



## Original Article

# The Strengths and Challenges of Implementing EBP in Healthcare Systems

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### Keywords

nursing, evidence-based practice, Magnet hospitals, hospital system, healthcare system, survey, workplace environment, organizational readiness, organizational culture, evidence-based practice beliefs

### ABSTRACT

**Background:** Multihospital healthcare system leaders and individual nurses are challenged to integrate standardized evidence-based practices that support continuous performance improvement in their systems.

**Aim:** This study was undertaken to evaluate the strength of and the opportunities for implementing evidence-based nursing practice across a diverse 9-hospital system located in the mid-Atlantic region.

**Methods:** A cross-sectional survey of 6,800 registered nurses (RNs), with a 24% response rate, was conducted to learn about their attitudes, beliefs, and perceptions toward organizational readiness and implementation of EBP.

**Results:** Although respondents' beliefs about EBP were positive, they reported their ability to implement EBP as extremely low. More than one third (36%) of the respondents worked at two of the system's Magnet designated hospitals. Magnet RNs reported more resources and held more positive beliefs about their hospital's organizational readiness for EBP. Nurses who possess advanced nursing degrees, certification, and who serve in leadership roles were favorable toward EBP. Younger RNs with fewer years in practice were more likely to have positive beliefs toward EBP and embedding it into the organizational culture.

**Linking Evidence to Practice:** Findings mirror previous research where nurses internationally favor EBP yet struggle with similar barriers for implementation. Strategies to link this evidence to action can be taken at local and global levels. Locally, transformational nurse leaders within each hospital can share the vision for implementing EBP and embrace Magnet principles. At the system level, transformational nurse leaders can collectively allocate resources to create a system-wide online EBP education plan with EBP competencies and tool kit to increase RN exposure to EBP and standardize practice. Globally, promoting free and accessible EBP massive open online courses (MOOC) and sharing best practices online and at international forums such as Magnet conferences will help to lead, educate, and mentor nurses with strategies to systematically increase EBP uptake.

### BACKGROUND

The United States per capita health expenditures (\$8,745 in 2012) are the highest in the world (Mossialos, Wenzl, Osborn, & Anderson, 2015). To control escalating healthcare costs, hospitals are operating under a new value-based payment model as part of national healthcare reform. Value-based purchasing aligns healthcare delivery and the payment system with quality and costs. In response, hospital healthcare systems are standardizing practices based on the best available evidence in an effort to reduce inconsistencies in care and improve quality and patient safety while also containing costs. The application of evidence-based practice (EBP) is a must in today's climate of

healthcare reform and value-based purchasing. However, literature about multihospital healthcare system integration and standardization of EBP is sorely lacking.

Evidence-based practice has been defined as a problem-solving approach to the delivery of healthcare that incorporates the best available evidence, clinician's expertise and patient values and preferences (Melnyk, Gallagher-Ford, Long, & Fineout-Overholt, 2014). Implementing EBP in one hospital to improve patient outcomes is a challenge; implementing EBP into a multihospital healthcare system magnifies that effort.

As the focus of healthcare shifts from individual hospitals to healthcare systems, the nursing profession must adjust to

system integration and standardization of practices (McCausland, 2012). The American Hospital Association (AHA, 2015) defines system as either a multihospital or a diversified single hospital system. Two or more hospitals owned, leased, sponsored, or contract managed by a central organization constitutes a multihospital system. Further, single, freestanding hospitals may be considered a system if three or more and at least 25 %, of their owned or leased nonhospital preacute or postacute healthcare organizations are members of the organization (AHA, 2015). Today, 55% (3,144 out of 5,686) of hospitals in the United States are part of a system (AHA, 2015). To remain competitive, these new healthcare systems are transitioning their services into the global market place. Globalization is a major portion of the business sector; eight U.S. hospitals and health systems have initiated international partnerships (Herman, 2013).

In alignment with the new value-based payment model, the Institute of Medicine Roundtable on Evidence-Based Medicine (2008) called for 90% of clinical decisions to be supported by the best available and most accurate evidence by 2020. Although standardization of care using the best available evidence improves patient outcomes, barriers are preventing the uptake of EBP (Ubbink, Guyatt, & Vermeulen, 2013). Ubbink et al. (2013) noted these “worldwide barriers were strikingly convergent” (p. 5). In the Ubbink et al. (2013) systematic review of 31 studies (10,798 respondents) from 17 countries representing nearly all continents with one third from European countries (11/31) and a quarter from North America (8/31), the same individual and organizational barriers exist among developed nations.

