

Original Article

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

Bernadette Mazurek Melnyk, RN, PhD, CPNP/PMHNP, FNAP, FAANP, FAAN •
Lynn Gallagher-Ford, RN, PhD, DPFNAP, NE-BC • Lisa English Long, RN, MSN, CNS •
Ellen Fineout-Overholt, RN, PhD, FAAN

Keywords
evidence-based
practice,
competencies,
healthcare quality

ABSTRACT

Background: Although it is widely known that evidence-based practice (EBP) improves healthcare quality, reliability, and patient outcomes as well as reduces variations in care and costs, it is still not the standard of care delivered by practicing clinicians across the globe. Adoption of specific EBP competencies for nurses and advanced practice nurses (APNs) who practice in real-world healthcare settings can assist institutions in achieving high-value, low-cost evidence-based health care.

Aim: The aim of this study was to develop a set of clear EBP competencies for both practicing registered nurses and APNs in clinical settings that can be used by healthcare institutions in their quest to achieve high performing systems that consistently implement and sustain EBP.

Methods: Seven national EBP leaders developed an initial set of competencies for practicing registered nurses and APNs through a consensus building process. Next, a Delphi survey was conducted with 80 EBP mentors across the United States to determine consensus and clarity around the competencies.

Findings: Two rounds of the Delphi survey resulted in total consensus by the EBP mentors, resulting in a final set of 13 competencies for practicing registered nurses and 11 additional competencies for APNs.

Linking Evidence to Action: Incorporation of these competencies into healthcare system expectations, orientations, job descriptions, performance appraisals, and clinical ladder promotion processes could drive higher quality, reliability, and consistency of healthcare as well as reduce costs. Research is now needed to develop valid and reliable tools for assessing these competencies as well as linking them to clinician and patient outcomes.

BACKGROUND

Evidence-based practice (EBP) is a life-long problem-solving approach to the delivery of health care that integrates the best evidence from well-designed studies (i.e., external evidence) and integrates it with a patient's preferences and values and a clinician's expertise, which includes internal evidence gathered from patient data. When EBP is delivered in a context of caring and a culture as well as an ecosystem or environment that supports it, the best clinical decisions are made that

yield positive patient outcomes (see Figure 1; Melnyk & Fineout-Overholt, 2011).

Research supports that EBP promotes high-value health care, including enhancing the quality and reliability of health care, improving health outcomes, and reducing variations in care and costs (McGinty & Anderson, 2008; Melnyk, Fineout-Overholt, Gallagher-Ford, & Kaplan, 2012; Pravikoff, Pierce, & Tanner, 2005). Even with its tremendous benefits, EBP is not the standard of care that is practiced consistently by clinicians throughout the United States and globe (Fink, Thompson, &

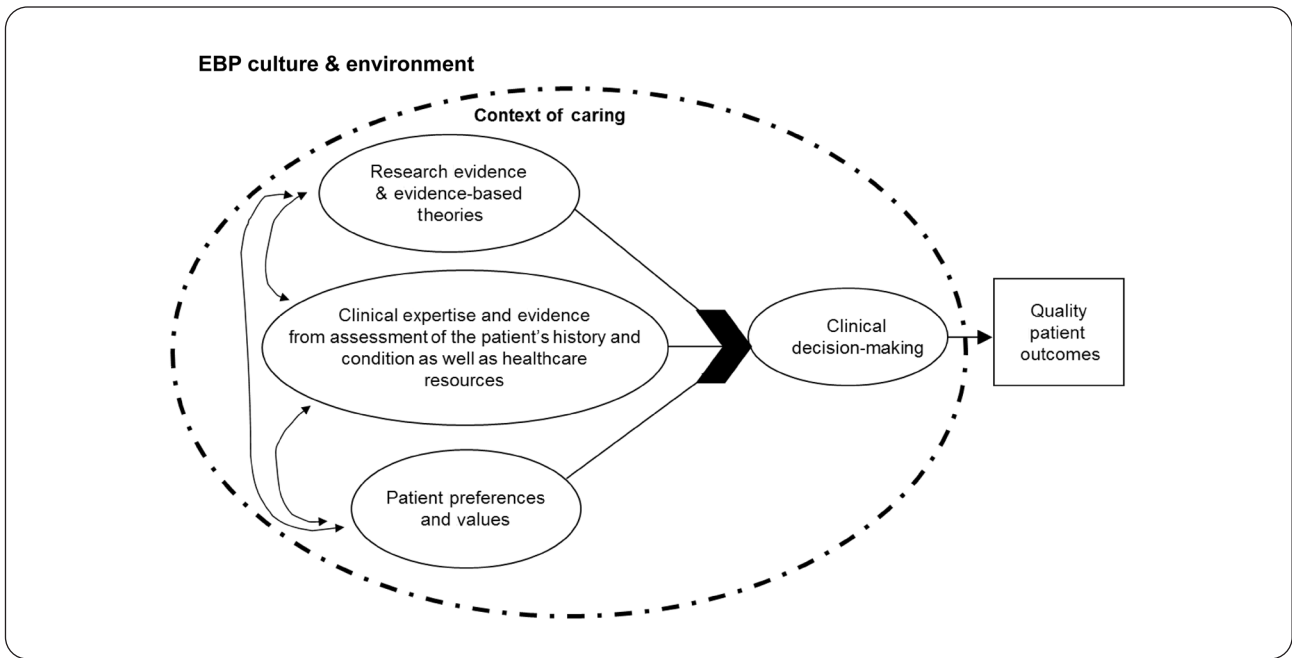


Figure 1. The merging of science and art: EBP within a context of caring and an EBP culture and environment results in the highest quality of healthcare and patient outcomes. Reprinted from Melnyk, B. M., & Fineout-Overholt, E. (2011). *Evidence-based practice in nursing and healthcare. A guide to best practice*. Philadelphia: Lippincott Williams & Wilkins. Reprinted with permission.

