Implementation of an Educational “Boot Camp” to Increase Nurses’ Confidence, Knowledge and Use of Evidence-based Practice in a Veterans Affairs Medical Center

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Implementation of an Educational “Boot Camp” to Increase Nurses’ Confidence, Knowledge and Use of Evidence-based Practice in a Veterans Affairs Medical Center

Submitted in partial fulfillment of requirements for the Doctor of Nursing Practice at Eastern Kentucky University

By

Anita S. Dahl

Prospect, KY

2020
Abstract

Evidence-based practice (EBP) can be used to promote quality patient care, improve population health, decrease healthcare costs, improve work-life balance of health care professionals, increase job satisfaction, and decrease staff turnover. Barriers to implementing EBP include perceived lack of autonomy and authority to change patient care processes; and knowledge deficits related to EBP implementation. Limited access to research materials and inadequate leadership support also stifle implementation of EBP. The purpose of this project was to increase confidence, knowledge, and use of EBP by nurses through implementation of an intense, structured educational “Boot Camp”. A convenience sample of 27 nurses participated in an intense, five-day, face-to-face EBP Boot Camp, which included didactic, small group discussion and computer lab exercises. A pre- and post-test design was used. Paired t-tests were calculated to compare mean scores measuring nurses’ confidence and knowledge in the use of EBP. A statistically significant increase in confidence (p = .000) and knowledge (p = .001) in the use of EBP was noted with an eta squared statistic indicating a large effect size for both, 0.75 and 0.34, respectively. Findings suggest an intense, structured EBP educational offering will increase confidence and knowledge in the use of EBP.

Keywords: evidence-based practice, evidence-based training, evidence-based practice educational program, evidence-based practice implementation, Johns Hopkins Nursing Evidence-based Practice model ©
Implementation of an Educational “Boot Camp” to Increase Nurses’ Confidence, Knowledge and Use of Evidence-based Practice in a Veterans Affairs Medical Center

By

Anita S. Dahl
Recognitions

I would like to thank the countless number of people that have assisted me on my journey to complete my Doctor of Nursing Practice (DNP) degree. First of all, thank you to Dr. Jill Cornelison, DNP Project Chair and Dr. Nancy Owens, DNP Project Team member for their generous support, guidance, and leadership.

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Implementation of an Educational “Boot Camp” to Increase Nurses’ Confidence, Knowledge and Use of Evidence-based Practice in a Veterans Affairs Medical Center

**Background and Significance**

Evidence-based practice can be used to improve key patient care indicators, such as hospital readmission rates, hospital-acquired complications, and the patient experience; and prevent healthcare quality and patient safety incidents such as medication errors, falls, and missed care (Black, Balneaves, Garossino, Puyat, & Qian, 2015; Leger & Dunham-Taylor, 2018; Ramos-Morcillo, Fernández-Salazar, Ruzafa-Martínez, & Del-Pino-Casado, 2015; Saunders, Vehviläinen-Julkunen, & Stevens, 2016; Saunders & Vehviläinen-Julkunen, 2017). The Institute of Medicine (IOM) (2000), now known as the National Academy of Medicine, first drew attention to the impact of errors on the healthcare industry and quality with the publication of *To Err Is Human: Building a Safer Health System*. In a follow-up report, *Crossing the Quality Chasm: A New Health System for the 21st Century*, the IOM (2001) recommended an overhaul of education for all healthcare professions to improve quality of care and patient safety. The IOM (2003) then identified five core competencies that should be incorporated into the education of healthcare professionals in order to improve patient care. These competencies included: a) patient-centered care; b) interdisciplinary teams; c) evidence-based practice (EBP); d) quality improvement; and e) informatics. The IOM (2009) established a goal for 90% of all healthcare decisions to be based on EBP by 2020. This goal has not yet been achieved in many healthcare organizations (Melnyk, Gallagher-Ford, Long, & Fineout-Overholt, 2014; Melnyk et al., 2016).

As nurses engage in this transformation of healthcare, clinical decisions must be based on the best possible clinical evidence; however, nurses often rely on tradition, intuitive processes, past experience, opinion, or social interactions as rationale for patient care interventions.
(Duncombe, 2018; Fisher, Cusack, Cox, Feigenbaum, & Wallen, 2016). The literature identifies several barriers to the use of EBP (Alqahtani, Oh, Kitsantas & Rodan, 2019; Duncombe, 2018; Melnyk et al., 2018a; Moore, 2017; Ramos-Morcillo et al., 2015; Spiva, Hart, Patrick, Waggoner, Jackson & Thrett, 2017; Saunders et al., 2016). Nurses often feel pressured to do things the way they have always been done or feel they lack the autonomy to make practice changes. Nurses may also lack sufficient knowledge or skills related to EBP. Organizational barriers to EBP can also be found, including inadequate support from leadership and limited research materials.

Barriers to implementation can be easily overcome through EBP education, supportive leadership, and the use of EBP mentors to guide better understanding and the use of evidence-based practices (Allen, Lubejko, Thompson, & Turner, 2015; Cornelison, 2019; Duncombe, 2018; Fisher et al., 2016; Melnyk, 2012; Royer, Crary, Fayram, & Heidrich, 2018; Saunders et al., 2016; Storey et al., 2019). Creating an EBP environment requires identifying the best possible means to spread the use of EBP across all areas of the organization (Moore, 2017; Stetler, Ritchie, Rycroft-Malone, & Charns, 2014; Storey et al., 2019). Without a robust process to support the spread and sustained use of EBP, an organization could fail at institutionalizing EBP.

One evidence-based solution that has been shown to increase staffs’ knowledge, beliefs, skills and use of EBP is a structured EBP educational program (Black et al., 2015; Cornelison, 2019; Friesen, Brady, Milligan, & Christensen, 2017; Moore, 2017; Ramos-Morcillo et al., 2015; Saunders et al., 2016; Spiva et al., 2017; Storey et al., 2019). The goal of this doctoral project was to increase the confidence, knowledge, and use of EBP by staff nurses in an acute care setting through the implementation of an intense, structured educational intervention.
Theoretical Framework

Kouzes and Posner (1987; 2017) developed the Five Practices of Exemplary Leadership® model, which identifies those practices shared by exemplary leaders. These practices are: Model the Way, Inspire a Shared Vision, Challenge the Process, Enable Others to Act, and Encourage the Heart. Nursing leaders can use these practices to decrease the barriers to EBP implementation and make a positive impact on increasing the confidence and knowledge levels in EBP and the use of EBP. The educational program project team was made up of an educator, a manager and trained nursing staff. The team used these leadership practices to model the steps of EBP and help others see the shared vision of the organization, engaged them in it and helped them understand how they fit into that vision. The team encouraged front-line staff to take risks and challenge the status quo of traditional practice. They created a climate of trust and facilitated relationships to enable others to improve practice by implementing the best clinical evidence. Last, the team encouraged the heart of the participants by celebrating accomplishments and showing appreciation for those contributing to the organization’s success in implementing EBP care decisions.

Review of Literature

A systematic review of literature was done by searching four databases: Cumulative Index to Nursing and Allied Health Literature (CINAHL) Complete, PubMed, Nursing and Allied Health Database, and Google Scholar. Key search terms used included “evidence-based practice implementation”; "evidence-based practice" AND "training program"; evidence-based practice in nursing” AND “training program”; and “evidence-based practice” AND “training” OR “education” OR “development” OR “learning”. Other key search terms include “barriers” OR “facilitators” AND “evidence-based practice”. A total of 145 peer reviewed articles were
found. Topics included the history of EBP, types of EBP models, EBP quality improvement projects, validity and reliability of EBP tools, barriers and facilitators to the use of EBP, interventions to increase the use of EBP, the impact of mentors on the use of EBP, and nursing leaders’ perception of EBP. Eight studies were found that addressed the effect of an EBP educational training program on the implementation and use of EBP by nursing staff (Black et al., 2015; Breckenridge-Sproat et al., 2015; Cornelison, 2019; Friesen et al., 2017; Moore, 2017; Ramos-Morcillo et al., 2015; Saunders et al., 2016; Spiva et al., 2017).

