani et al., 2019; Saunders & Vehvilainen-Julkunen, 2018; Stevens, 2005, 2009; Stiffler & Cullen, 2010; Ruzafa-Martinez et al., 2013).

EXISTING EBP COMPETENCIES

While *The Future of Nursing* report (IOM, 2010, 2015a) plotted a course to position nurses for advanced practice, the QSEN competencies provide specific knowledge, skills, and attitudes that are quite similar to, and no doubt developed from, the original five core competencies proposed by the IOM in 2003 to ensure quality in patient care. Comparisons of the core competencies recommended by the IOM in 2003 and the 2012 QSEN competency categories are displayed in Table 1.1. The graduate-level QSEN competencies for EBP are listed in Table 1.2.

Of note, *The Baccalaureate Essentials for Professional Nursing Practice* (AACN, 2008), *The Essentials of Master's Education in Nursing* (AACN, 2011), and *The Essentials of Doctoral Education for Advanced Nursing Practice* (AACN, 2006, 2015) were also developed using data and recommendations from the IOM (2003) report; however, all the AACN Essentials are currently in the process of revision; therefore, this chapter will briefly discuss some of the proposed conceptual, forward-focused changes to the AACN Essentials related to competencies and their role in evidence-based nursing education (AACN, 2019).

ADDITIONAL EVIDENCE-BASED PRACTICE COMPETENCIES FOR EDUCATION AND PRACTICE

Competency-based education, as preparation for practice, is emerging within the health professions to address training deficits (Claus et al., 2020; Englander et al., 2013; Jin & Yi, 2019;

TABLE 1.1 Comparisons of the Core Competencies Proposed by the Institute of Medicine (IOM) in 2003 and the 2012 Quality and Safety Education for Nurses (QSEN) Competency Categories

IOM (2003)	QSEN: SKILL, KNOWLEDGE, AND ATTITUDE (2012)
• Patient-centered care	• Patient-centered care
• Interdisciplinary skills	• Teamwork and collaboration
• Quality improvement skills	• Quality improvement
• Information technology	• Informatics
• Evidence-based practice	• Evidence-based practice
	• Safety

TABLE 1.2 Graduate-Level Quality and Safety Education for Nurses (QSEN) Competencies for Evidence-Based Practice (EBP)

KNOWLEDGE	SKILLS	ATTITUDES
Demonstrate knowledge of health research methods and processes	Use health research methods and processes, alone or in partnership with scientists, to generate new knowledge for practice	Appreciate the strengths and weaknesses of scientific bases for practice
Describe evidence-based practice to include the components of research evidence, clinical expertise, and patient/family/community values	Role model clinical decision-making based on evidence, clinical expertise, and patient/family/community preferences	Value all components of evidence-based practice
Identify efficient and effective search strategies to locate reliable sources of evidence	Employ efficient and effective search strategies to answer focused clinical or health system practices	Value development of search skills for locating evidence for best practice
Identify principles that comprise the critical appraisal of research evidence	Critically appraise original research and evidence summaries related to the area of practice	Value knowing the evidence base for one's practice specialty area
Summarize current evidence regarding major diagnostic and treatment actions within the practice specialty and healthcare delivery system	Exhibit contemporary knowledge of best evidence related to practice and healthcare systems	Value cutting-edge knowledge of the current practice
Determine evidence gaps within the practice specialty and healthcare delivery system	Promote a research agenda for evidence that is needed in the practice specialty and healthcare system	Value working in an interactive manner with the institutional review board
Identify strategies to address gaps in evidence-based guidelines	Use quality improvement methods to address gaps in evidence-based guidelines	Appreciate the gaps in evidence related to practice
Develop knowledge that can lead the translation of research into evidence-based practice	Build consensus among key stakeholders through the use of change theory to create evidence-based care	Champion the changes required that support evidence-based practice
Analyze how the strength of available evidence influences care (assessment, diagnosis, treatment, and evaluation)	Implement care practices based on strength of available evidence	Appreciate the strength of evidence on provision of care
Evaluate organizational cultures and structures that promote evidence-based practice	Participate in designing organizational systems that support evidence-based practice	Appreciate that organizational systems can significantly influence nursing's efforts in evidence-based practice
Understand the need to define critical questions related to practice and healthcare system delivery	Use coaching skills to engage nurses in evidence-based practice and research	Appreciate that all nurses can participate in creating evidence-based practice

Source: From Cronenwett, L., Sherwood, G., Pohl, J., Barnsteiner, J., Moore, S., Sullivan, D. T., Ward, D., & Warren, J. (2009). Quality and safety education for advanced nursing practice. *Nursing Outlook, 57*(6), 338–348. https://doi.org/10.1016/j.outlook.2009.07.009; data were retrieved from http://www.qsen.org.