Bonnes, 2005; Melnyk, Grossman, et al., 2012). Tremendously long lag times continue to exist between the generation of research findings and their implementation in real-world clinical settings to improve care and outcomes due to multiple barriers, including: (a) misperceptions by clinicians that it takes too much time, (b) inadequate EBP knowledge and skills, (c) academic programs that continue to teach the rigorous process of how to conduct research instead of an evidence-based approach to care, (d) organizational cultures that do not support it, (e) lack of EBP mentors and appropriate resources, and (f) resistance by colleagues, managers or leaders, and physicians (Ely, Osheroff, Chambliss, Ebell, & Rosenbaum, 2005; Estabrooks, O’Leary, Ricker, & Humphrey, 2003; Jennings & Loan, 2001; Melnyk, Fineout-Overholt, Feinstein, et al., 2004; Melnyk, Fineout-Overholt, et al., 2012; Titler, 2009).

The Seven-Step EBP Process and Facilitating Factors

The seven steps of EBP start with cultivating a spirit of inquiry and an EBP culture and environment as without these elements, clinicians will not routinely ask clinical questions about their practices (see Table 1). After a clinician asks a clinical question and searches for the best evidence, critical appraisal of the evidence for validity, reliability, and applicability to practice is essential for integrating that evidence with a clinician’s expertise and patient preferences to determine whether a current practice should be changed. Once a practice change is made based on this process, evaluating the outcomes of that

Table 1. The Seven Steps of Evidence-Based Practice

Step 0: Cultivate a spirit of inquiry along with an EBP culture and environment
Step 1: Ask the PICO(T) question
Step 2: Search for the best evidence
Step 3: Critically appraise the evidence
Step 4: Integrate the evidence with clinical expertise and patient preferences to make the best clinical decision
Step 5: Evaluate the outcome(s) of the EBP practice change
Step 6: Disseminate the outcome(s) (Melnyk & Fineout-Overholt, 2011)

change is imperative to determine its impact. Finally, dissemination of the process and outcomes of the EBP change is key so that others may learn of practices that produce the best results.

The systematic seven-step process of EBP provides a platform for facilitating the best clinical decisions and ensuring the best patient outcomes. However, consistent implementation of the EBP process and use of evidence by practicing clinicians is challenging. Typical barriers to EBP cited by clinicians include: time limitations, an organizational culture and philosophy of “that is the way we have always done it here,” inadequate

EBP knowledge or education, lack of access to databases that enable searching for best evidence, manager and leader resistance, heavy workloads, resistance from nursing and physician colleagues, uncertainty about where to look for information and how to critically appraise evidence, and limited access to resources that facilitate EBP (Gerrish & Clayton, 2004; Melnyk, Fineout-Overholt, et al., 2012; Pravikoff, Pierce, & Tanner, 2005; Restas, 2000; Rycroft-Malone et al., 2004).

There are also factors that facilitate EBP, including: beliefs in the value of EBP and the ability to implement it, EBP mentors who work with direct care clinicians to implement best practices, supportive EBP contexts or environments and cultures, administrative support, and assistance by librarians from multifaceted education programs (Melnyk et al., 2004; Melnyk & Fineout-Overholt, 2011; Melnyk, Fineout-Overholt, & Mays, 2008; Newhouse, Dearholt, Poe, Pugh, & White, 2007; Rycroft-Malone, 2004). The concept of healthcare context (i.e., the environment or setting in which people receive healthcare services), specifically organizational context, is becoming an increasingly important factor in the implementation of evidence at the point of care (Estabrooks, Squires, Cummings, Birdsell, & Norton, 2009; Rycroft-Malone, 2004). Strategies to enhance system-wide implementation and sustainability of evidence-based care need to be multipronged and target: (a) the enhancement of individual clinician and healthcare leader EBP knowledge and skills; (b) cultivation of a context and culture that supports EBP, including the availability of resources and EBP mentors; (c) development of healthcare leaders who can spearhead teams that create an exciting vision, mission, and strategic goals for system-wide implementation of EBP; (d) sufficient time, resources, mentors, and tools for clinicians to engage in EBP; (e) clear expectations of the role of clinicians and advanced practice nurses (APNs) in implementing and sustaining evidence-based care; (f) facilitator characteristics and approach; and (f) a recognition or reward system for those who are fully engaged in the effort (Dogherty, Harrison, Graham, Vandyk, & Keeping-Burke, 2013; Melnyk, 2007; Melnyk, Fineout-Overholt, et al., 2012).

Competencies for Nurses

Although there is a general expectation of healthcare systems globally for nurses to engage in EBP, much uncertainty exists about what exactly that level of engagement encompasses. Lack of clarity about EBP expectations and specific EBP competencies that nurses and APNs who practice in real-world healthcare settings should meet impedes institutions from attaining high-value, low-cost evidence-based health care. The development of EBP competencies should be aligned with the EBP process in continual evaluation across the span of the nurses' practice, including technical skills in searching and appraising literature, clinical reasoning as patient and family preferences are considered in decision making, problem-solving skills in making recommendations for practice changes, and the ability to adapt to changing environments (Burns, 2009).