Black et al. (2015) studied the effect of a research training program on clinicians’ knowledge, attitudes, and practices related to research and EBP in a Canadian, urban, tertiary healthcare facility. The authors used a pre- and post-intervention design without randomization (n =136). Participants were members of research teams which attended three workshops discussing research methods, research ethics, and literature review techniques. The Knowledge, Attitudes, and Practice (KAP) survey was administered to assess 33 research activities that a healthcare professional might perform. The KAP survey measures three dimensions: a) level of knowledge; b) willingness to engage (attitudes); and c) ability to perform (practices) specific research and knowledge translation activities. Using a 3-point rating scale, ranging from one to three, the study participants rated themselves indicating their knowledge level, willingness to engage, and the ability to perform each of the 33 research activities. Higher scores indicate higher knowledge, willingness, or ability to perform. Measurements were taken using a baseline survey completed at the time of program enrollment. Two follow-up surveys were completed, at three months and following completion of the research project. There was an 88.9% response rate with the majority of participants being female (87%) between the age of 25 and 44 (80%), working in acute care (85%). Two out of the three dimensions showed significant improvement
following the implementation of the research training program. A significant improvement was noted in the knowledge dimension between surveys one and two (P < .0001) with further improvement noted between surveys two and three. The ability dimension also showed significant improvement between survey two and three (P = .001) while willingness showed no significant improvement.

Breckenridge-Sproat et al. (2015) used a quasi-experimental, pretest-posttest design to test the effectiveness of an EBP educational and mentoring program to promote and sustain an EBP culture in military hospitals. Participants volunteered and attended a 2-day EBP educational workshop. The Organizational Readiness for System-wide Integration of Evidence-Based Practice (ORSIEP), a 25-item survey, was used to measure organizational readiness and barriers to integration of EBP, using a 5-point Likert scale, ranging from 1 (“not at all”) to 5 (“very much”). The EBP Beliefs (EBPB) survey (Cronbach’s α = .90) is made up of 16 items, with a 5-point Likert scale, ranging from 1 (“strongly disagree”) to 5 (“strongly agree”), which measures EBP belief and confidence statements. The EBP Implementation (EBPI) scale (Cronbach’s α = .90) calculates the level of EBP implementation using 18 statements measuring the frequency of EBP activities. The questionnaires were distributed to all nurse in three separate military hospitals that were reorganized into a joint medical center system. The pre-intervention response rate was 38%. The process was repeated 18 months following the intervention with a response rate of 31%. A t-test was performed on the organizational sample and was found to be significant (p - >.01). A paired t-test used to compare the differences between pre- and post-intervention scores (n = 56) for an individual subsample showed significant improvement (p ≤ .05) in the ORSIEP and EBPB scores.
Cornelison (2013, 2019) also combined EBP education and mentoring in a quasi-experimental project using a pretest-posttest design. Four 8-hour classroom sessions were provided followed by on-site mentoring. A convenience sample (n = 17) of registered nurses was obtained from all patient care areas of a rural, community hospital. The Organizational Culture and Readiness for EBP Survey (OQRS), a 25-item, 5-point Likert-type scale survey with scores ranging more 1 (‘‘not at all’’) to 5 (‘‘very much’’), was used to measure the perception of an organization’s readiness for EBP implementation. The EBP Beliefs (EBPB) survey (Cronbach’s α = ≥ 0.86), a 16-item survey, with a 5-point Likert scale ranging from 1 (‘‘strongly disagree’’) to 5 (‘‘strongly agree’’), was used to measure an individual’s beliefs about the value of EBP and ability to implement it. The EBP Implementation (EBPI) scale (Cronbach’s α = ≥ 0.97) measured the frequency of EBP activities using a 0 (“0 times over the past eight weeks”) to 4 (“> 8 times over the past eight weeks”) Likert-type scale. The results showed that the perceived overall institutional EBP readiness measured in the “somewhat ready” range (M = 2.94, SD = ± 1.03). Paired t-tests compared the pre- and post-intervention mean scores for EBP beliefs and EBP implementation. There was a significant increase in EBP beliefs scores (p < .01); however, EBP implementation was not statistically significant.

Friesen et al. (2017) completed a quasi-experimental evaluation of the effectiveness of a structured EBP education pilot project with a mentoring program for nurses in a multihospital healthcare system. A convenience sample (n = 169) was selected from one medical–surgical or intermediate care unit nursing unit for each of the five hospitals in that system. The Evidence-Based Practice Implementation (EBPI) and Evidence-Based Practice Beliefs (EBPB) scales were used to evaluate beliefs about the value of EBP, its implementation, and use of EBP behaviors following a classroom-based EBP education with a mentoring program and exemplar model.
The EBPP scale is a 16–item survey which uses a 5-point Likert scale (Cronbach’s α = .90) while the EBPI scale includes an 18–item, 5-point frequency scale (Cronbach’s α = .96) which assesses the frequency of the performance of an EBP activity by a nurse in the past eight–week period. The frequency scores ranged from 0 (0 times) to 4 (greater than 8 times) with the higher scores indicating a higher frequency of the EBP activity. Pre- and post-mean scores were compared using a one-sample t-test. There was no statistical significance (p > .1) found in EBP beliefs; however, EBP implementation was statistically significant (t = 1.75, df = 56, p < .05, one-tailed). Improvement was noted in 16 out of 18 EBPI statements. This pilot project was found to be useful in assessing the feasibility of an education and mentoring program and the effectiveness of implementing EBP projects.

Moore (2017) evaluated the effectiveness of an online EBP educational intervention on nurses’ practice, attitudes, and knowledge and skills of EBP using an experimental, pretest-posttest design study. The study compared three groups. The experimental group (n = 17) completed a computer-based educational module made up of a self-paced PowerPoint presentation on EBP. A control group (n = 24) was assigned to an online, educational module on pain management while a second control group (n = 36) received no educational intervention. A 24-item EBP Questionnaire (EBPQ), made up of a 7-point Likert scale (1-7) where higher scores indicating more use of EBP, a more positive attitude toward EBP, and more knowledge and skills in EBP was used (Cronbach’s α = 0.93). The investigator also examined the relationship between educational preparation and years of nursing experience on nurses’ practice, attitudes, and knowledge and skills of EBP. No significant difference was found from pre- to post-test across the three groups. There were also no significance differences in pre- to post-test scores relative to educational level or years of nursing experience. This study supports the need
for more research in the area of methods to increase knowledge and skills in the use of EBP. It also suggests that an educational intervention composed of various educational methods may be more effective in teaching EBP knowledge and skills than a single, on-line educational intervention.

Ramos-Morcillo, Fernández-Salazar, Ruzafa-Martínez, and Del-Pino-Casado (2015), using a quasi-experimental, pretest-posttest design with a comparison group, evaluated the effectiveness of an educational intervention composed of a basic online course with face-to-face learning to promote EBP attitudes, knowledge and skills, and practice in nursing professionals. The interventional group \((n = 54)\) attended an EBP course while the comparison group \((n = 55)\) attended a course on digital resources and information technology for clinical practice. A 19-item EBP Questionnaire (EBPQ), made up of a 7-point Likert scale (1-7) where a higher score indicating a more positive attitude toward EBP, greater implementation or knowledge and skills of EBP, was used. Differences were measured in the three dimensions: attitudes (Cronbach’s \(\alpha > .71\)), knowledge and skills (Cronbach’s \(\alpha > .95\)), and practice (Cronbach’s \(\alpha > .92\)). Mean scores for the three dimensions were compared at three different intervals: before the course began (time O1, after 21 days (time O2) and after 60 days (time O3). The investigators found no significant difference in any study dimension at baseline; however, a significant difference was found in the knowledge and skills dimensions after 21 days (\(p = .002\)) and after 60 days (\(p = .005\)). These results demonstrated a basic, online and face-to-face EBP course can be effective in making improvements in EBP knowledge and skills.