Nodine, 2016). Moreover, at the national level, consensus is growing related to competency-based education to prepare health professionals (Englander et al., 2013; Jin & Yi, 2019; Josiah Macy Jr. Foundation, 2017; Kavanagh & Szweda, 2017; Litwack & Brower, 2018; Tharp-Barrie et al., 2020; Wagner et al., 2018).

There remains, however, a continued challenge to translate research results into evidence-based clinical nursing practice. Many educators and researchers suggest that nurses who are educated in the EBP methodology believe their most effective clinical decisions are based on scientific knowledge, practice expertise, and client preference in the context of the healthcare delivery setting (Stevens, 2009; Stokke et al., 2014). The IOM (2010, 2015a) wrote that professionals should be educated to deliver patient-centered care, as members of an interprofessional team emphasizing EBP and quality improvement. Moreover, in the seminal report *The Future of Nursing*, the IOM recommended that faculty partner with healthcare organizations to develop and prioritize competencies, regularly updating curricula to ensure graduates meet future healthcare needs (IOM, 2010). Education-based competencies can translate into clinical practice, whereas continuing education of nurses within healthcare organizations or through professional development may sustain competency (Kesten et al., 2019).

Stevens (2005, 2009) developed and published the first national consensus-based essential EBP competencies in nursing based on, and corresponding to, the Stevens Star Model of Knowledge Transformation (Stevens, 2004). The five star points of the Stevens Star Model of Knowledge Transformation include *Primary Research* (new knowledge discovered through traditional research methodologies), *Evidence Summary* (the body of research synthesized into the state of the knowledge), *Translation* (evidence translated into clinical practice guidelines), *Integration* (implementation of changes in individual, organizational, and environmental practices), and *Evaluation* (outcome evaluation of efficacy, efficiency, and satisfaction for both providers and patients). The EBP competency development project used a survey and content analysis approach and a consensus-forming expert panel to identify and gain consensus on EBP competency statements. These EBP competencies were leveled across nursing education, including associate, baccalaureate, master, and doctoral knowledge. Steven's 2005 and 2009 national consensus editions for essential EBP competencies are inclusive of the EBP skills and content for nursing education, and provide a basis for professional competencies in clinical practice (Kesten et al., 2019). Stevens's EBP competencies have additionally served as an assessment strategy for undergraduate and graduate research and EBP courses (Bondmass, 2009; Bondmass, 2011; Kesten et al., 2013; Kesten et al. 2019; Whorley et al., 2018).

In a comprehensive text, Melnyk and Fineout-Overholt (2018) describe the two-step process of research and consensus-building, which began in 2014, and resulted in the publication of 24 EBP competencies; 11 of which are for generalist RNs and all 24 applicable for APRNs (Gallagher-Ford et al., 2020; Melnyk et al., 2014; Melnyk, 2016; Melnyk et al., 2018). While the core EBP competencies may be similar to previously discussed competencies (IOM, 2003; QSEN Institute, 2012; Stevens, 2005, 2009), Melnyk et al. incorporate the formulation of clinical questions using the PICOT format, which represents patient population, intervention or area of interest, comparison intervention or group, outcome, and time. The use of PICOT questions, widely used in many current EBP courses, differentiates Melnyk et al.'s EBP competencies from others. However, whichever set of competencies you may choose in your classroom or practice setting, the achievement of the essential knowledge and skills associated with EBP should be the goal to ensure the best outcome for our patients and their families.