Competence is defined as the ability to do something well; the quality or state of being competent (Merriam Webster Dictionary, 2012). Competencies are a mechanism that supports health professionals in providing high-quality, safe care. The construct of nursing competency "attempts to capture the myriad of personal characteristics or attributes that underlie competent performance of a professional person." Competencies are holistic entities that are carried out within clinical contexts and are composed of multiple attributes including knowledge, psychomotor skills, and affective skills. Dunn and colleagues contend that competency is not a "skill or task to be done, but characteristics required in order to act effectively in the nursing setting." Although a particular competency "cannot exist without scientific knowledge, clinical skills, and humanistic values" (Dunn et al., 2000, p. 341), the actual competency transcends each of the individual components. The measurement of nurses' competencies related to various patient care activities is a standard ongoing activity in a multitude of healthcare organizations across the globe, however, competencies related to the critical issue of how practicing nurses approach decision making (e.g., whether it is evidence-based vs. tradition-based) is limited and needs further research.

Recently, work has been conducted to establish general competencies for nursing by the Quality and Safety Education for Nurses (QSEN) Project, which is a global nursing initiative whose purpose was to develop competencies that would "prepare future nurses who would have the knowledge, skills, and attitudes (KSAs) necessary to continuously improve the quality and safety of the healthcare systems within which they work" (QSEN, 2013). This project has developed competency recommendations that address the following practice areas:

- Patient-centered care
- Teamwork and collaboration
- Evidence-based practice
- Quality improvement
- Safety
- Informatics

Further work in competency development has been spearheaded by the Association of Critical Care Nurses, which developed the Synergy Model. The goal of the model was to assist practicing nurses in decision making. An example of the model in action would be the use of the model by charge nurses in their decisions to match patients and nurses to achieve best outcomes of evidence-based care processes promulgated by the American Association of Critical Care Nurse (2013). Kring (2008) wrote about how clinical nurse specialists, when competent in EBP, can leverage their unique roles as expert practitioners, researchers, consultants, educators, and leaders to promote and support EBP in their organizations.

In addition, competencies related to the academic setting have been developed. The National League for Nurses (NLN) developed competencies for program levels within nursing education. Definitions, guides to curricular development, and criteria for use in developing certification and continuing education programs is a focus for faculty and administrators in academic settings (NLN, 2013).

Stevens and colleagues defined essential competencies for EBP to be incorporated into nursing education programs to serve as a helpful guide to faculty in teaching and preparing students for EBP and to “provide a basis for professional competencies in clinical practice” (Stevens, 2009, p. 8). However, to our knowledge, there has never been a systematic research-based process used to develop contemporary EBP competencies for practicing registered professional nurses and APNs who are delivering care in real-world clinical settings defined by leaders and mentors responsible for facilitating and sustaining evidence-based care in today’s healthcare systems.

AIM

The aim of this study was to develop a clear set of competencies for both practicing registered nurses and APNs in clinical settings. These competencies can be used by healthcare institutions in their quest to achieve high performing systems that consistently implement and sustain evidence-based care.

METHODOLOGY

The first step in formulating the competencies involved seven national experts from both clinical and academic settings across the United States, who were identified and invited to participate in developing EBP competencies through a consensus building process. These experts were chosen because they were recognized national experts in EBP, having influenced the field or being widely published in the area. Through a consensus building process, the EBP expert panel produced two lists of essential EBP competencies, one set for practicing registered nurses and one for APNs. For registered nurses, the experts identified 12 essential EBP competencies. For APNs, there were 11 additional essential EBP competencies (23 total).

The next step in developing the competencies involved utilizing the Delphi survey technique, which seeks to obtain consensus on the opinions of experts through a series of structured rounds. The Delphi technique is an iterative multistage process, designed to transform opinion into group consensus. Studies employing the Delphi technique make use of individuals who have knowledge of the topic being investigated who are identified as “experts” selected for the purpose of applying their knowledge to a particular issue or problem. The literature reflects that an adequate number of rounds must be employed in a Delphi study in order to find the balance between producing meaningful results without causing sample fatigue. Recommendations for Delphi technique suggest that two or three rounds are preferred to achieve this balance (Hasson, Keeney, & McKenna, 2000).

Inclusion Criteria

The expert participants for this Delphi survey of EBP competencies were individuals who attended an intensive continuing education course or program in EBP at the first author’s academic institution within the last 7 years and who identified themselves as EBP mentors. The EBP mentors were nurses with in-depth knowledge and skills in EBP along with skills in organizational and individual behavior change, who work directly with clinicians to facilitate the rapid translation of research findings into healthcare systems to improve healthcare quality and patient outcomes. EBP mentors guide others to consistently implement evidence-based care by educating and role modeling the use of evidence in decision making and advancement of best practice (Melnyk, 2007).

An important design element of a Delphi study is that the investigators must determine the definition of consensus in relation to the study’s findings prior to the data collection phase (Williams & Webb, 1994). Although there is no universal standard about the proportion of participant agreement that equates with consensus, recommendations range from 51% to 80% agreement for the items on the survey (Green, Jones, Hughes, & Williams, 2002; Sumsion, 1998). Data analysis involves management of both qualitative and quantitative information gathered from the survey. Qualitative data from the first round group similar items together in an attempt to create a universal description. Subsequent rounds involve quantitative data collected to ascertain collective opinion and are reported using descriptive and inferential statistics.