A single-blind randomized control trial (RCT) with a parallel-group, repeated measures design was performed by Saunders, Vehviläinen-Julkunen, and Stevens (2016) to determine the effectiveness of an Advanced Practice Nurse (APN) -delivered education program on
strengthening nurses’ readiness for EBP at a university hospital. The Evidence-Based Readiness Inventory (ERI) was used to measure nurses’ confidence in employing EBP and actual EBP knowledge level. This instrument contains two sections. Section 1 uses a 6-point Likert scale ranging from one (very little) to six (a great deal) to assess the participants’ confidence in performing EBP competencies while actual EBP knowledge was measured in Section 2, a multiple-choice 15-item EBP Knowledge Test. Study participants were randomly assigned into intervention \((n = 43)\) and control \((n = 34)\) groups. The intervention group participated in a 4-hour live didactic session on EBP basics followed by APN-delivered EBP mentoring and a second 4-hour interactive EBP learning module with clinical case situations to apply EBP into practice and an interactive question and answer session. The control group underwent a 4-hour live research utilization education session. A statistically significant effect was found on nurses’ confidence in employing EBP \((p = 0.008)\) and nurses education level \((p = 0.025)\), and covariate of nurse’ age \((p = 0.036)\). The nurses’ confidence in employing EBP increased from before the education program and when measured within one week after the education program in both groups. Confidence in employing EBP decreased as age increased in the intervention group.

There were no statistically significant differences between the registered nurse (RN) participants in intervention and control groups in terms of their confidence in employing EBP. A statistically significant effect on nurses’ actual EBP knowledge level was found in the factors of time \((p = 0.000)\), self-assessed EBP knowledge level \((p = 0.049)\), and EBP experience level \((p = 0.008)\). This study supports that an educational intervention does improve EBP readiness, knowledge, and skill.

Spiva et al., (2017) investigated the effectiveness of: a) a mentor training program on mentors’ perceptions of knowledge, attitude, skill and confidence levels, and organizational
readiness for EBP and research utilization; and b) creating a formalized structure to enculturate EBP in order to prepare nurses to incorporate EBP into clinical practice on nurses’ perceptions of knowledge, attitude, skill levels, barriers, nursing leadership, and organizational support related to EBP and research utilization. The researchers used a two-group pretest–posttest quasi-experimental, interventional design to measure these variables. A convenience sample of mentors (n = 66) and registered nurses (n = 367) was obtained from a recruitment pool of all nurses (N = 1916) employed at a five-hospital, non-profit, integrated healthcare system in the Southeastern United States. This study used five tools to measure these variables. The Evidence-Based Nursing Practice Questionnaire (EBNPQ) used a 5-point Likert scale to measure both mentor and staff nurses’ knowledge of EBP and research utilization and the perceptions of organizational support (Cronbach’s α = .87). The Confidence Scale is a 5-item tool which measured mentor and staff nurses’ perceived confidence in the knowledge and ability to implement EBP (Cronbach’s α = .96). Nurses’ perception of support by the organization was measured by the EBP Work Environment Scale (Cronbach’s α = .88), which is comprised of 8-items on a 5-point Likert scale while nurses’ perception of nurse manager support of EBP was measured by the 10-item EBP Nurse Leadership Scale (Cronbach’s α = .96) which also uses a 5-point Likert scale. Significant improvement was noted in the mentors’ group (n = 66) for perceptions of knowledge (t = −5.65, p < .001), attitude (t = −6.50, p < .001), skill (t = −6.73, p < .001), confidence (t = −6.36, p < .001) levels, and organizational readiness related to EBP and research utilization (t = −8.25, p < .001). Post-intervention, the clinical nurses’ (n = 397) knowledge (t = −14.52, p < .001), attitude (t = −18.83, p < .001), skill (t = −13.37, p < .001) levels, and nursing leadership (t = −16.50, p < .001) and organizational support of EBP (t = −20.18, p < .001) also improved. The Barriers to Research Utilization Scale, a 29-item scale
rated on a 5-point Likert scale, was also used to measure nurses’ perceptions of research utilization barriers (Cronbach’s α = .96). Barriers to research utilization scores improved post-training (t = 20.86, p < .001). These findings support the value of a structured nurse mentoring EBP educational program.

**Synthesis of Literature**

Of the eight articles evaluated, the level of evidence was found to be Level II and Level III (Melnyk & Fineout-Overholt, 2019). There were two RCT (Moore, 2017; Saunders et al., 2016), two controlled trials without randomization (Black et al., 2015; Friesen et al., 2017), and four studies were quasi-experimental, non-randomized studies (Breckenridge-Sproat et al., 2015; Cornelison, 2019; Ramos-Morcillo et al., 2015; Spiva et al., 2017).

The setting in these studies had no impact on the results and varied from a single hospital (Black et al., 2015; Cornelison, 2019; Moore, 2017) to a multihospital healthcare system (Breckenridge-Sproat et al., 2015; Friesen et al., 2017; Saunders et al., 2016; Spiva et al., 2017), as well as a group enrolled in free continuing educational offerings (Ramos-Morcillo, et al., 2015). Study participants were nurses in various roles across the organization including staff nurses, educators, and managers. The educational modalities identified in the literature ranged from four 30-minute online modules (Spiva et al., 2017), varying didactic trainings from 4-hours to actual workshops (Black et al., 2015; Cornelison, 2019; Friesen et al., 2017; Saunders et al., 2016; Spiva et al., 2017) as well as an online and face-to-face training combination (Ramos-Morcillo, et al., 2015) and a single, on-line training (Moore, 2017).

There are a variety of similarities and differences in these studies. A significant increase in EBP knowledge and skills was found in four studies (Black et al., 2015; Ramos-Morcillo et al., 2015; Saunders et al., 2016; Spiva et al., 2017). However, three of the four studies that
examined attitudes about EBP or willingness to use EBP found no significant increase (Black et al., 2015; Friesen et al., 2017; Ramos-Morcillo et al., 2015); while one study found a significant increase in nurses’ EBP beliefs but not in implementation (Cornelison 2019). Only one study examined barriers to research utilization and nurses’ perceptions of organizational and nurse manager support for EBP utilization (Spiva et al., 2017). One study found an increase in EBP beliefs and organizational readiness (Breckenridge-Sproat et al., 2015), while another found no significant increase in attitude, knowledge, and skills of EBP (Moore, 2017). Six studies used theoretical frameworks (Breckenridge-Sproat et al., 2015; Cornelison, 2019; Friesen et al., 2017; Moore, 2017; Ramos-Morcillo et al., 2015; Saunders et al., 2016); however, none were found using the Kouzes and Posner Five Practices of Exemplary Leadership.

Limitations of these studies included no formal assessment of actual knowledge level in two studies (Black et al., 2015; Moore, 2017); however, while one study did measure actual knowledge, it did not evaluate actual EBP implementation (Spiva et al., 2017). Two studies were limited only to the nursing discipline (Cornelison, 2019; Friesen et al., 2017), while one study included registered nurses and license practical nurses (Breckenridge-Sproat et al., 2015); whereas Black et al. (2015) did include other clinicians. Several studies were limited to only one facility (Black et al., 2015; Cornelison, 2019; Moore, 2017), while others were limited to single healthcare systems (Breckenridge-Sproat et al., 2015; Saunders et al., 2016). Convenience samples were used by five studies (Black et al., 2015; Cornelison, 2019; Friesen et al., 2017; Ramos-Morcillo et al., 2015; Spiva et al., 2017). Saunders et al. (2016) and Moore (2017) did conduct RCT; however, Saunders et al. (2016) did not use a traditional control group with no intervention. Ramos-Morcillo et al. (2015) cited that only short-term effects were measured,
while Spiva et al. (2017) identified a delay in the intervention implementation as a limitation which may have impacted the survey response rate.

**Application to Nursing Practice**

Evidence supports the use of an EBP educational program as an effective intervention for increasing the knowledge, beliefs, skills and use of EBP (Black et al., 2015; Cornelison, 2019; Duncombe, 2018; Friesen et al., 2017; Leger & Dunham-Taylor, 2018; Melnyk et al., 2010; Melnyk, 2012; Ramos-Morcillo et al., 2015; Saunders et al., 2016; Saunders & Vehviläinen-Julkunen, 2017). Strengthening an organization’s EBP program through an intense, structured educational program would allow the organization to implement evidence-based solutions. This in turn could improve healthcare quality, patient outcomes and safety, decrease healthcare costs, and improve staff turnover and job satisfaction.