PROPOSED AMERICAN ASSOCIATION OF COLLEGES OF NURSING *ESSENTIALS* REVISIONS

The AACN and the IOM (2010) have identified EBP as a fundamental competency for nursing. The AACN specifically addresses EBP in *The Essentials of Master's Education in Nursing* (2011) as Essential IV: Translating and Integrating Scholarship into Practice: "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" (AACN, 2011, p. 16).

Currently, and consistent with the current literature, the AACN formed an *Essentials* Task Force to begin revisions of the existing Baccalaureate, Masters, and DNP Essentials. In the *Executive Summary of AACN's Vision for Academic Nursing*, the *Essentials* Task Force addresses overarching academic nursing considerations and future goals. One of the primary suggested actions for moving toward this AACN vision includes the transition to competency-based education and assessment (AACN, 2019).

The AACN's vision for the revision of all the *Essentials* is based on a competency-based framework, adapting the work of Englander et al. (2013), to include a set of core domains and essential skills within each respective domain. The *Essentials* Task Force is in the process of building awareness and consensus around developing the new *Essentials* via national faculty meetings, webinars, and conference presentations. A date for the final version of the revised *Essentials* to be published is not yet set, but given the enormity and the thoughtful depth needed for this project, it is not expected in the immediate future.

SUMMARY

"Knowing is not enough; we must apply. Willing is not enough; we must do."

—Goethe

This chapter provided a brief overview of EBP definitions, barriers, facilitators, and academic and clinical EBP competencies as a snapshot of the future challenges and expectations for APRNs in an interprofessional EBP environment. Additionally, the expectations and responsibilities of the DNP, APRNs, and other advanced nursing practice specialties are included in the EBP competencies with leading initiatives to improve health outcomes. In the following chapters of this text, in-depth and specific material will be presented with the intent to prepare APRNs for their leadership role in healthcare related to research and EBP.

SUGGESTED LEARNING ACTIVITIES

1. Search the literature or look within your healthcare organization for an example of how a nurse, educated to the level of advanced nursing practice (preferably an MSN or DNP), implemented an evidence-based change initiative or quality improvement project that measurably improved health outcomes, thus demonstrating an EBP competency.

2. Gather a group of colleagues, either in your clinical or classroom setting, and conduct a self-assessment using the QSEN's graduate-level EBP competencies related to your knowledge, skills, and attitudes; then compare your results.
3. With colleagues at your institution, discuss which of the EBP competencies or combination of the competencies referenced in this chapter would fit best within your institution's culture.

REFERENCES

Aste, R., Hjalmhult, E., Hoye, S., Danbolt, L. J., & Kirkevold, M. (2020). Creating room for evidence-based practice: Leader behavior in hospital wards. *Research in Nursing & Health, 43*(1), 90–102. https://doi.org/10.1002/nur.21981

Al-Jamei, S., Abu Farha, R., Zawiah, M., Kadi, T., & Al-Sonidar, A. (2019). Perceptions, knowledge, and perceived barriers of Yemeni pharmacists and pharmacy technicians towards evidence-based practice. *Journal of Evaluation in Clinical Practice, 25*(4), 585–590. https://doi.org/10.1111/jep.12988

Alqahtani, N., Oh, K. M., Kitsantas, P., & Rodan, M. (2020) Nurses' evidence-based practice knowledge, attitudes and implementation: A cross-sectional study. *Journal of Clinical Nursing, 29*(1–2), 274–283. https://doi.org/10.1111/jocn.15097

American Association of Colleges of Nursing. (2006). *The essentials of doctoral education for advanced nursing practice*. http://www.aacn.nche.edu/publications/position/DNPEssentials.pdf

American Association of Colleges of Nursing. (2008). *The essentials of baccalaureate education for professional Nursing Practice*. https://www.aacnnursing.org/Portals/42/Publications/BaccEssentials08.pdf

American Association of Colleges of Nursing. (2011). *The essentials of master's education in nursing*. https://www.aacnnursing.org/Portals/42/Publications/MastersEssentials11.pdf

American Association of Colleges of Nursing. (2012). *Graduate-level QSEN competencies knowledge, skills, and attitudes*. National Academies Press. http://www.aacn.nche.edu/faculty/qsen/competencies.pdf

American Association of Colleges of Nursing. (2015). *Report from the Task Force on the Implementation of the DNP; Current Issues and Clarifying Recommendations*. http://www.aacn.nche.edu/news/articles/2015/dnp-white-paper