In preparation for the Delphi survey of EBP mentors across the United States, the study was submitted to the first author’s institutional review board and was deemed exempt status. Prior to the survey being disseminated electronically to the EBP mentors for review, the study team determined the parameters of consensus. The EBP mentors were asked to rate each competency for: (a) clarity of the written quality of the competency and (b) how essential the competency was for practicing nurses and APNs. The criterion for agreement set was that 70% of the EBP mentor respondents would rate the EBP competency (e.g., “Questions clinical practices for the purpose of improving the quality of care”; “Searches for external evidence to answer focused clinical questions”) between 4.5 and 5 on a five-point Likert scale that ranged from 1 *not at all* to 5 *very much so*. The study team also decided that competencies which EBP mentors identified as not clearly written would be reworded taking in consideration their feedback and resent to the participants in a second round of the Delphi survey. The essential EBP competencies were sent via e-mail to the EBP mentors for review, rating, and feedback in July 2012.

Each EBP mentor participant was contacted through an e-mail and invited to participate in the anonymous Delphi survey. An introduction to the study and its parameters was included in the introductory e-mail along with the planned timeline for the study. The survey consisted of three sections: (a) demographic data, (b) rating of essential EBP competencies for practicing registered nurses, and (c) rating of essential EBP

Table 2. Participant Characteristics ($N = 80$)

	Mean	Median	Max	Min
Age	52	54	70	25
Years in active clinical practice	26	29	43	1
Years as an advanced practice nurse	9	5	40	0
Number of years as an EBP mentor	3	3	15	0

competencies for practicing APNs. The survey was open for 2 weeks from the first contact date. A reminder e-mail was sent 1 week following the first contact and a second reminder was issued a day before the survey closed. Consent was obtained by virtue of the participant completing the survey.

The EBP mentors were asked to respond to two questions about each of the EBP competencies on the survey using a five-point Likert scale with 1 = *Not at all*, 2 = *A little*, 3 = *Somewhat*, 4 = *Moderately so*, and 5 = *Very much so*. The first question was related to how essential the competency was for nurses and APNs and was stated as “To what extent do you believe the above EBP competency is essential for practicing registered professional nurses.” The second question was focused on the clarity of the competency and was stated as, “Is the competency statement clearly written?” If participants answered “no” in response to whether the statement was clearly written, they were asked how they would rewrite it. Only the EBP mentors who identified themselves as APNs were permitted to rate the APN competencies.

FINDINGS

Of the 315 EBP mentors originally contacted to participate in the survey, 80 responded indicating a 25% response rate. Demographic data collected reflected that all 80 participants were female with a mean age of 52 years and an average of 26 years in clinical practice. Fifty of the 80 respondents were self-reported as APNs and the average number of years as an EBP mentor was reported as 3 (see Table 2). The majority of the participants had a Master’s or higher educational degree and was currently serving in an EBP mentor role. The participants reported holding both clinical positions and academic positions (see Table 3). There was a relatively even distribution of participants who worked in Magnet ($n = 36$; 45%) and non-Magnet institutions ($n = 44$; 55%). The sample represented a variety of primary work settings (see Table 4).

In the competency rating section of round 1 of the survey, all of the practicing registered nurse and APN competencies achieved consensus as an essential competency, based on the preset criteria. However, in the clarity portion of the rating section, there was feedback provided by participants regarding refining the wording of four of the competencies. Each of these

Table 3. Race, Ethnicity, Education, and Role ($N = 80$)

	<i>n</i>	
Race	White	75
	Black or African American	2
	Native Hawaiian or other Pacific Islander	1
Ethnicity	Asian	2
	Not Hispanic or Latino	79
Education	Hispanic or Latino	1
	Bachelor’s	9
	Master’s	48
	PhD	18
	DNP	4
Current position	Other	1
	Staff nurse	5
	Nurse practitioner	2
	Clinical nurse specialist	12
	Clinical nurse leader	0
	Nurse educator	18
	Nurse manager/administrator	8
	Academic faculty	10
	Academic administration	3
	Other	22
Currently serving in an EBP mentor role	Yes	63
	No	17

four competencies was reworded and included in a second round of the Delphi study. None of the competencies were eliminated (see Tables 5 and 6).

Based on the feedback received from the participants in round 1 related to the clarity of the competencies, the following process was operationalized. In the single case where clarity feedback was related simply to consistency in terminology, the competency was reworded to incorporate the feedback and was included in round 2 for the reviewers to see that their feedback had been integrated. However, they were not asked to revote on the competency. In the cases where the clarity feedback was related to the action described (such as Formulates a PICOT question vs. Participates in formulating a PICOT question), the competencies were reworded and included in round

Table 4. Organization ($N = 80$)

		<i>n</i>
Type of primary work setting	Community hospital	21
	Academic medical center	33
	Academic institution	21
	Primary care practice	1
	Community health setting	0
	Other	4
Work in a Magnet designated institution	Yes	36
	No	44

Table 5. Round 1 Registered Nurse (RN) Competencies ($N = 80$)

	Consensus	Reword	Revote
Competency	Mean \pm SD	(Yes-No)	(Yes-No)
1	4.9 \pm 0.3	No	No
2	4.7 \pm 0.5	No	No
3	4.7 \pm 0.5	Yes	Yes
4	4.8 \pm 0.4	No	No
5	4.6 \pm 0.5	Yes	Yes
6	4.6 \pm 0.5	Yes*	Yes*
7	4.7 \pm 0.5	No	No
8	4.7 \pm 0.5	No	No
9	4.8 \pm 0.4	No	No
10	4.7 \pm 0.4	No	No
11	4.7 \pm 0.5	No	No
12	4.8 \pm 0.4	No	No

Note. *Competency 6 was split into two separate competency statements based on round 1 feedback.