**Agency Description**

**Setting**

This project was completed at an urban, federal healthcare system affiliated with numerous academic programs for physicians, nurses, pharmacists, physical therapists and social workers. The healthcare system is located in the Southeastern portion of the United States. The main campus is found near the Kentucky-Indiana border and includes eight community-based outpatient clinics located across Central Kentucky and Southern Indiana.

**Patient Population Served**

The organization has a 35-county catchment area and serves more than 47,000 military Veterans, which are predominantly male. The age of these Veteran patients ranges from 18 to 100, with a mean age of 65 years old. This patient population has a variety of comorbidities,
which includes coronary artery disease (CAD), chronic obstructive pulmonary disease (COPD), renal failure, heart failure and various cancers.

**Congruence of DNP Project to Organization’s Mission, Goals, and Strategic Plan**

This project was in congruence with the organization’s goal to enhance its organization-wide EBP program and provide EBP education, strengthening the organization’s EBP processes. It is important for the organization to provide the best possible care to its patients. The organization’s mission is to care for those who have “borne the battle” of war and for their families and survivors (Department of Veterans Affairs, 2017). The organization’s core values are made up of the I CARE acronym: Integrity, Commitment, Advocacy, Respect and Excellence. The goal of the Excellence value is to strive for the highest quality and continuous improvement. In an effort to increase quality through the use of EBP, in May 2018 nursing leaders completed an EBP organizational assessment. The results indicated the organization only met 30% of the necessary components for a strong EBP program and identified a gap in the EBP knowledge level of registered nurses. Specifically, it was identified that formal classes with information on EBP and EBP processes were only offered to new graduates or nurses with less than one year of nursing experience in a Transition to Practice Program (TTP). In October 2018, a subsequent site visit from the organization’s national EBP program office identified several opportunities for improvement that supported this data and recommended the identification of EBP Champions for each nursing area.

**Project Target Population**

The target population for this project was registered nurses employed at the organization. Numerous nursing roles are found within this organization including staff nurses, clinical educators, expanded role nurses, as well as nursing leaders. Seventy-five percent of the nursing
staff are in a staff nurse role. Forty-three percent of the nurses have worked at the organization for greater than 10 years and 50% hold a bachelor of science in nursing degree. Inclusion criteria for this project was full or part-time registered nurses, employed in any role in the organization, who voluntarily enrolled in the EBP Boot Camp or were identified by their supervisor to represent their work unit. Non-nursing personnel, nurses that are not enrolled in the EBP Boot Camp, and intermittent (as needed) nurses that work less than eight hours per pay period were excluded from this project.

**Stakeholders**

The key nursing stakeholders for this project were the nursing staff, clinical educators and Designated Learning Officer (DLO), chief nursing officers for each department (Chief Nurses), and Associate Director of Patient Care Services (Nurse Executive). Other key stakeholders that benefited from this project were the Medical Center Director, Veteran patients and their families, physicians and residents, and other members of the health care team such as social workers, respiratory and physical therapists, pharmacists, dieticians and chaplains.

**Project Design**

A pre- and post-test design was used to compare mean scores for confidence and knowledge in the use of EBP.

**Project Methods**

**Description of Evidence-based Intervention**

Boot camp is defined as an intense training program which compares to that of military training (Merriam-Webster, n.d.). The planned intervention for this project was an intense, five-day, face-to-face EBP Boot Camp, which included didactic, small group discussion and computer lab exercises. The EBP Boot Camp was offered on three separate occasions to provide
the opportunity for a larger number of staff to attend. Each day of the EBP Boot Camp was
scheduled for eight hours. Four days were held in a classroom setting at the organization’s main
campus. The remaining day was held in the organization’s computer lab, where each participant
had access to a computer.

**EBP Boot Camp Curriculum**

The EBP Boot Camp curriculum was developed by the project leader. The EBP Boot
Camp faculty included the project leader and five nurses that have completed a national EBP
mentor mini-residency program.

**Day one.** On the first day of the EBP Boot Camp, participants were given an overview
of the curriculum for the entire program. The curriculum for day one included the: a) overview
of EBP principles; b) differentiation between research and EBP; and c) overview of the Johns
Hopkins Nursing Evidence-based Practice (JHNEBP) model. Case studies were used to
differentiate between quality improvement, research, system redesign, and EBP. Knowledge
checks and small group discussion were used to reinforce the JHNEBP model concepts. A group
exercise was also used for EBP question development.

**Day two.** The participants received instruction and performed a computer literature
search. Return demonstration and observation of learners was used to strengthen participants’
computer skills. The features of EBP databases were described. Participants were asked to
create a search strategy for a clinical problem in their work area. Small group discussion was
used to share search results.

**Day three.** The hierarchy of evidence was outlined on day three. Participants were
instructed how to locate each level of evidence. Small group exercises, using evidence
evaluation and appraisal tools, were used to reinforce methods for appraising research and non-
research evidence.

**Day four.** Strategies and barriers for implementation of an EBP project were discussed. Techniques for translating EBP findings into practice were discussed in small groups and exercises were done to summarize the actions needed to implement an EBP project.

**Day five.** Content for day five was specific to the organization’s EBP program. The process to request EBP project approval and to obtain an EBP mentor was outlined. The participants were trained on the types of internal evidence available within the healthcare system and how to perform a search for healthcare quality, cost and satisfaction data that can be used to support changes in nursing practice. Strategies to sustain practice change and the role of the unit-based EBP Champion were also discussed.

**Implementation Framework**

The JHNEBP model © was selected as the framework for the organization’s EBP program and was used as the framework for this project (Appendix A) (Dang & Dearholt, 2017). Permission was obtained for the use of the JHNEBP tools, materials and curriculum by registering through the Johns Hopkins Medicine web site. The JHNEBP model © is made up of 19 steps that are classified into three phases: Practice question, Evidence, and Translation (PET). The JHNEBP PET process begins with the identification of a practice problem that can be formulated into a clinical question. The Practice question phase of the PET process was used to guide the curriculum in EBP Boot Camp day one. The Evidence phase relates to the search for, appraisal of, and synthesis of the best possible evidence which guided the curriculum for days two and three. Last, the Translation phase guided days four and five where the participants learned how to make recommendations for practice change in their work area, develop an action
plan to support implementation of that change, and incorporate their practice change into normal
operations to support sustainment.

**Measures and Instruments**

Permission was obtained to use the Evidence-Based Practice Readiness Inventory (ERI) Demographic Information (Clinicians) Questionnaire © and the basic ERI © for this project (Appendix B). Descriptive statistics were collected using the ERI Demographic Information (Clinicians) Questionnaire © which is composed of 12 questions (Appendix C) and included: age, years of nursing experience, nursing role, average hours worked per week, years working at the organization, race/ethnicity, gender and educational level.

Mean scores for pre- and post-confidence levels in the use of EBP were measured utilizing the basic ERI ©. The basic ERI © is composed of two sections. Section one (Appendix D) contains 20 items and uses a six-point Likert scale, ranging from one (very little) to six (a great deal), to assess the participants’ confidence in performing EBP competencies. The difference in pre- and post-intervention mean knowledge scores were also compared. EBP knowledge was measured in section two (Appendix E), which is a 15-item, multiple-choice EBP Knowledge Test ©. The instrument has been found to be reliable (Cronbach’s α = .98) and valid (r = .20) (Stevens, Puga, & Low, 2012).

The on-line Veterans Health Administration (VHA) Employee Education System (EES) Program Evaluation was used to measure participants’ satisfaction with the EBP Boot Camp educational offering. The evaluation was a 26-question on-line questionnaire to determine the overall satisfaction with the educational offering, learning activities, and learning materials (handouts, audiovisual presentations, etc.); ability to apply the EBP knowledge and skills to their
job performance; existent that each learning objective was met; and the effectiveness of the instructors (Appendix F).

**Implementation Plan**

Institutional Review Board (IRB) approval for this project was obtained through Sponsored Programs at Eastern Kentucky University (EKU). A review of the project for the determination and documentation of non-research operations activities versus research was completed by the organization’s designated representative and determined to be operational non-research activity (Appendix G).