American Association of Colleges of Nursing. (2019). *AACN's vision for academic nursing: Executive Summary*. https://www.aacnnursing.org/Portals/42/News/White-Papers/Vision-Academic-Nursing.pdf

American Nurses Association. (Reaffirmed November 12, 2014). ANA Position Statement: Professional Role Competence. https://www.nursingworld.org/practice-policy/nursing-excellence/official-position-statements/id/professional-role-competence/

Azmoude, E., Aradmehr, M., & Dehghani, F. (2018). Midwives' attitude and barriers of evidence based practice in maternity care. *The Malaysian Journal of Medical Sciences*, 25(3), 120–128. https://doi.org/10.21315/mjms2018.25.3.12

Baig, M., Sayedalamin, Z., Almouteri, O., Algarni, M., & Allam, H. (2016). Perceptions, perceived barriers and practices of physicians' towards evidence-based medicine. *Pakistan Journal of Medical Sciences, 32*(1), 49–54. https://doi.org/10.12669/pjms.321.8841

Bhor, K. Shetty, V., Garcha, V., Vinay, V., & Nimbulkar, G. (2019). Knowledge, attitude, and perceived barriers toward evidence-based practice among dental and medical academicians and private practitioners in Pune: A comparative cross-sectional study. *Journal of Indian Association of Public Health Dentistry, 17*(1), 48–53. https://doi.org/10.4103/jiaphd.jiaphd_93_18

Bianchi, M., Bagnasco, A., Bressan, V., Barisone, M., Timmins, F., Rossi, S., Pellegrini, R., Aleo, G., & Sasso, L (2018). A review of the role of nurse leadership in promoting and sustaining evidence-based practice. *Journal of Nursing Management, 26*(8), 918–932. https://doi.org/10.1111/jonm.12638

Bondmass, M. (2009, July 8). Using the ACE STAR Model for teaching/learning evidence-based practice [Poster presentation]. Summer Institute of the Academic Center of Excellence for Evidence Based Practice.

Bondmass, M. (2011, July 29). Application of the ACE Star Model and Essential Competencies in a DNP Program [Conference session]. Summer Institute of the Academic Center of Excellence for Evidence Based Practice.

Claus, N., Watts, P., & Moss, J. (2020). Medical-surgical nurse self-perceived competency in posttraumatic stress disorder/substance use disorder veteran care in a non-Veterans Health Administration setting. *Journal of Nursing Administration, 50*(4), 203–208. https://journals.lww.com/jonajournal/Fulltext/2020/04000/Medical_Surgical_Nurse_Self_perceived_Competency.7.aspx

Connor, L., Dwyer, P., & Oliveira, J. (2016). Nurses' use of evidence-based practice in clinical practice after attending a formal evidence-based practice course: A quality improvement evaluation. *Journal for Nurses in Professional Development, 32*(1), E1–E7. https://doi.org/10.1097/NND.0000000000000229

Copeland, W. E., Gaydosh, L. M., Hill, S. N., Godwin, J., Harris, K. M., Costello, E. J., & Shanahan, L. (2020). Associations of despair with suicidality and substance misuse among young adults. *JAMA Network Open, 3*(6), e208627. https://doi.org/10.5167/uzh-191374

Cronenwett, L., Sherwood, G., Pohl, J., Barnsteiner, J., Moore, S., Sullivan, D. T., Ward, D., & Warren, J. (2009). Quality and safety education for advanced nursing practice. *Nursing Outlook, 57*(6), 338–348. https://doi.org/10.1016/j.outlook.2009.07.009

Englander, R., Cameron, T., Ballard, A. J., Dodge, J., Bull, J., & Aschenbrener, C. A. (2013). Toward a common taxonomy of competency domains for the health professions and competencies for physicians. *Academic Medicine, 88*(8), 1088–1094. https://doi.org/10.1097/ACM.0b013e31829a3b2b

Gallagher-Ford, L. Thomas, B. K., Connor, L., & Sinnott, L, & Melnyk. (2020). The effects of an intensive evidence-based practice educational and skills building program on EBP competency and attributes. *Worldviews on Evidence-based Nursing, 17*(1), 71–81. https://doi.org/10.1111/wvn.12397