2 for the reviewers to see that their feedback had been integrated and they were asked to revote on the whether the revised competency still rated as an essential EBP competency. Only registered nurse competencies received feedback that required revoting. All of the APNs competencies reached consensus with only minor clarifications in terminology needed.

Table 6. Round 1 APN Competencies ($N = 50$)

	Consensus	Reword	Revote
Competency	Mean \pm SD	(Yes-No)	(Yes-No)
1	4.8 \pm 0.4	No	No
2	4.9 \pm 0.3	No	No
3	4.9 \pm 0.3	No	No
4	4.9 \pm 0.3	No	No
5	4.9 \pm 0.2	No	No
6	5.0 \pm 0.2	No	No
7	4.9 \pm 0.3	No	No
8	4.9 \pm 0.3	No	No
9	4.9 \pm 0.3	No	No
10	4.9 \pm 0.2	No	No
11	5.0 \pm 0.2	No	No

Three registered nurse competencies required rewriting and revoting. Two competencies (#3, #5) required rewording and one competency (#6) required splitting into two separate competencies. Competency 3, *formulates focused clinical questions in PICOT (i.e., Patient population; Intervention or area of interest; Comparison intervention or group; Outcome; Time)*, was revised to be: participates in the formulation of clinical questions using PICOT* format (*PICOT = Patient population; Intervention or area of interest; Comparison intervention or group; Outcome; Time). Competency 5, *conducts rapid critical appraisal of preappraised evidence and clinical practice guidelines to determine their applicability to clinical practice*, was revised to be: participates in critical appraisal of preappraised evidence (such as clinical practice guidelines, evidence-based policies and procedures, and evidence syntheses).

The EBP mentor responses and feedback resulted in the number of competency statements being increased when competency 6 was split into two separate competency statements. The additional competency statement was generated based on feedback related to the clarity of the competency, which reflected that more than one idea or action was expressed in the single competency statement. Competency 6, *participates in critical appraisal (i.e., rapid critical appraisal, evaluation, and synthesis of published research studies) to determine the strength and worth of evidence as well as its applicability to clinical practice*, was reworded as new competency 6, *participates in the critical appraisal of published research studies to determine their strength and applicability to clinical practice*, and new competency 7, *participates in the evaluation and synthesis of a body of evidence gathered to determine its strength and applicability to clinical practice*.

Table 7. EBP Competencies

Evidence-based practice competencies for practicing registered professional nurses	
1. Questions clinical practices for the purpose of improving the quality of care.	
2. Describes clinical problems using internal evidence.* (internal evidence* = evidence generated internally within a clinical setting, such as patient assessment data, outcomes management, and quality improvement data)	
3. Participates in the formulation of clinical questions using PICOT* format. (*PICOT = Patient population; Intervention or area of interest; Comparison intervention or group; Outcome; Time).	
4. Searches for external evidence* to answer focused clinical questions. (external evidence* = evidence generated from research)	
5. Participates in critical appraisal of preappraised evidence (such as clinical practice guidelines, evidence-based policies and procedures, and evidence syntheses).	
6. Participates in the critical appraisal of published research studies to determine their strength and applicability to clinical practice.	
7. Participates in the evaluation and synthesis of a body of evidence gathered to determine its strength and applicability to clinical practice.	
8. Collects practice data (e.g., individual patient data, quality improvement data) systematically as internal evidence for clinical decision making in the care of individuals, groups, and populations.	
9. Integrates evidence gathered from external and internal sources in order to plan evidence-based practice changes.	
10. Implements practice changes based on evidence and clinical expertise and patient preferences to improve care processes and patient outcomes.	
11. Evaluates outcomes of evidence-based decisions and practice changes for individuals, groups, and populations to determine best practices.	
12. Disseminates best practices supported by evidence to improve quality of care and patient outcomes.	
13. Participates in strategies to sustain an evidence-based practice culture.	
Evidence-based practice competencies for practicing advanced practice nurses	
All competencies of practicing registered professional nurses plus:	
14. Systematically conducts an exhaustive search for external evidence* to answer clinical questions. (external evidence*: evidence generated from research)	
15. Critically appraises relevant preappraised evidence (i.e., clinical guidelines, summaries, synopses, syntheses of relevant external evidence) and primary studies, including evaluation and synthesis.	
16. Integrates a body of external evidence from nursing and related fields with internal evidence* in making decisions about patient care. (internal evidence* = evidence generated internally within a clinical setting, such as patient assessment data, outcomes management, and quality improvement data)	
17. Leads transdisciplinary teams in applying synthesized evidence to initiate clinical decisions and practice changes to improve the health of individuals, groups, and populations.	
18. Generates internal evidence through outcomes management and EBP implementation projects for the purpose of integrating best practices.	
19. Measures processes and outcomes of evidence-based clinical decisions.	
20. Formulates evidence-based policies and procedures.	
21. Participates in the generation of external evidence with other healthcare professionals.	
22. Mentors others in evidence-based decision making and the EBP process.	
23. Implements strategies to sustain an EBP culture.	
24. Communicates best evidence to individuals, groups, colleagues, and policy makers.	
<i>Copyright: Melnyk, Gallagher-Ford, and Fineout-Overholt (2013).</i>	

Table 8. Round 2 Registered Nurse (RN) Competencies ($N = 59$)

Competency	Consensus Mean \pm SD	Consensus Met (Yes-No)
3	4.6 \pm 0.5	Yes
5	4.6 \pm 0.5	Yes
6	4.6 \pm 0.5	Yes
7	4.5 \pm 0.5	Yes

This process rendered a revised set of EBP competencies that included 13 competencies for registered nurses and an additional 11 EBP competencies (for a total of 24) for APNs (see Table 7).