Individual factors include time, workload, and knowledge deficits; organizational factors include the lack of human and material resources and leadership support (Khammarnia, Mohammadi, Amani, Rezaeian, & Setoodehzadeh, 2015; Majid et al., 2011; Ubbink et al., 2013). Although many studies find that nurses and physicians hold positive attitudes toward EBP, a disconnect exists between their beliefs and actual bedside implementation (Ubbink et al., 2013). Variability in geography, size, location and resources among healthcare systems further complicates healthcare providers’ abilities to implement and standardize practice changes (Patelarou et al., 2013).

In addition, significant knowledge gaps to generating and implementing EBP exist among nurses and other healthcare professionals. A systematic review of knowledge, perceptions, and attitudes of nurses in European community settings found the less experienced nurses and physicians to be more knowledgeable and hold more positive attitudes about EBP (Patelarou et al., 2013). These same groups also were more likely to search externally for evidence versus using experienced-based peer knowledge as their source (Patelarou et al., 2013). Contrarily, senior nurses working at a large 1,000-bed university hospital in the Netherlands showed more positive attitudes and believed EBP improves patient care compared to nonsenior RNs (Ubbink et al., 2011).

Although healthcare professionals’ attitudes appear to be positive about EBP, more needs to be done to facilitate its uptake. According to Ubbink et al. (2013), major facilitators reported by nurses and physicians to increase EBP were dedicated time to learn and practice EBP, leadership support, promotion, and integration of EBP by all disciplines, communication and role modeling, and easily accessible sources of evidence such as guidelines and protocols.

In addition, characteristics of the leader, organization, and culture are vital and should be considered equally important for EBP implementation (Sandstrom, Borglin, Nilsson, & Willman, 2011). Yet, leadership alone is not enough; some leaders lack advanced degrees and can act as a barrier (Melnyk, Fineout-Overholt, Gallagher-Ford, & Kaplan, 2012; Sandstrom et al., 2011).

Melnyk et al. (2014) recommended a multipronged and targeted approach, which among other strategies, includes a culture that supports EBP and sets clear expectations of clinicians and advanced practice nurses for providing evidence-based care and the incorporation of EBP competencies.

Although many studies examining nurses’ beliefs and knowledge toward EBP have been conducted in the United States and other developed countries, little is known about the strengths and challenges of EBP implementation system-wide in highly diverse, complex multihospital systems.

## PURPOSE AND AIMS

This study was undertaken to describe RNs attitudes, beliefs, and perceptions about readiness and implementation of EBP in a multihospital healthcare system. The study also examined differences by demographics (i.e., Magnet vs. non-Magnet hospital), professional characteristics (i.e., age, education, work experience, and certification) and to what extent nursing leadership and clinical nurses differed in their beliefs, implementation behaviors, and perceptions of organizational readiness for EBP. The Magnet Recognition Program is an international organizational credential that recognizes nursing excellence in healthcare organizations (American Nurses Credentialing Center [ANCC], 2013).

## METHODS

### Design

This IRB-approved cross-sectional, survey design used three questionnaires developed by Melnyk and Fineout-Overholt (2008): The Evidence-Based Practice Beliefs Scale (EBPB), the Evidence-Based Practice Implementation Scale (EBPI), and the Organizational Culture and Readiness for System-Wide Integration of EBP Scale (OCRSIEP) to collect data. The survey was conducted from May 2012 to July 2012 with a convenience sample of 6,800 nurses employed by a mid-Atlantic healthcare system.

## Setting and Sampling

The survey was conducted within a \$4.6 billion not-for-profit healthcare system, the largest healthcare provider in the Maryland–Washington, DC, region and includes seven hospitals in Maryland and three in the District of Columbia. There were nine hospitals at the time of the study. The healthcare systems comprehensive services include: primary, urgent, acute, and subacute care; medical education, and research.

Two of the three hospitals in Washington, DC, are acute care, teaching, and research hospitals and the third is a specialty hospital for rehabilitation. Four of the seven community hospitals in Maryland are located in the northeast, one in the southwest and two in the southern part of the state. Each of the hospitals is recognized for excellence in specialty areas. There are two Magnet designated hospitals in this system, one in Maryland and one in Washington, DC. Hospital sizes range from less than 100 to more than 1,000 hospital beds, and are located in rural, suburban, and urban settings. The purposive sampling frame included registered nurses (RNs) working full-time, part-time, and per diem in patient care, clinical care leadership (i.e., directors, nurse managers, and assistant nurse managers), and support services (i.e., nurse educators responsible for professional development of staff, nurse practitioners, research, and infection control, to name a few).