**Recruitment Procedures**

All full- and part-time registered nurses employed by the organization were offered attendance at the EBP Boot Camp through announcements on the internal web site with other educational offerings. The offering was posted on the internal web site starting eight weeks prior to the first EBP Boot Camp session. The offering was also promoted at the EBP and Protocol Committee and the Quality, Safety and Value Committee, soliciting for a representative from each clinical area. Registered nurses had up to two weeks prior to the start of the educational offering to register. Registration for the EBP Boot Camp was done through the organization’s on-line educational self-enrollment program. At the start of each EBP Boot Camp session, the purpose and description of the project was explained to all enrolled participants. Participants were given a cover letter (Appendix H) explaining the project and that participation was voluntary.

**Ethical Considerations**

There were no risks or costs for participating in this project. Employment status was not affected if EBP Boot Camp participants chose not to volunteer for this project. Participants
could withdraw from the project at any time and were able to continue in the EBP Boot Camp. Participants were in a paid status and authorized by the organization to attend the educational offering. Continuing education credit was provided for this program through the American Nurses Credentialing Center (ANCC) and may have been considered on incentive for participating in this project. All data were anonymous, reported in aggregate form and will be retained by the DNP chair in a locked office.

**Data Collection**

Following IRB approval, three individual Boot Camp sessions were offered in October 2019; and January and February 2020. Data collection for each of the individual Boot Camp sessions was completed using the same process. Following an overview of the project, project volunteers were asked to complete the ERI Demographic Information (Clinicians) Questionnaire ©, ERI - Basic ©, and EBP Knowledge Test ©. Upon conclusion of the final day of the EBP Boot Camp, participants were asked to complete the ERI - Basic © and EBP Knowledge Test © again. Data were collected using the paper and pencil version of the three instruments. Instruments were randomly distributed to the participants. Data collection was anonymous and confidential. No personal identifying data were on the instruments. Survey instruments were on color-coded paper to differentiate pre- and post-intervention data. A coding system for the instruments was created using the first letter of the month in which each Boot Camp session was held for October (O), January (J) and February (F). Instruments were then numbered one through twelve. Participants were asked to record the letter and number found on their instrument for future matching and result coding (i.e. S-1, J-1, F-1, etc.). Pre- and post-data were paired by matching the instruments with the same letter and number. Participants had 30 days following
the completion of the EBP Boot Camp to complete the VHA EES Project Evaluation via the organization’s on-line Talent Management System (TMS) website.

Results

Data analysis was done using the Statistical Package for the Social Sciences (SPSS) (IBM SPSS Bas Grad Pack v 23). A significance level was set at 0.05 (Polit & Beck, 2017). Descriptive statistics were analyzed. A paired t-test was used to measure the difference in the mean scores for confidence and knowledge levels. Frequencies were used to analyze the program evaluation data.

Descriptive Statistics

Twenty-eight nursing staff agreed to participate in the project; however, one participant was removed for failure to complete the entire EBP Boot Camp. Over half of the participants held a Bachelor’s in Nursing Science (BSN) degree (59.3%) and self-reported having no or beginning EBP knowledge (66.7%) or experience (55.5%). (Table 1)

Table 1: Sample Demographics Characteristics (N = 27)

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Females</td>
<td>24</td>
<td>88.9</td>
</tr>
<tr>
<td>Males</td>
<td>3</td>
<td>11.1</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>20</td>
<td>74.1</td>
</tr>
<tr>
<td>Asian/Native Hawaiian/Pacific Islander</td>
<td>5</td>
<td>18.5</td>
</tr>
<tr>
<td>Hispanic</td>
<td>2</td>
<td>7.4</td>
</tr>
<tr>
<td>Employment Status</td>
<td>Count</td>
<td>Percentage</td>
</tr>
<tr>
<td>-------------------</td>
<td>-------</td>
<td>------------</td>
</tr>
<tr>
<td>Full-time</td>
<td>26</td>
<td>3.7</td>
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<tr>
<td>Part-time</td>
<td>1</td>
<td>96.3</td>
</tr>
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<table>
<thead>
<tr>
<th>Age</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>26-35 years</td>
<td>6</td>
<td>22.2</td>
</tr>
<tr>
<td>36-50 years</td>
<td>15</td>
<td>55.6</td>
</tr>
<tr>
<td>51-60 years</td>
<td>4</td>
<td>14.8</td>
</tr>
<tr>
<td>Over 60 years</td>
<td>2</td>
<td>7.4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Years of Nursing Experience</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5 years</td>
<td>4</td>
<td>14.8</td>
</tr>
<tr>
<td>6-10 years</td>
<td>6</td>
<td>22.2</td>
</tr>
<tr>
<td>11-15 years</td>
<td>4</td>
<td>14.8</td>
</tr>
<tr>
<td>16-20 years</td>
<td>2</td>
<td>7.4</td>
</tr>
<tr>
<td>21+ years</td>
<td>11</td>
<td>40.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Primary Role</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educator</td>
<td>2</td>
<td>7.4</td>
</tr>
<tr>
<td>Staff Nurse</td>
<td>23</td>
<td>85.2</td>
</tr>
<tr>
<td>Administrator/Manager</td>
<td>2</td>
<td>7.4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Highest Degree Earned</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Associates Degree/Diploma</td>
<td>2</td>
<td>7.4</td>
</tr>
<tr>
<td>Baccalaureate</td>
<td>16</td>
<td>59.3</td>
</tr>
<tr>
<td>Masters</td>
<td>9</td>
<td>33.3</td>
</tr>
</tbody>
</table>
EBP Knowledge

<table>
<thead>
<tr>
<th>Level</th>
<th>No knowledge</th>
<th>14.8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning Level</td>
<td>14</td>
<td>51.9</td>
</tr>
<tr>
<td>Intermediate Level</td>
<td>7</td>
<td>25.9</td>
</tr>
<tr>
<td>Advance Level</td>
<td>2</td>
<td>7.4</td>
</tr>
</tbody>
</table>

EBP Experience

<table>
<thead>
<tr>
<th>Level</th>
<th>No knowledge</th>
<th>14.8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning Level</td>
<td>11</td>
<td>40.7</td>
</tr>
<tr>
<td>Intermediate Level</td>
<td>9</td>
<td>33.3</td>
</tr>
<tr>
<td>Advance Level</td>
<td>3</td>
<td>11.1</td>
</tr>
</tbody>
</table>

Confidence Levels

There was a statistically significant increase in mean confidence level scores in the use of EBP pre-intervention (M = 58.56, SD = 22.215) to post-intervention [(M = 99.00, SD = 12.354), \( t(26) = 8.764, p = .000 \) (two-tailed)] (Table 2). The mean increase in confidence level scores was 40.444 with a 95% confidence interval (CI) ranging from 30.959 to 49.930. The eta squared statistic (.75) indicated a large effect size.

Table 2: Mean Confidence Level Scores: Results of Paired t-test (N = 27)

<table>
<thead>
<tr>
<th></th>
<th>M ± SD</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-intervention</td>
<td>58.56 ± 22.215</td>
<td>8.764</td>
<td>26</td>
<td>.000</td>
</tr>
<tr>
<td>Post-intervention</td>
<td>99.00 ± 12.354</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: CI = 95%; eta squared = large effect size (.75)
EBP Knowledge Levels

Knowledge scores were totaled and pre- and post-intervention mean scores were compared (Table 3). There was also a statistically significant increase in knowledge levels in the use of EBP pre-intervention (M = 48.33, SD = 13.672) to post-intervention [(M = 56.52, SD = 14.854), t (26) = 3.645, p = .001 (two-tailed)]. The mean difference in knowledge scores was 8.185 with a 95% CI ranging from 3.569 to 12.801. The eta squared statistic (.34) also indicated a large effect size.