Garcia, A. R., Denard, C., Morones, S. M., & Eldeeb, N. (2019). Mitigating barriers to implementing evidence-based interventions in child welfare: Lessons learned from scholars and agency directors. *Children and Youth Services Review, 100*, 313–331. https://doi.org/10.1016/j.childyouth.2019.03.005

Hallum-Montes, R., Middleton, D., Schlanger, K., & Romero, L. (2016). Barriers and facilitators to health center implementation of evidence-based clinical practices in adolescent reproductive health services. *Journal of Adolescent Health, 58*(3), 276–283. https://doi.org/10.1016/j.jadohealth.2015.11.002

Haynes, B., & Haines, A. (1998). Barriers and bridges to evidence based clinical practice. *British Medical Journal, 317*(7153), 273–276. https://doi.org/10.1136/bmj.317.7153

Hong, B., O'Sullivan, E. D., Henein, C., & Jones, C. M. (2019). Motivators and barriers to engagement with evidence-based practice among medical and dental trainees from the U.K. and Republic of Ireland: A national survey. *British Medical Journal Publishing Group BMJ Open, 9*(10), 1–10. https://bmjopen.bmj.com/content/bmjopen/9/10/e031809

Institute of Medicine. (2000). *To err is human: Building a safer health system*. National Academies Press. https://www.nap.edu/9728

Institute of Medicine. (2001). *Crossing the quality chasm: A new health system for the 21st century*. *Committee on Quality of Health Care in America, Institute of Medicine*. National Academies Press. https://www.nap.edu/download/10027

Institute of Medicine. (2003). *Health professions education: A bridge to quality*. National Academies Press. https://www.nap.edu/download/10681

Institute of Medicine. (2010). *The future of nursing: Leading change, advancing health*. National Academies Press. https://www.nap.edu/download/12956

Institute of Medicine: National Academies of Sciences, Engineering, and Medicine. (2015a). *Assessing progress on the Institute of Medicine report "The Future of Nursing."* National Academies Press. https://www.nap.edu/download/21838

Institute of Medicine. (2015b). *Vital signs: Core metrics for health and health care progress*. The National Academies Press. https://doi.org/10.17226/19402

Jin, J., & Yi, Y. J. (2019). Patient safety competency and the new nursing care delivery model. *Journal of Nursing Management, 27*(6), 1167–1175. https://doi.org/10.1111/jonm.12788

Josiah Macy Jr. Foundation. (2017, June). *Achieving competency-based, time-variable health professions education recommendations from the Macy Foundation Conference*. https://macyfoundation.org/publications/achieving-competency-based-time-variable-health-professions-education

Kavanagh, J. M., & Szweda, C. (2017). A crisis in competency: The strategic and ethical imperative to assessing new graduate nurses' clinical reasoning. *Nursing Education Perspectives*, *38*(2), 57–62. https://doi.org/10.1097/01.NEP.0000000000000112

Kesten, K., Bondmass, M., & Dennison, R. (2013, April 12). Application of the ACE Star Model and essential competencies in a MSN program [Poster presentation]. NONPF 39th Annual Meeting. https://nonpf.confex.com/nonpf/2013pa/webprogram/Paper5756.html

Kesten, K., White, K. A., Heitzler, E. T., Chaplin, L. T., & Bondmass, M. D. (2019). Perceived Evidence-based practice competency acquisition in graduate nursing students: Impact of intentional course design. *Journal of Continuing Education in Nursing, 50*(2), 79–86. https://doi.org/10.3928/00220124-20190115-07

Kim, K., Han, Y., Kwak, Y., & Kim, J. (2015). Professional quality of life and clinical competencies among Korean nurses. *Asian Nursing Research, 9*(3), 200–206. https://doi.org/10.1016/j.anr.2015.03.002

Labrague, L. J., Mcenroe-Petitte, D., D'Souza, M. S., Cecily, H., Fronda, D. C., Edet, O. B., Ibebuike, J. E., Venkatesan, L., Almazan, J. U., Al Amri, M., Mirafuentes, E. C., Cayaban, A. R. R., . . . Bin Jumah, J. A. (2019). A multicountry study on nursing students' self-perceived competence and barriers to evidence-based practice. *Worldviews on Evidence-Based Nursing, 16*(3), 236–246. https://doi.org/10.1111/wvn.12364