In October 2012, the second round of the Delphi study was conducted. The revised set of EBP competencies was e-mailed to the EBP mentors who responded in the first round of the study in October 2012. The round 2 survey provided feedback to the EBP mentors about the process that had been conducted by the study team to render the revised competencies and asked them to rate the three revised and the two new (split) EBP competency statements using the same five-point Likert ranking scale used in round 1. Fifty-nine of the 80 original EBP mentors responded to the second round of the study (74%) by the response deadline. In round 2 of the study, each of the 13 registered nurse competencies achieved consensus (based on the preset criteria) as an essential EBP competency (see Table 8). Throughout the process, none of the EBP mentors articulated additional competencies, indicating a high level of consensus about the completeness of the list of EBP competencies identified in the study. The final list of consensus-built EBP competencies is included in Table 7.

DISCUSSION

Competencies are a mechanism that supports health professionals in providing high-quality, safe care (Dunn et al., 2000). The issue of nursing competence in implementing EBP is important for individual nurses, APNs, nurse educators, nurse executives, and healthcare organizations. Regardless of the system, the culture and context or environment in which nurses practice impact the success of engagement in and sustainability of EBP. Therefore, it is imperative for nurse executives and leaders to invest in creating a culture and environment to support EBP (Melnyk, Fineout-Overholt, et al., 2012). One action toward investment in a culture of EBP is to provide a mechanism for clarity in expectations for evidence-based care. Development of evidence-based competencies provides a key mechanism for engagement in EBP and the delivery of high-quality health care. Through a Delphi survey process, EBP competencies were developed by EBP experts working in a variety of

settings, for registered professional nurses and APNs practicing in real-world healthcare settings. These EBP competencies can be used by healthcare systems to succinctly establish expectations regarding level of performance related to EBP by registered professional nurses and APNs.

Multiple strategies can be used to incorporate competencies into healthcare systems to improve healthcare quality, reliability, and patient outcomes as well as reduce variations in care and costs. These strategies range from implementation of competencies developed by the AACN, NLN, QSEN, and the Institute of Medicine (IOM) from an organizational perspective



LINKING EVIDENCE TO ACTION

- **Practice:** Incorporation of EBP competencies into healthcare system expectations and operations can drive higher quality, reliability, and consistency of healthcare as well as reduce costs. Support systems in healthcare institutions, including educational and skills building programs along with availability of EBP mentors, should be provided to assist practicing nurses and APNs in achieving the EBP competencies.
- **Research** is needed to develop valid and reliable instruments for assessing these competencies. Although the Fresno tool has been developed as a valid and reliable tool for assessing EBP competence in medicine (Ramos, Schafer, & Tracz, 2003), it has not been tested with nursing or allied health professionals. Future research should also determine the relationship between implementation of these EBP competencies with both clinician and patient outcomes.
- **Policy:** Organizations that set standards for practice should embrace and endorse the EBP competencies as a tool to build and sustain acquisition of EBP knowledge, development of EBP skills, and incorporation of a positive attitude toward EBP to promote best practices.
- **Management:** Nursing leaders should integrate EBP competencies into multiple processes that impact nurses across their clinical lifespan including: interview questions, onboarding/orientation, job descriptions, performance appraisals, and clinical ladder promotion programs.
- **Education:** EBP competencies should be integrated into both academic and clinical education programs to establish and continuously reinforce EBP as the foundation of practice.

Table 9. Strategies for Integration of the EBP Competencies

Category	Organizational Strategies	Individual Strategies
Promote a culture and context or environment that supports EBP	<ul style="list-style-type: none"> Assess the organization's and employee's readiness for implementation of EBP competencies prior to implementation to promote development of an effective strategic plan for their integration. 	<ul style="list-style-type: none"> Be an evidence-based clinician by integrating EBP competencies into daily practice to deliver the best care possible to patients and families.
	<ul style="list-style-type: none"> Include EBP competency language in the mission and vision statements for nursing as well as shared governance council charters. 	<ul style="list-style-type: none"> Be a role model for others by making decisions based on evidence every day.
	<ul style="list-style-type: none"> Provide systems and resources that support the integration and use of EBP competencies, such as a critical mass of EBP mentors, access to library services including a dedicated librarian, and availability of a PhD prepared nurse scientist. 	
	<ul style="list-style-type: none"> Include EBP competencies in role expectations of nurse leaders to support the implementation of EBP in all aspects of care. 	
	<ul style="list-style-type: none"> Provide educational and skills building programs to support clinicians' attainment of the EBP competencies. 	
	<ul style="list-style-type: none"> Support the development of EBP mentors, who meet/exceed the EBP competencies to support practicing nurses and APNs in EBP projects. 	
Establish EBP performance expectations for all nurse leaders and clinicians:	<ul style="list-style-type: none"> Include EBP-competency-related questions in interview processes 	<ul style="list-style-type: none"> Expect evidence-based decision making from others to promote a work environment where the best care is possible.
	<ul style="list-style-type: none"> Design onboarding/orientation programs that specifically align with EBP competencies 	
	<ul style="list-style-type: none"> Rewrite job descriptions to include the EBP competencies 	
Sustain EBP activities and culture	<ul style="list-style-type: none"> Include EBP competencies in performance appraisals and clinical ladder programs 	<ul style="list-style-type: none"> Become an EBP mentor and help others to develop and integrate the EBP competencies into their daily practice.
	<ul style="list-style-type: none"> Imbed EBP competencies in practice policy and guideline development processes 	