Table 3: Mean Knowledge Level Scores: Results of Paired t-test (N = 27)

<table>
<thead>
<tr>
<th></th>
<th>M ± SD</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-intervention</td>
<td>48.33 ± 13.672</td>
<td>3.65</td>
<td>26</td>
<td>.001</td>
</tr>
<tr>
<td>Post-intervention</td>
<td>56.52 ± 14.854</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: CI = 95%; eta squared = large effect size (.34)

Program Evaluation

Twenty-two participants completed the on-line VHA EES Program Evaluation. A large percentage of participants self-reported that they gained new knowledge and skills and could apply it to their job performance (81.82%) (Table 4). The majority strongly agreed that they could discuss the importance of EBP and develop a plan for an EBP project (72.73%). Over half the participants strongly felt they could translate evidence into practice (54.55%), with most feeling they could implement the role of the EBP Champion (45.45%) (Table 5). Participants reported additional comments such as “The entire class was very helpful.”, “It helped to me to see how information was gathered and that it supported the policies that our hospital was
implementing.” and “I learned how to use tools that will help in my assessment of the quality of data I have.”

Table 4: Participant Satisfaction (N = 22)

<table>
<thead>
<tr>
<th>Questions</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Disagree Nor Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall, I was satisfied with this learning activity.</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>27.27%</td>
<td>72.73%</td>
</tr>
<tr>
<td>I learned new knowledge and skills from this learning activity.</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>18.18%</td>
<td>81.82%</td>
</tr>
<tr>
<td>I will be able to apply the knowledge and skills learned to improve my job performance.</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>18.18%</td>
<td>81.82%</td>
</tr>
</tbody>
</table>

Table 5

Program Specific Objectives (N = 22)

<table>
<thead>
<tr>
<th>Questions</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Disagree Nor Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discuss the importance of using evidence-based practice (EBP).</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>27.27%</td>
<td>72.73%</td>
</tr>
<tr>
<td>Explain the difference between quality improvement, research, system redesign, and EBP.</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>50.00%</td>
<td>50.00%</td>
</tr>
<tr>
<td>Describe the JHNEBP Model guidelines and how each step of the process is used.</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>36.36%</td>
<td>63.64%</td>
</tr>
</tbody>
</table>
Outline the process for developing an EBP question and PICO. 0% 0% 0% 31.82% 68.18%

Demonstrate the ability to perform a computerized search of the literature. 0% 0% 0% 31.82% 68.18%

Identify and compare the different types of evidence. 0% 0% 0% 45.45% 54.55%

Examine approaches to appraise research and non-research evidence. 0% 0% 0% 45.45% 54.55%

Develop a plan for an EBP project to answer a clinical question. 0% 0% 0% 27.27% 72.73%

Translate EBP findings into individual nursing practice. 0% 0% 0% 45.45% 54.55%

Implement the role of EBP champion. 0% 0% 0% 54.55% 45.45%

**Discussion**

The goal of this doctoral project was to increase the confidence, knowledge, and use of EBP by staff nurses in an acute care Veterans Medical Center through the implementation of an intense, structured educational intervention.

**Interpretation**

Results indicate that the intense, educational EBP Boot Camp was effective in increasing confidence and knowledge in the use of EBP. Results specifically indicate an increase in knowledge levels that were similar to that of other studies (Black et al., 2015; Ramos-Morcillo et
al., 2015; Saunders et al., 2016; Spiva et al., 2017). Confidence levels were also similar to other findings (Saunders et al., 2016; Spiva et al., 2017).

Limitations

Several limitations were found in this project. The sample size was small and a convenience sample. By soliciting for unit volunteers, it is possible that participants may have had a greater interest in EBP, influencing confidence level scores. The project was also limited to one medical center so the results may not be generalizable to other organizations. Participants were also all nurses, so the use of this intervention may not be effective on other disciplines. Self-reporting of confidence levels could also have resulted in inaccurate responses. The project also failed to measure whether confidence was sustained or knowledge retained.

Implications

Clinical Practice

The IOM (2000, 2009) clearly identified that EBP can impact clinical outcomes and should direct all healthcare decisions. By completing an intense, educational EBP Boot Camp, nurses are equipped with the confidence and knowledge to use EBP to guide care decisions and change practice. Clinical practice led by EBP elevates nursing practice and increases accountability (Mackey & Bassendowski, 2017). Upon completion of EBP Boot Camp, participants were able to identify EBP projects to improve outcomes including decreasing agitation in dementia patients, decolonization of patients with methicillin-resistant staphylococcus aureus (MRSA), and observed water intake by dysphagia patients.

Policy

Policy change and the use of evidence-based practice are interconnected. Practice policy should be driven by the best available evidence; while developing clear policies and procedures
is the most effective way to embed a practice change into daily operations. Practice policy can come in the form of protocols, algorithms, order-sets, policies, procedures and guidelines (Rogers, Brown & Hockenberry, 2019). Organizational use of EBP safeguards that all policies are evidence-driven. The governance structure of the organization supports institutionalizing EBP through its EBP and Protocol Committee. Nurses now can use the knowledge and skills gained in EBP Boot Camp to explore research findings and make recommendations which can be integrated into organization-wide policies and procedures.

Quality and Safety

Quality outcomes metrics and prevention of healthcare associated complications or errors are key indicators of organizational excellence. Nurses are in a position to make the most impact on patient care outcomes through the use of EBP (Hickey & Giardino, 2019). Through EBP Boot Camp, nurses are prepared to use the organization’s internal quality evidence to identify opportunities for improvement. Examples include decreasing falls through early mobility, increasing patient satisfaction by quick and effective responses to patient's needs, prevention of healthcare-acquired central line associated infections through antiseptic bathing, decreasing readmissions for patients with COPD by increasing compliance with continuous positive airway pressure (CPAP), and prevention of hospital-acquired anemia caused by frequent venipunctures and excess line waste. Application of learned EBP skills to search for current, robust evidence can lead to quality improvements through interprofessional collaboration, protocol development and use of practice guidelines.

Education

Florence Nightingale believed that nurses should be life-long learners (1914). The years of nursing experience and highest educational degree of the EBP Boot Camp participants reflects
that of the organization’s workforce. The use of EBP and its incorporation into academic curriculums did not occur until the early 2000’s (IOM, 2003). Nurses who graduated prior to that time must find a way to expand their EBP knowledge. The EBP Boot Camp is one method that can be used to achieve this and educate nurses in the EBP process. A plan to incorporate EBP education into nursing orientation or establishing a recurring offering of this program will continue to strength the organization’s EBP program.

**Sustainability**

Use of an intense, structured educational intervention in EBP has resulted in increased confidence and knowledge in EBP at this organization and has resulted in the increased use of EBP. The intervention can be sustainable if incorporated in the organization’s regular education program. The number of registered nurses completing future EBP Boot Camp offerings should be tracked and monitored as well as the number of EBP projects which are implemented to evaluate long-term effectiveness of the EBP Boot Camp. Additionally, there is also an opportunity to spread this course to other organizations within the VA healthcare system.

**Future Scholarship**

While this intervention proved to be effective for increasing the use of EBP, several other interventions have also produced similar results (Black et al., 2015; Ramos-Morcillo et al., 2015; Saunders et al., 2016; Spiva et al., 2017). More study is needed to determine the most effective educational modalities to achieve the greatest results. Interprofessional collaboration is vital for the success of an EBP project so additional study including other disciplines may also be needed.

This project was the basis for a grant submission to continued data collection and compare results for future EBP Boot Camp sessions; to determine the relationship between confidence and knowledge levels and other variables; and explore if there are predictors for EBP
confidence and knowledge levels. Further study is also needed to determine if confidence levels are maintained, knowledge is retained and use of EBP continues.

Results of this project will be disseminated in poster and podium presentations at the local, regional, and possibly national level. The project has also been submitted to a national program which could result in the spread to other VHA healthcare organizations. Last, there are future plans for journal submission to order to build on the body of evidence supporting the use of an EBP educational training program to increase the implementation and use of EBP.