Lee, Y., & Seomun, G. (2016). Role of compassion competence among clinical nurses in professional quality of life. *International Nursing Review, 63*(3), 381–387. https://doi.org/10.1111/inr.12295

Lewis, C. C., Boyd, M., Puspitasari, A., Navarro, E., Howard, J., Kassab, H., Hoffman, M., Scott, K., Lyon, A., Douglas, S., Simon, G., & Kroenke, K. (2019). Implementing measurement-based care in behavioral health: A review. *JAMA Psychiatry, 76*(3), 324–335. http://doi.org/10.1001/jamapsychiatry.2018.3329

Li, S., Cao, M., & Zhu, X. (2019). Evidence-based practice: Knowledge, attitudes, implementation, facilitators, and barriers among community nurses-systematic review. *Medicine, 98*(39), e17209. https://doi.org/10.1097/MD.0000000000017209

Litwack, K., & Brower, A. M. (2018). The University of Wisconsin-Milwaukee flexible option for bachelor of science in nursing degree completion. *Academic Medicine*, 93. S37–S41. https://doi.org/10.1097/ACM.0000000000002076

Merriam-Webster. (2020). Competency. In *Merriam-Webster.com dictionary*. Retrieved August 26, 2020, from https://www.merriam-webster.com/dictionary/competency

Melnyk, B. M. (2016). Development of and evidence to support the evidence-based practice competencies. In B. M. Melnyk, L. Gallagher-Ford, & E. Fineout-Overholt (Eds.), *Implementing Evidence-Based Practice (EBP) Competencies in Healthcare.* Sigma Theta Tau International.

Melnyk, B. M. (2017). The difference between what is known and what is done is lethal: Evidence-based practice is a key solution urgently needed. *Worldviews on Evidence-Based Nursing, 14*(1), 3–4. https://doi.org/10.1111/wvn.12194

Melnyk, B. M., & Fineout-Overholt, E. (2015). Making the case for evidence-based practice and cultivating a spirit of inquiry. In B. M. Melnyk & E. Fineout-Overholt (Eds.), *Evidence-based practice in nursing & healthcare: A guide to best practice* (pp. 3–23). Wolters Kluwer.

Melnyk, B. M., & Fineout-Overholt, E. (2018). *Evidence-based practice in nursing & healthcare: A guide to best practice* (4th ed.). Wolters Kluwer Health, Inc.

Melnyk, B. M., Fineout-Overholt, E., Gallagher-Ford, L., & Kaplan, L. (2012). The state of evidence-based practice in U.S. nurses: Critical implications for nurse leaders and educators. *Journal of Nursing Administration, 42*(9), 410–417. https://doi.org/10.1097/NNA.0b013e3182664e0a

Melnyk, B. M., Gallagher-Ford, L., Long, L., & Fineout-Overholt, E. (2014). The establishment of evidence-based practice competencies for practicing registered nurses and advanced practice nurses in real-world clinical settings: Proficiencies to improve healthcare quality, reliability, patient outcomes, and costs. *Worldviews on Evidence-Based Nursing, 11*(1), 5–15. https://doi.org/10.1111/wvn.12021

Melnyk, B. M., Gallagher-Ford, L., Zellefrow, C., Tucker, S., Van Dromme, L., & Thomas, B. K. (2018). Outcomes from the first Helene Fuld Health Trust National Institute for Evidence-based Practice in Nursing and healthcare invitational expert forum. *Worldviews on Evidence-Based Nursing, 15*(1), 5–15. https://doi.org/10.1111/wvn.12272

Newman, M., Papadopoulos, I., & Sigsworth, J. (1998). Barriers to evidence-based practice. *Intensive and Critical Care Nursing, 14*(5), 231–238. https://doi.org/10.1016/S0964-3397(98)80634-4

Nodine, T. R. (2016). How did we get here? A brief history of competency-based higher education in the United States. *The Journal of Competency-Based Education*, *1*(1), 5–11. https://doi.org/10.1002/cbe2.1004