## Procedure

Following Dillman's (2007) tailored design, eligible RNs were informed of the survey through multiple system-wide and specific hospital-wide communication methods such as announcements, advertisements in newsletters, flyers, and e-mails. Five e-mail notifications were sent to staff informing them of the survey including an introductory e-mail, three e-mail reminders and a final e-mail extending the deadline date of the survey. The surveys were administered on a secure website using e-mail group distribution lists. Each facility engaged a nursing research champion to promote participation in the survey.

## Instruments

Each of the scales has established face and content validity, and internal consistency reliabilities at or above 0.85 (Melnyk & Fineout-Overholt, 2008). For this study, internal consistency, using Cronbach's  $\alpha$ , was .95 for the OCSIEP, .90 for the EBPB, and .95 for the EBPI. The EBPB addresses the individual's beliefs about (a) evidence for clinical care, (b) improvement in guidelines for care, (c) confidence in the use of EBP, (d) the difficulty and time commitment for use of EBP, and (e) an individual's ability to use evidence. The second instrument, the EBPI, includes 18 items that address the use of evidence to change practice, the generation of EBP questions, the evaluation of outcomes of a practice change, the ability to read and critically appraise a research study, the use of EBP guidelines, and the promotion of use of EBP. The third instrument, the OCSIEP, consists of 25 items measured on three different

scales. Items solicit judgments regarding the extent that organizational structures or resources are available, ascertain key leadership roles in generating decisions, and asks participants to rate their organization's readiness for EBP.

## RESULTS

Survey data were exported from SurveyMonkey to a standard statistical package, SPSS 20 (SPSS Inc., Chicago, IL, USA), for analysis. Descriptive statistics and measures of central tendency for interval level data were used to examine demographic, nurse characteristics, and individual items on the three scales. For inferential purposes, a total score was calculated for each of the scales. ANOVA and Levene's test for homogeneity of variance, and Tukey HSD test for post hoc comparisons were used for analyses of demographic and professional characteristics. The Welch ANOVA and Games-Howell post hoc were substituted for group variances exhibiting heteroscedasticity.

### Demographic Characteristics and Professional Characteristics

**Hospital response rates.** Usable surveys came from 1,608 RNs for a 24% (1,608/6,851) response rate (Table 1). Although response rates were low, the distribution of respondents based on geographic location is fairly consistent with the healthcare system composition. Respondents from the two Washington, DC, hospitals account for 34% ( $n = 550/1,608$ ), which is to be expected as these two hospitals employ 42% (RN FTEs = 2,927) of RNs working in the nine hospitals. More than one third (36%,  $n = 582/1,608$ ) of the respondents worked at the two Magnet designated facilities which is reflective of the hospital workforce of which Magnet designated facilities account for 34% (RN FTEs = 2,357/6,851). The 64% of responses from RNs employed by Maryland hospitals overrepresented this portion of the workforce. Only 52% of the hospital RN workforce is employed in Maryland hospitals.

### Nurse Characteristics

The majority of respondents were women (92%;  $n = 1,485/1,574$ ), 44 ( $SD \pm 12.2$ ) years of age and employed as RNs for 17 ( $SD \pm 12.6$ ) years. More than two thirds (67%) of the respondents held a baccalaureate (52%;  $n = 825/1,593$ ) or graduate degree in nursing (15.4%;  $n = 245/1,593$ ) and 36% ( $n = 573/1,587$ ) were professionally certified. More than half (54%,  $n = 871/1,608$ ) responded that they had learned about EBP in school and 33% ( $N = 524/1,608$ ) reported having hands-on experience with EBP (Table 2). Only 26% ( $n = 424/1,608$ ) of the respondents reported attending an EBP workshop; 22% ( $n = 350/1,608$ ) reported attending a conference or having completed an online education program. When asked about their EBP knowledge, 15% affirmed they did not know much.

### Research Questions

- What are RNs' individual beliefs and attitudes toward EBP?