to actions and decisions made by point of care nurses (AACN, 2013; NLN, 2013; IOM, 2003). In addition, strategies can be developed to integrate the scientifically derived, specific EBP competencies developed in this study. EBP competencies can be used as tools to guide the development of individuals and organizations. Strategies for integration of the competencies require both organizational and individual actions (see Table 9).

LIMITATIONS

The main limitation of this study is that it used a convenience sample of nurses who attended an EBP immersion workshop at the first author's institution, which may have biased the research findings. In addition, some of the respondents were not currently in an EBP mentorship role in practice settings. Despite these limitations, the use of an expert EBP leadership panel to first draft the competencies along with a Delphi

survey technique with individuals who had EBP mentorship experience in real-world practice settings were strengths in the development of this set of contemporary EBP competencies for practicing and APNs.

SUMMARY

A national consensus process and Delphi study was conducted to establish contemporary EBP competencies for practicing registered nurses and APNs. Incorporation of these EBP competencies into healthcare systems should lead to higher quality of care, greater reliability, improved patient outcomes, and reduced costs.

ACKNOWLEDGMENTS

The authors would like to thank the following national expert panel who participated in the first phase of achieving consensus in the development of these EBP competencies: Dr. Karen Balakas, Dr. Ellen Fineout-Overholt, Dr. Anna Gawlinski, Dr. Marilyn Hockenberry, Dr. Rona F. Levin, Dr. Bernadette Mazurek Melnyk, and Dr. Teri Wurmser. **WVN**

Author information

Bernadette Mazurek Melnyk, Associate Vice President for Health Promotion, University Chief Wellness Officer, Dean and Professor, College of Nursing, Professor of Pediatrics and Psychiatry, College of Medicine, The Ohio State University, Columbus, OH; Lynn Gallagher-Ford, Clinical Associate Professor and Director, Center for Transdisciplinary Evidence-based Practice, College of Nursing, The Ohio State University, Columbus, OH; Lisa English Long, Expert Evidence-based Practice Mentor, Clinical Instructor, College of Nursing, The Ohio State University, Columbus, OH; Ellen Fineout-Overholt, Dean and Professor, Groner School of Professional Studies, Chair, Department of Nursing, East Texas Baptist University, Marshall, TX.

Address correspondence to Dr. Bernadette Mazurek Melnyk, College of Nursing, The Ohio State University, 1585 Neil Avenue, Columbus, OH 43210, USA; Melnyk.15@osu.edu

Accepted 28 October 2013

Copyright © 2014, Sigma Theta Tau International

References

- American Association of Critical-Care Nurses (AACN). (2013). Nurse Competencies of Concern to Patients, Clinical Units and Systems. Retrieved from <http://www.aacn.org/wd/certifications/content/synpract2.pcms?menu>
- Burns, B. (2009). Continuing competency: What's ahead? *Journal of Perinatal Neonatal Nurse*, 23(3), 218–227.
- Dogherty, E. J., Harrison, M. B., Graham, I. D., Vandyk, A. D., & Keeping-Burke, L. (2013). Turning knowledge into action at the point-of-care: The collective experience of nurses facilitating the implementation of evidence-based practice. *Worldviews on Evidence-Based Nursing*, 10(3), 129–139.
- Dunn, S. V., Lawson, D., Robertson, S., Underwood, M., Clark, R., Valentine, T., & Herewane, D. (2000). The development of

competency standards for specialist critical care nurses. *Journal of Advanced Nursing*, 31(2), 339–346.