**Conclusion**

The findings of this project showed that an EBP Boot Camp increased confidence and knowledge in EBP. Sequentially, increased EBP knowledge and confidence can help nurses overcome the barriers to implementation of EBP (Cornelison, 2019; Duncombe, 2018; Ramos-Morcillo et al., 2015; Spiva et al., 2017; Saunders et al., 2016). These results also suggest that an EBP Boot Camp is feasible to implement and can be used to strengthen the organization’s EBP program. Nurses that have completed this program are equipped to improve patient outcomes, create and support an EBP culture within the organization, increase practice accountability, change practice, and establish evidence-driven policies. Continued efforts are needed to sustain and spread EBP knowledge and confidence in front-line nursing staff.
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doi.org/10.1097/NNA.0000000000000151


doi.org/10.1097/NUR.0000000000000161


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Academies Press (US). Retrieved from


https://doi.org/10.1016/j.profnurs.2016.05.009


Appendix A
Evidence-Based Practice Readiness Inventory © Permission for Use

Stevens, Kathleen R <STEVENSK@uthscsa.edu>
Thu 4/11/2019 4:36 PM
To: Dahl, Anita S. <anita_dahl@mymail.eku.edu>; 

USE AGREEMENT
EVIDENCE-BASED PRACTICE READINESS INVENTORY (COPYRIGHT Stevens 2017)
Rev January 27, 2019

Hi, Anita...

It is an honor to hear that you wish to use my work to further EBP in your work!

I will grant permission to use the ERI for your project after we have agreed upon several points of collaboration.

Since I am interested in the continued refinement of the psychometrics of the instrument. To that end, I am hopeful that you will contribute your de-identified data to our growing database.

To facilitate this, I wish to indicate these agreements with you:

- ERI AGREEMENT AND PERMISSION
I will provide permission and the ERI Tool upon RECEIPT OF YOUR AGREEMENT TO THE 9 ITEMS BELOW.
Upon receipt of your agreement, I will send to you the Basic ERI which includes
  1. 20 items on competency/“self-efficacy” (strongly related to actual skill);
  2. 15 items on “EBP knowledge” and
  3. a demographics page.

- PERMISSION FOR USE:
The EBP Readiness Inventory (ERI) is based on the Essential Competencies and framed in the Star Model. The ERI is comprised of self-efficacy section (research connects self-efficacy to actual competencies) and a knowledge section (based on the Star Model). Past use of the ERI suggests that it is reliable, valid, and sensitive enough to detect pre-post differences.
I propose that you and I strike these terms of agreement for your use of the ERI—please respond with your acceptance and I will send you the ERI TOOL, scoring guide, and Excel data template.

1. To activate my permission, you agree to contribute to me your de-identified data set for each use. Otherwise, we can arrange a fee-for-use agreement. I continue to assess the psychometrics so the data may be aggregated with other datasets for this purpose. Your data is to be submitted using the XL file I will send you for this purpose.
2. There are 3 levels of competencies, as explained in the Essentials document: Basic (BSN), Intermediate (MSN), and advanced (Doctoral). The ERI items match the competencies in a self-efficacy Likert format. It also includes a 15-item Knowledge Test.
   a. Most users to date have administered the “basic” ERI, which contains 20 Likert items, the knowledge test, and a demographics section.
   b. The ERI can be administered in paper-pencil format or online survey. I no longer provide the online version...

   but feel free to use it if you can overcome the barriers to accessing your study participants.
3. The ERI must be used in its original form, as-is, without modification of the items. Except, you may add a few items to the demographics section for your use.
IMPLEMENTATION OF AN EDUCATIONAL “BOOT CAMP”

4/13/2019

Mail: anita_dahl@mymail.eku.edu

4. Notify me each time the ERI is used beyond your initial project; describe the situation and population.
5. Please provide a brief (1-page) report of your study. Is it funded?
6. Kindly notify me when your project is published.
7. Do you anticipate acquiring approval for protection of human subjects?
8. Upon your acceptance of these terms of agreement, I will send a MS Word copy of the ERI you select (basic, intermediate, or advanced survey; knowledge test; and permission for duplication and use online or hard-copy).
9. There will be no charge and no requirement to purchase the use of the ERI if you can agree to this collaboration.

BACKGROUND:
The interconnected “suite” of EBP materials I developed are described below-Star Model, EBP Competencies, and the ERI:
A. The Stevens Star Model is attached...it is the core of understanding “knowledge transformation”; details can be organized around each point of the star. Anticipating you may want to incorporate the Star Model into your project, I am jumping ahead and providing permission to you to use/reproduce the Star Model under the fair-use rule, with the stipulation that credit is cited, as you indicated. If later, you are re-publishing the copyrighted material (as in publishing in a journal or book), specific permission is required by the publisher. In that case, there is usually a template letter of permission from the publisher that I will readily sign. Read about the Star Model at this site: http://nursing.uthscsa.edu/onrs/starmodel/star-model.asp
B. The Star Model provides the theoretical basis for the national consensus on Essential EBP Competencies in Nursing (2005 and 2009). The description of the consensus development is found at http://nursing.uthscsa.edu/onrs/starmodel/ebp_compet.asp. If you’re interested in ordering an Essential Competencies booklet, just let me know and I will send the order form ($30). If you decide to use the ERI in your project, I will send you a PDF of the booklet at NO CHARGE.
C. The EBP - Readiness Inventory (ERI) was developed based on the consensus Competencies. The ERI is a self-efficacy and knowledge instrument, shown to have strong psychometrics. It is currently being used in multiple studies by others. As you know from the literature, a number of clinical agencies and academic institutions have benefitted from using the ERI. The survey can be administered via paper-and-pencil or online and has been used to assess EBP Readiness in both clinician and student populations. As you develop your proposal, you may wish to state that the ERI was developed within a theoretical framework: The Stevens Star Model of Knowledge Transformation. To my knowledge, this is the only EBP instrument that was developed with such a direct theoretical base and national consensus on EBP competencies.

Also, you may have located descriptions of the Model and EBP Readiness Inventory (ERI) in several places...here are a few:
- Other doctoral students have completed their DNP and PhD using the EBP Readiness Survey...so you can have added confidence in moving forward with it.

WILL YOU BE USING ANY OTHER EBP MEASURE?

You may be interested in noting that major healthcare systems have adopted the Star Model, to the point that part of the RN-ID badge includes an image of the Star Model.

And as these systems stand up their EBP Nursing Councils, have specific training around the Star Model.

So, you are in “good company,” as they say.

I look forward to working with you as you continue to advance EBP!

...to the best of our knowledge
Dr. Kathleen R. Stevens, RN, EdD, ANEF, FAAN
Castella Endowed Distinguished Professor and
Director, Improvement Science Research Network
www.ISRN.net www.acestar.uthscsa.edu
Appendix C

ERI Demographic Information (Clinicians) Questionnaire
© Stevens 2018

Contact the author for further information at ASDahl220@gmail.com.
Appendix D

EBP Readiness Inventory (ERI)
© Stevens 2018

Contact the author for further information at ASDahl220@gmail.com.
Appendix E

Evidence-Based Practice (EBP) Knowledge Test
© Stevens 2018

Contact the author for further information at ASDahl220@gmail.com.
Appendix F

Veterans Health Administration (VHA) Employee Education System (EES) Program Evaluation

<table>
<thead>
<tr>
<th>Question Details</th>
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</thead>
<tbody>
<tr>
<td>Overall, I was satisfied with this learning activity.</td>
</tr>
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<table>
<thead>
<tr>
<th>Question Details</th>
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</thead>
<tbody>
<tr>
<td>I learned new knowledge and skills from this learning activity.</td>
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<table>
<thead>
<tr>
<th>Question Details</th>
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<tbody>
<tr>
<td>I will be able to apply the knowledge and skills learned to improve my job performance.</td>
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<thead>
<tr>
<th>Question Details</th>
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<tbody>
<tr>
<td>The scope of the learning activity was appropriate to my professional needs.</td>
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<table>
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<tr>
<th>Question Details</th>
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<tbody>
<tr>
<td>The training environment (face to face, video conference, web based training) was effective for my learning.</td>
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<thead>
<tr>
<th>Question Details</th>
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<tbody>
<tr>
<td>I would recommend this training course to others.</td>
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<tr>
<th>Question Details</th>
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<tbody>
<tr>
<td>The learning activities and/or materials were effective in helping me learn the content (i.e., handouts, assessment tools, etc).</td>
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<thead>
<tr>
<th>Question Details</th>
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<tbody>
<tr>
<td>The content presented in a manner that was fair and unbiased.</td>
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</table>