**Table 1.** Hospital Response Rates

Hospital	MedStar Health System response rate	Individual hospital response rate
Maryland**	342 (21.3)	342/1,122 (30.5)
Washington, DC	310 (19.3)	310/1,692 (18.3)
Washington, DC**	240 (14.9)	240/1,235 (19.4)
Maryland	198 (12.3)	198/699 (28.3)
Maryland	180 (11.2)	180/778 (23.1)
Maryland	140 (8.7)	140/445 (31.5)
Maryland	102 (6.3)	102/379 (26.9)
Maryland	65 (4.0)	65/329 (19.8)
Washington, DC	24 (1.5)	24/172 (14.0)
Overall response rate	1,608*/6,851 (23.5)	

Note. Hospital response rate calculated using reported number of RN FTEs. \*7 responses without location, \*\*Magnet designated.

- What are their self-reported behaviors for implementing EPB into their practice?
- What are their perceptions of their individual organization to integrate evidence-based practice (organizational readiness)?

**Individual beliefs.** Less than half, 41% ( $n = 656/1,564$ ) of the RNs, agreed or strongly agreed they knew how to implement EBP sufficiently enough to make practice changes, yet 44% ( $n = 701/1,564$ ) were confident about their ability to implement EBP. Further, 48% ( $n = 749/1,564$ ) of the RNs reported they could implement EBP in a time efficient way and 49% ( $n = 771/1,564$ ) reported they can access the resources in order to implement EBP.

**Implementing EBP.** Although almost half of the nurses reported they could access resources to implement EBP (49%;  $n = 771/1,564$ ), 78% ( $n = 1,161/1,492$ ) reported that, in the past 8 weeks, they had neither accessed national guidelines or a systematic review (71%;  $n = 1,057/1,492$ ) nor used an EBP guideline or systematic review to change clinical practice (62%;  $n = 918/1,492$ ). Further, 69% ( $n = 1,031/1,492$ ) reported that they had not generated a researchable question about clinical practice; evaluated a care initiative by collecting patient outcome data (59%,  $n = 896/1,492$ ); shared outcome data collected with colleagues (59%;  $n = 885/1,492$ ); or changed practice based on patient outcome data (53%;  $n = 792/1,492$ ).

**Organizational readiness.** Similarly, on the OCRSIEP, most respondents, (64%;  $n = 1,032/1,608$ ) chose “None” to “Somewhat” when rating their organization’s institutional readiness for EBP. Most respondents chose “None” to “Somewhat” when asked about availability of human resources to facilitate EBP

practice, such as Advanced Practice Registered Nurses (APRNs; 81%;  $n = 1,302/1,608$ ) doctorally prepared nurse scientists (79%;  $N = 1,267/1,608$ ), and health science librarians (69%;  $n = 1,150/1,608$ ). Moreover, 77% ( $n = 1,237/1,608$ ) responded fiscal resources to support EBP education were lacking. Clinical nurses involvement in decision making was perceived by 79% ( $n = 1,272/1,608$ ) to be “None” to “Somewhat.”

To what extent do RNs’ EBP beliefs, behaviors for implementing EBP, and perceived organizational readiness for EBP differ by demographic and professional characteristics?

**Hospital differences.** A statistically significant difference between Magnet designated hospitals and non-Magnet hospitals suggested RNs employed at Magnet designated hospitals held more positive perceptions toward their hospital’s organizational readiness and system-wide integration of EBP  $F(1, 1,606) = 145.99, p < .001$  compared to non-Magnet hospital RNs (Table 3).

**Age and work experience.** One way ANOVA showed the effect of age was statistically significant on OCRSIEP  $F(3, 779) = 3.73, p = .011$ , EBPB  $F(3, 750) = 4.37, p = .005$ , and EBPI  $F(3, 756) = 3.88, p = .009$ . Post hoc analyses using Games–Howell criteria for significance indicated younger nurses, aged 22–29, had more positive beliefs toward EBP ( $M = 59, SD = 8.33$ ) and organizational readiness ( $M = 81.30, SD = 18.33$ ; Table 4). Even though, the younger nurses claimed that they had less experience implementing EBP ( $M = 12.86, SD = 11.14$ ).