- Ely, J. W., Osheroff, J. A., Chambliss, M. L., Ebell, M. H., & Rosenbaum, M. E. (2005). Answering physicians' clinical questions: Obstacles and potential solutions. *Journal of American Medical Informatics Association*, 12(2), 217–224.
- Estabrooks, C. A., O'Leary, K. A., Ricker, K. L., & Humphrey, C. K. (2003). The Internet and access to evidence: How are nurses positioned? *Journal of Advance Nursing*, 42(1), 73–81.
- Estabrooks, C. A., Squires, J. E., Cummings, G. G., Birdsell, J. M., & Norton, P. G. (2009). Development and assessment of the Alberta Context Tool. *BMC Health Services Research*, 9(234), 1–12.
- Fink, R. Thompson, C., & Bonnes, D. (2005). Overcoming barriers and promoting the use of research in practice. *Journal of Nursing Administration*, 35(3), 121–129.
- Gerrish, K., & Clayton, J. (2004). Promoting evidence-based practice: An organizational approach. *Journal of Nursing Management*, 12(2), 114–123.
- Gonzi, A., Hager, P., & Athanasou, J. (1993). *The development of competency-based assessment strategies for the professions*. National Office of Overseas Skills Recognition Research Paper No. 8. Canberra, Australia: Australian Government Publishing Service.
- Green, B., Jones, M., Hughes, D., & Williams, A. (2002). Applying the Delphi technique in a study of GPs' information requirements. *Health & Social Care in the Community*, 7(3), 198–205.
- Hasson, F., Keeney, S., & McKenna, H. (2000). Research guidelines for the Delphi survey technique. *Journal of Advanced Nursing*, 32(4), 1008–1015.
- Institute of Medicine (IOM) (US), Committee on Assuring the Health of the Public in the 21st Century. (2003). *The future of the public's health in the 21st century*. Washington, DC: National Academies Press.
- Jennings, B. M., & Loan, L. A. (2001). Misconceptions among nurses about evidence-based practice. *Journal of Nursing Scholarship*, 33(2), 121–127.
- Kring, D. L. (2008). Clinical nurse specialist practice domains and evidence-based practice competencies: A matrix of influence. *Clinical Nurse Specialist*, 22(4), 179–183.
- McGinty, J., & Anderson, G. (2008). Predictors of physician compliance with American Heart Association guidelines for acute myocardial infarction. *Critical Care Nursing Quarterly*, 31(2), 161–172.
- Melnyk, B. M. (2007). The evidence-based practice mentor: A promising strategy for implementing and sustaining EBP in healthcare systems [editorial]. *Worldviews on Evidence-Based Nursing*, 4(3), 123–125.
- Melnyk, B. M., & Fineout-Overholt, E. (2011). *Evidence-based practice in nursing and healthcare. A guide to best practice*. Philadelphia, PA: Lippincott, Williams, & Wilkins.
- Melnyk, B. M., Fineout-Overholt, E., Feinstein, N., Li, H. S., Small, L., Wilcox, L., & Kraus, R. (2004). Nurses' perceived knowledge, beliefs, skills, and needs regarding evidence-based practice: Implications for accelerating the paradigm shift. *Worldviews on Evidence-Based Nursing*, 1(3), 185–193.
- Melnyk, B. M., Fineout-Overholt, E., Gallagher-Ford, L., & Kaplan, L. (2012). The state of evidence-based practice in US nurses:

- Critical implications for nurse leaders and educators. *Journal of Nursing Administration*, 42(9), 410–417.
- Melnik, B. M., Fineout-Overholt, E., & Mays, M. Z. (2008). The evidence-based practice beliefs and implementation scales: Psychometric properties of two new instruments. *Worldviews on Evidence-Based Nursing*, 5(4), 208–216.
- Melnik, B. M., & Gallagher-Ford, L. (2013). *Evidence-based practice competencies for registered practicing nurses and advanced practice nurses*. Columbus, OH: The Ohio State University College of Nursing Center for Transdisciplinary Evidence-Based Practice.
- Melnik, B. M., Grossman, D., Chou, R., Mabry-Hernandez, I., Nicholson, W., Dewitt, T., . . . US Preventive Services Task Force. (2012). USPSTF perspective on evidence-based preventive recommendations for children. *Pediatrics*, 130(2), e399–e407. DOI: 10.1542/peds.2011-2087
- National League for Nursing (NLN). (2013). Competencies for Nursing Education. Retrieved from: http://www.nln.org/facultyprograms/competencies/graduates_competencies.htm
- Newhouse, R. P., Dearholt, S., Poe, S., Pugh, L. C., & White, K. M. (2007). Organizational change strategies for evidence-based practice. *Journal of Nursing Administration*, 37(12), 552–557.
- Pravikoff, D. S., Pierce, S. T., & Tanner, A. (2005). Evidence-based practice readiness study supported by academy nursing informatics expert panel. *Nursing Outlook*, 53(1), 49–50.
- Quality and Safety Education for Nurses (QSEN). (2013). The Evolution of the Quality and Safety Education for Nurses (QSEN) Initiative. Retrieved from: <http://qsen.org/about-qsen/project-overview/>
- Ramos, K. D., Schafer, S., & Tracz, S. M. (2003). Validation of the Fresno test of competence in evidence-based medicine. *British Medical Journal*, 326, 319–321.
- Restas, A. (2000). Barriers to using research evidence in nursing practice. *Journal of Advanced Nursing*, 31(3), 599–606.
- Rycroft-Malone, J. (2004). The PARIHS framework—A framework for guiding the implementation of evidence-based practice. *Journal of Nursing Care Quality*, 19(4), 297–304.
- Rycroft-Malone, J., Harvey, G., Seers, K., Kitson, A., McCormack, B., & Titchen, A. (2004). An exploration of the factors that influence the implementation of evidence into practice. *Journal of Clinical Nursing*, 13(8), 913–924.
- Stevens, K. R. (2009). *Essential competencies for evidence-based practice in nursing* (2nd ed.). San Antonio, TX: Academic Center for Evidence-Based Practice, University of Texas Health Science Center at San Antonio.
- Sumsion, T. (1998). The Delphi technique: An adaptive research tool. *British Journal of Occupational Therapy*, 61(4), 153–156.
- Titler, M. G. (2009). Developing an evidence-based practice. In G. LoBiondo-Wood & J. Haber (Eds.), *Nursing research: Methods and critical appraisal for evidence-based practice* (7th ed., pp. 385–437). St Louis, MO: Mosby.
- Williams, P. L., & Webb, C. (1994). The Delphi technique: An adaptive research tool. *British Journal of Occupational Therapy*, 61(4), 153–156.

doi 10.1111/wvn.12021
WVN 2014;11:5–15