<table>
<thead>
<tr>
<th>Question Details</th>
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</thead>
<tbody>
<tr>
<td>Was the content presented in a manner that was fair and unbiased; and if not, please explain.</td>
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</table>

<table>
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<tr>
<th>Question Details</th>
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<tbody>
<tr>
<td>What about this learning activity was most useful to you?</td>
</tr>
</tbody>
</table>
**Program Specific Objectives**

At the conclusion of this educational program, you are able to:

1. Discuss the importance of using evidence-based practice (EBP)
   - Does not apply
   - Strongly Disagree
   - Disagree
   - Neither Disagree nor Agree
   - Agree
   - Strongly Agree

2. Explain the difference between quality improvement, research, system redesign, and EBP
   - Does not apply
   - Strongly Disagree
   - Disagree
   - Neither Disagree nor Agree
   - Agree
   - Strongly Agree

3. Describe the Johns Hopkins Nursing EBP (JHNEBP) Model guidelines and how each step of the process is used
   - Does not apply
   - Strongly Disagree
   - Disagree
   - Neither Disagree nor Agree
   - Agree
   - Strongly Agree

4. Outline the process for developing an EBP question and PICO
   - Does not apply
   - Strongly Disagree
   - Disagree
   - Neither Disagree nor Agree
   - Agree
   - Strongly Agree

5. Demonstrate the ability to perform a computerized search of the literature
   - Does not apply
   - Strongly Disagree
   - Disagree
   - Neither Disagree nor Agree
   - Agree
   - Strongly Agree

6. Identify and compare the different types of evidence
   - Does not apply
   - Strongly Disagree
   - Disagree
   - Neither Disagree nor Agree
   - Agree
   - Strongly Agree

7. Examine approaches to appraise research and non-research evidence and use appropriate evaluation tools
   - Does not apply
   - Strongly Disagree
   - Disagree
   - Neither Disagree nor Agree
   - Agree
   - Strongly Agree

8. Develop a plan for an EBP project to answer a clinical question
   - Does not apply
   - Strongly Disagree
   - Disagree
   - Neither Disagree nor Agree
   - Agree
   - Strongly Agree

9. Translate EBP findings into individual nursing practice
   - Does not apply
   - Strongly Disagree
   - Disagree
   - Neither Disagree nor Agree
   - Agree
   - Strongly Agree

10. Demonstrate methods for locating internal evidence on healthcare quality, cost, and satisfaction that support changes in nursing practice
    - Does not apply
    - Strongly Disagree
    - Disagree
    - Neither Disagree nor Agree
    - Agree
    - Strongly Agree

11. Implement the role of EBP champion
    - Does not apply
    - Strongly Disagree
    - Disagree
    - Neither Disagree nor Agree
    - Agree
    - Strongly Agree
The following Evaluation has been created in the on-line Talent Management System (TMS)
Created by the Veterans Health Administration Employee Education System:

Survey ID:    LOU- 4521336

Name: RS: Evidence-Based Practice “Boot Camp”: Increasing Knowledge, Confidence and Use in EBP
Appendix G

Determination and Documentation of Non-Research Operations Activities versus Research

Robley Rex VA Medical Center
Determination and Documentation of Non-Research Operations Activities versus Research

Definitions:

Research. Research is a systematic investigation (including research development, testing, and evaluation) designed to develop or contribute to generalizable knowledge. In accordance with the definition of generalizable knowledge in VHA Handbook 1058.05, research may be defined as a systematic investigation designed to produce information to expand the knowledge base of a scientific discipline (or other scholarly field of study).

Operations Activities. Operations activities are certain administrative, financial, legal, quality assurance, quality improvement, and public health endeavors that are necessary to support VHA’s missions of delivering health care to the Nation’s Veterans, conducting research and development, performing medical education, and contributing to national emergency response. Operations activities may or may not constitute research.

Research requires sound methodological design, non-research operations activities also employ sound design to ensure reliable outcomes that fulfill program needs. Sound design characteristics do not, in and of themselves, define research. In determining whether an activity constitutes research, it is important to consider carefully whether design characteristics are included for the purpose of fulfilling operational needs versus expanding the knowledge base of a scientific discipline or other scholarly field of study.

Careful review is warranted in making such determinations. Per VHA Handbook 1058.05, whenever the research versus non-research status of an operations activity may be in doubt, a determination of such status must be documented.

Name of Employee: Anita S. Dahl, MSN, RN, CCRN-K

Service: Nursing Service

Contact information: 287-4226; anita.dahl@va.gov

Description of Proposed Activity: The project is a requirement of completion of a Doctor of Nursing Practice degree from Eastern Kentucky University. The purpose of this doctoral project is to increase the confidence, knowledge and use of evidence-based practice (EBP) by staff nurses through the implementation an intense, structured educational “boot camp” based on the Johns Hopkins Nursing Evidence-based Practice (JHNNEB) model. A three-day intense, structured educational boot camp will be offered. A convenience sample will be obtained from volunteers registering for the boot camp or staff nurses identified by their nurse manager to represent their unit in the boot camp training. Pre- and post-intervention (EBP boot camp) confidence and knowledge levels in the use of EBP will be measured using the Academic Center for Evidence-Based Practice (ACE) EBP Readiness Inventory (ACE-ERI). The tool consists of a demographic questionnaire, a 20-item questionnaire measuring confidence level in performing EBP competencies, and a 15-item multiple-choice EBP knowledge test. Demographic data will be collected at the beginning of the EBP boot camp educational offering. Knowledge and confidence level data will be measured before the boot camp offering, immediately following the boot camp; and four weeks following completion of the boot camp. Frequency distribution, central tendency and standard deviation will be used to analyze the demographic data. Pre- and post-training confidence and

12/21/2011
knowledge levels will be analyzed using paired t-tests with repeated measures. Correlations will be used to determine if relationships exist between the demographic data and confidence and knowledge levels as well as to determine if increased confidence or knowledge levels result in increased use of EBP. The project will be used to increase the use of EBP and to evaluate the feasibility and the sustainability for continuing the EBP bootcamp. Dissemination of results will be through oral presentation and possible publication.

Attestation of Designated Program Office or Facility Official

As the designated representative of the VHA Facility listed below, I have reviewed the activities to be conducted and have made the following determination based on in VHA Handbook 1058.05:

☐ Operational non-research activity

☐ Research activity, full Research application required.

Signature of Designated Official
Eleanor D. Lederer, MD, FASN, FACP
ACOS Research & Development

Date: 5/8/2019
Participant,

You are being invited to take part in a project on increasing the confidence, knowledge and use of evidence-based practice (EBP) by nurses in an acute care setting through the implementation of an intense, structured educational intervention. This project is being conducted by Anita S. Dahl, MSN, RN at Eastern Kentucky University.

If you decide to participate in the project, you are asked to complete a printed demographic questionnaire, a confidence level survey and a knowledge assessment before and after an educational offering on evidence-based practice. Your participation is expected to take no more than 30 minutes each session.

This project is anonymous. You will not be asked to provide your name or other identifying information as part of the study. No one, not even members of the project team, will know that the information you give came from you. Your information was combined with information from other people taking part in the project. When we write up the results of the study, we will write about this combined information.

If you decide to take part in the project, it should be because you really want to volunteer. You will not lose any benefits or rights you would normally have if you choose not to volunteer. You can stop at any time during the project and still keep the benefits and rights you had before volunteering.

This project has been reviewed and approved for exemption by the Institutional Review Board at Eastern Kentucky University as research protocol number [add protocol number from final approval]. If you have any questions about the project, please contact Anita S. Dahl at e-mail anita_dahl1@mymail.eku.edu or 502-287-4226. If you have questions about your rights as a research volunteer, please contact the Division of Sponsored Programs at Eastern Kentucky University by calling 859-622-3636.

By completing the activity that begins on the following page, you agree that you (1) are at least 18 years of age; (2) have read and understand the information above; and (3) voluntarily agree to participate in this study. Thank you.