Similarly, there were statistically significant differences for respondents grouped by years employed as RNs for each of the three instruments: OCRSIEP  $F(4, 516) = 6.29, p < .001$ ; EBPB

**Table 2.** RN Exposure to EBP

EBP exposure	Yes	No
Learned about EBP in nursing school	54.2 (871)	45.8 (737)
Attended a workshop on EBP	26.4 (424)	73.6 (1,185)
Attended an EBP Conference	21.8 (350)	78.2 (1,258)
Hands-on experience (project)	32.6 (524)	67.4 (1,084)
Completed an online education program	21.5 (345)	78.5 (1,263)
Do not know much about EBP	14.5 (233)	85.5 (1,375)

$F(4, 513) = 5.20, p < .001$ ; and EBPI  $F(4, 505) = 5.12, p < .001$ . Respondent differences by length of employment in current position and OCRSIEP  $F(3, 757) = 6.34, p < .001$  and EBPB  $F(3, 729) = 11.35, p < .001$  also were noted. However, response by length of employment in current position for EBPI was found to be statistically nonsignificant. Hospital tenure of respondents appeared to negatively affect their attitudes toward EBP,  $F(3, 658) = 6.05, p < .001$  and their perceptions of organizational culture and readiness  $F(3, 676) = 2.69, p = .05$  but not the EBP implementation.

**Education and certification.** Statistically significant differences between basic and highest nursing degrees suggests RNs with a master's or higher degree had more favorable attitudes toward EBP and about EBP implementation compared to those nurses with diplomas, associate degrees, or bachelor's degrees (Table 5). Yet, perceptions about organizational culture and readiness did not vary by nursing degree, but did by certification. Certified nurses' perceptions were significantly more favorable about EBP  $F(1, 1137) = 18.78, p < .001$ , organizational culture and readiness  $F(1, 1,221) = 11.55, p = .001$  and EBP implementation  $F(1, 903) = 61.62, p < .001$  compared to nurses not holding certification (Table 6).

To what extent do nursing leadership, nurses in support roles, and clinical nurses differ in their beliefs, implementation behaviors, and perceptions of organizational readiness for EBP?

RN roles were categorized as nursing leadership, support services, or clinical RNs. Clinical RNs mean scores were statistically significantly lower when compared to nurse leaders and nurses in support roles. Nurses in leadership roles held more positive attitudes toward EBP  $F(2, 446) = 21.42, p < .001$ , EBP implementation  $F(2, 392) = 29.95, p < .001$ , and organizational culture and readiness  $F(2, 484) = 7.94, p < .001$  compared to clinical nurses.

## DISCUSSION

Significant variability existed in this study among RNs responses based on hospital type, size, and location. RNs in the Magnet designated hospitals reported more resources and held more positive beliefs about their hospital's organizational readiness for EBP than those at non-Magnet hospitals. Similarly, Melnyk et al. (2012) found RNs at Magnet designated hospitals were better prepared to implement EBP. This is a positive finding because, in 2000, the Magnet program expanded to include healthcare organizations outside of the United States. Now there are Magnet designated hospitals in Australia, Canada, Lebanon, and Saudi Arabia (ANCC, 2015). Hospitals nationally and internationally may benefit from the tenets of the Magnet program which places a strong emphasis on the use of evidence-based practices and transformational leadership to achieve positive patient outcomes (ANCC, 2013).

In alignment with findings by Ubbink et al. (2013) and Khammarnia et al. (2015), RNs in this study reported a lack of human and fiscal resources to promote a culture that supports EBP. Most of the hospitals in this study lack librarians. Therefore, RNs need literature searching skills to efficiently and effectively find the best available evidence. Of interest, the majority of RNs acknowledged they lacked the confidence and skills to implement EBP. Although they claimed to be knowledgeable in accessing resources, few reported performing this activity. This supports the work of Thorsteinsson (2013) who reported that, although RNs have practice-related questions, studies confirm they daily seek information from peers, may search the Internet, but rarely or never seek assistance of librarians.

This study also concurs with previous reports that RNs perceived a lack of inclusion in EBP activities. Lack of autonomy, lack of leadership support, and lack of inclusion in clinical practice decision making as well as physician resistance all contribute to low EBP implementation by RNs (Pericas-Beltran, Gonzalez-Torrente, De Pedro-Gomez, Morales-Asencio, & Bannasar-Veny, 2014; Patelarou et al., 2013). The inability to implement EBP practice changes is a serious healthcare concern requiring strong leadership to prevent its obstruction (Patelarou et al., 2013).

Similar to other research findings, although respondents' beliefs about EBP were positive, they reported their ability to implement EBP as extremely low (Majid et al., 2011; Stokke, Olsen, Espelhaug, & Nortvedt, 2014). Contextual factors, such as leadership, access to resources, organizational culture and interpersonal relationships, influence EBP integration (Patelarou et al., 2013).

Findings from this study also demonstrated that younger RNs with fewer years in practice showed more positive reactions toward EBP and organizational readiness. Positive attitudes toward EBP are associated with nurses with fewer years of experience and with greater knowledge of EBP (Dalheim, Harthug, Nilsen, & Nortvedt, 2012; Patelarou et al., 2013; Smith, Coyle, De Lacey, & Johnson, 2014). Unlike more experienced RNs, nursing students in some developed nations are learning about EBP in university settings. This greater

**Table 3.** Magnet Versus non-Magnet Hospitals

Hospital designation	n	OCRSIEP	EBPI	EBPB
		M/SD	M/SD	M/SD
Magnet	582	85.18 (17.46)**	14.88 (13.77)	58.47 (8.82)
Non-Magnet	1,026	73.75 (18.66)	15.36 (14.99)	57.68 (8.81)

\*\* $p < .001$ **Table 4.** Age Group

Age group	n	OCRSIEP	EBPI	EBPB
		M/SD	M/SD	M/SD
22–29 years old	262	81.3 (18.33)*	12.86 (11.14)*	59.22 (8.33)*
30–44 years old	521	77.37 (18.61)	16.01 (15.21)	58.58 (8.55)
45–54 years old	408	76.69 (18.6)	15.17 (14.82)	57.18 (8.71)
55 and older	372	77.64 (20.2)	15.63 (15.61)	57.28 (9.4)

\* $p < .05$ **Table 5.** Education

Education	n	OCRSIEP	EBPI	EBPB
		M/SD	M/SD	M/SD
Associate degree	413	77.34 (20.04)	11.93 (12.25)	56.21 (8.68)
Diploma	103	79.16 (19.35)	13.66 (15.74)	55.23 (9.43)
Baccalaureate degree	825	77.18 (18.87)	14.66 (13.76)	58.02 (8.75)
Master's degree	236	79.71 (17.6)	22.18 (17.36)**	61.64 (7.56)**
Doctorate	9	85.33 (16.19)**	22.22 (18)**	65.89 (8.62)**

\*\* $p < .001$ 

knowledge of EBP with novice nurses, when compared to seasoned nurses, is most likely attributable to modern day nursing curriculums that now include EBP. Thus, many seasoned nurses may lack this knowledge. Moreover, as evidenced by this study, a large proportion of the respondents had little EBP exposure whereas continued exposure to EBP for many novice nurses can and is occurring in hospital orientation programs, nurse residency programs, clinical advancement programs and postgraduate nursing degree programs. These same novice nurses also reported greater barriers to changing practice due to their lack of skill and experience (Dalheim

et al., 2012; Smith et al., 2014). Although less experienced RNs are more likely to use external sources of knowledge compared to their older counterparts, the ability to apply research evidence increases with age of the nurse and number of years of practice (Dalheim et al., 2012; Smith et al., 2014). Therefore, a recommendation is that more experienced nurses can serve as facilitators of research to assist their more junior counterparts with framing practice questions and applying the evidence (Dalheim et al., 2012).

Other notable similarities with this study and findings reported in the literature are the demonstrated statistical

**Table 6.** Nursing Certification

Nursing certification	n	ORSIEBP	EBPI	EBPB
		M/SD	M/SD	M/SD
Certified	570	79.92 (18.45)**	19.27 (16.42)**	59.21 (8.73)**
Not certified	1,008	76.59 (19.2)	12.78 (12.84)	57.2 (8.7)

\*\**p* < .001

**Table 7.** RN Role

Nursing role	n	OCSIEP	EBPI	EBPB
		M/SD	M/SD	M/SD
Nursing leadership	228	81.5 (16.73)**	20.26 (15.94)**	60.71 (8.71)**
Support service RN	269	79.56 (17.53)**	19.13 (16.5)**	59.53 (8.18)**
Clinical RN	1,093	76.81 (19.7)	13.06 (13.16)	57.04 (8.8)

Note. \*\**p* < .001. Nursing leadership, for example, VP/CNO/Director/Assistant director/Nurse Manager (NM)/(NM Assistant); support service RN, for example, APRNs, infection control, informatics, professional development specialists, WOCNs.

differences by nursing degree, certification, and nurses' roles, indicating that nurses in leadership or support roles with higher degrees (baccalaureate or graduate degrees) and certification had more positive attitudes toward implementation (Duffy et al., 2015; Melnyk et al., 2012).

### Implications

Globalization of healthcare organizations will only increase systems' challenges to standardize practices. Although hospital acquisitions and expansions are creating known variability in healthcare systems across the globe, barriers to implementing EBP are strikingly similar as evidenced by this study and others (Ubbink et al., 2013). Clinical healthcare settings require a culture change at the organizational, management, education, and patient care levels to implement EBP (Ubbink et al., 2013). Strategies are needed at multiple organizational levels to assess, intervene, and support implementation of EBP (Aarons, Ehrhart, Farahnak, & Hurlburt, 2015). Major facilitating initiatives identified by nurses and physicians include EBP education, constant involvement by colleagues, staff and management support to learn and apply EBP, structural promotion, facilitation of EBP activities by leadership, and clear and easily accessible protocols and guidelines (Ubbink et al., 2013).

### Leadership

Resoundingly, leadership is described as a key factor for promoting the generation and implementation of EBP and

creating an environment responsive to its implementation (González-Torrente et al., 2012).

In order to change a healthcare systems' nursing culture to one that embraces EBP and research, the nurse leaders of a multihospital system need to share a vision and be able to bring it to fruition (McCausland, 2012). However, nurse leaders of individual hospitals within the healthcare system need to truly understand the EBP process and be able to clearly articulate its meaning, use, and impact on patient care. Then, clinical and administrative directors and manager leaders must support EBP. Each leader can nurture the spirit of inquiry and EBP with RNs to improve practice and change the culture. To help achieve success, a council model consisting of clinical bedside nurses and leaders at the local hospital and system level can be used to standardize and support these practice changes (McCausland, 2012).

Pursuit of Magnet designation at either the individual hospital or hospital system level is another potential option to help get EBP embraced because the framework for the Magnet program includes "transformational leadership" and "new knowledge, innovations, and improvements" (ANCC, 2013). With U.S. hospital and healthcare system globalization and the Magnet program expanding internationally, new opportunities exist for expanding and standardizing EBP programs across the globe through the sharing of best practices online and at conferences.

Next, the transformational leadership component of this model emphasizes the importance of CNOs "to transform

values, beliefs, and behaviors” whereas the new knowledge, innovations and improvement element addresses the education and integration of EBP and research for nurses (ANCC, 2013). From an international perspective, and according to Ferguson (2015), Magnet is “highlighted as one of the best models for excellence in nursing services” in the International Council of Nurses (ICN) Leadership for Change (LFC) program (p. 353). Interestingly, Ferguson also reports that many of the LFC program participants are nurse leaders from multiple countries. Therefore, these nurse leaders are well positioned to lead and transform their nursing divisions into cultures that support and sustain EBP. However, in addition to the leadership, all individual nurses who have been educated about EBP also have a professional obligation to lead their colleagues to implement best evidence-based practices.

### Education

The data revealed a wide range of differences in beliefs, attitudes, and readiness among RNs from the nine participating hospitals. In addition, a large percentage of the RNs had exposure to education about EBP. Continuous EBP exposure through education programs, projects, and bedside implementation of practice changes would benefit experienced and novice nurses. Completion of individualized learning needs assessments by each hospital will help to determine the appropriate professional development and EBP education plan to engage RNs. The plan must consider the work environment and the culture of individual nursing clinical units across the system.

It can be posited that the RNs who responded to the survey likely represent those nurses who consistently participate in most professional and organizational initiatives. These are the nurses who join professional associations, sit for certification exams, pursue advanced degrees, and become members of shared governance councils. Nurses responsible for professional development of nursing staff need to develop strategies to encourage more engagement in EBP projects and research from the older and more experienced nurses who are not the usual participants.

The findings indicate that younger nurses with fewer years of experience and less hospital tenure hold more positive attitudes toward EBP. This group should be encouraged to join shared governance councils at the nursing unit, organizational, or system level and to participate in EBP projects (Stokke et al., 2014; Thorsteinsson, 2012).

Many of these younger nurses may have previously developed an EBP project from their undergraduate nursing program or a nurse residency program and are positioned to disseminate this knowledge with coworkers and interdisciplinary colleagues within the organization. This can be another avenue for the experienced nurse to become more informed about EBP and perhaps become part of the implementation team for these EBP projects. Pairing novice and expert to work on EBP projects has the potential to spark creative energy for both groups, and could support critical thinking and future innovation.

Due to multiple findings in the literature regarding lack of EBP knowledge, confusion, misunderstanding about EBP, and major EBP barriers, many nursing divisions within healthcare systems are creating an infrastructure to develop innovative strategies to implement EBP (Melnyk et al., 2012; Schifalacqua, Shepard, & Kelley, 2012). The corporate EBP Council, if composed of EBP experts, can develop a system-wide EBP education plan with a companion toolkit that can be easily accessible by individual nurses. Integration of EBP competencies into orientations and clinical ladder systems, and creation of EBP massive open online courses (MOOC) as has been offered by The Ohio State University College of Nursing are some of the recommended initiatives to standardize system education and practices (Melnyk et al., 2014; Schifalacqua et al., 2012).

Required resources should include easy access to multiple library databases and other appropriate technology for use by all nurses. Librarians or MOOCs may be used to teach RNs the skill of how to conduct a literature search. For hospitals that do not have onsite librarians, collaborative relationships can be formed with local or regional colleges of nursing to assist hospital RNs in learning how to search and find evidence to support their practice. The inability to search effectively makes the EBP journey more difficult for the RN. This is especially true for nurses who are unaware of the vast resources and mobile applications which can provide EBP information at their fingertips (Porchciol & Warren, 2009). Finally, financial support for RNs to attend and present their EBP projects at regional, national and international conferences is a way to encourage and reward them for advancing EBP within the organization.

### Practice

In order to address patient safety and improve quality of care, it is necessary to create an EBP culture that investigates the barriers and implements the best evidence for patients, based on patient preferences and values. Identified EBP mentors can make the difference in the progress of the EBP implementation on individualized nursing units and across a hospital system by providing the additional leadership, guidance, support, and training for EBP. Policies and procedures for seeking, verifying, and aligning the best and current evidence should be standardized and integrated across the healthcare system. Guidelines can be developed or modified by RNs at hospital or system council level meetings where RNs can review, revise, and recommend changes based on the best available evidence. Clearly written guidelines should then be made readily accessible to nurses at work or from home across the system for successful implementation. Evidence-based practice integration in daily practices should then be monitored by nursing leadership through quality improvement activities using outcome and process measures (Ubbink et al., 2013).

Healthcare systems should consider adoption of an implementation science framework to guide EBP implementation strategies. The Promoting Action on Research Implementation in Health Services (PARIHS) conceptual framework, a multidimensional framework consisting of three



elements—evidence, context, and facilitation—has been applied internationally to guide the implementation process (Rycroft-Malone & Bucknall, 2010). Further, for example, future collaboration among international networks such as the reproduction and clinical trials in Australia and New Zealand (REACT-ANZ; Smith et al., 2014) and the Implementation Science Research Network (ISRN) in the United States, could share knowledge and generate research and practice changes. Future research is recommended for international studies which address EBP in other hospital systems.

## LIMITATIONS

Inherent with a one-point-in-time survey where respondents both self-select and self-report the data, participant responses may have reflected their social biases. The response rate of 24% may also contribute to sampling bias. No analyses were performed to understand perceptions of RNs who elected not to respond. Moreover, the demographics of the participants were not representative of the multihospital healthcare system. More than half (55%;  $n = 892/1,608$ ) of the respondents were employed by the three largest hospitals. Smaller hospitals in the system were underrepresented. Finally, at the time of the study (2012), system-wide changes including the addition of another hospital to the system, a system CNO, and system nursing councils were being established; therefore, findings may not be reflective of today's staff. Although limitations exist with this study, the findings are consistent with the literature thereby adding to the body of knowledge about EBP and system integration for developed countries.

## CONCLUSIONS

As healthcare systems transition services to new settings and market places, nurse leaders will need to extend their reach beyond the hospital walls (González-Torrente et al., 2012). This work environment may be even more problematic, therefore, a three-prong universal approach focusing on leadership, education, and practice is suggested to promote EBP integration across a diverse healthcare system. Positive role modeling and sharing the vision of consistent application of research evidence by transformational nurse leaders across countries and continents can facilitate the uptake of EBP by individual RNs. As we continue to evolve into a more global society, the need for translation of research into practice, in whatever language we speak, is imperative. **WVN**



### LINKING EVIDENCE TO ACTION

- Locally, establish a hospital system-wide education plan including the EBP competencies for practicing nurses and advanced practice nurses with a companion EBP tool kit to standardize practice.

- Promote free and accessible massive open online courses (MOOC) on EBP.
- Globally, adopt the tenets of Magnet and utilize transformational leaders to lead, educate and mentor nurses about EBP.
- Share EBP best practices online and through international forums.

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