USING EVIDENCE BASED PRACTICE: THE RELATIONSHIP BETWEEN WORK ENVIRONMENT, NURSING LEADERSHIP AND NURSES AT THE BEDSIDE.

Yvette M. Pryse

Submitted to the faculty of the University Graduate School
in partial fulfillment of the requirements
for the degree
Doctor of Philosophy
in the School of Nursing,
Indiana University

August 2012

Accepted by the Faulty of Indiana University, in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

Anna M. McDaniel, PhD, RN, FAAN, Chair

Doctoral Committee

Melinda M. Swenson, PhD, FAANP, ANEF

Joanne R. Duffy, PhD, RN, FAAN

June 14, 2012

Cynthia A. Cook, PhD, RN, MSW

John Schafer, PhD

DEDICATION

In Memory of

Robert M. Azeltine Sr.

September 26, 1930 – December 16, 1997

To: Mom, Char and Shana

ACKNOWLEDGMENTS

The doctoral journey is not an individual endeavor and without the support and influences of a wonderful doctoral program, a great dissertation committee, and a supportive family, the results of my efforts would be less than optimal. Anna McDaniel as my committee chair provided the direction needed to focus my thinking and efforts. Her knowledge and expertise was instrumental in the completion of a quality dissertation. I am thankful for her guidance and support and I fail to find words that truly express my gratitude for her efforts on my behalf.

My committee members provided valuable feedback and guidance during this process. John Schaffer, as my statistician was extremely influential in my growth and understanding of statistics and without his support and expertise, I would not have developed the passion for statistics that I now have which was not present when I embarked upon this journey.

Cynthia Cook lent her expertise to my understanding of scale development and served as a mentor, friend and advisor which not only supported my professional growth, but served as a constant reminder of the *do-ability* of a dissertation. For Cynthia's part in my journey, I will be forever grateful.

JoAnn Duffy and Melinda Swenson provided valuable feedback and were important in helping me produce a quality product. I appreciate their time and guidance and thank them for agreeing to be a part of my committee.

I want to acknowledge my mother (Yvonne Azeltine), my sister (Charlene Holland) and my daughter (Shana Carlton) who lifted me up and carried me much of the time during the last 5 years as I struggled with a number of serious personal and health issues. Without their love and support, I would not have completed this work. Through

these difficult times, I have learned from the best that *presence* is one of the most meaningful gifts one person can bestow upon another. They have taught me the true meaning of life and words fail to describe my love and admiration for each of these powerful and beautiful women.

Lastly, I want to thank my Dad for his influence in my life. He strongly instilled in me a *can-do* attitude and the fortitude to meet challenges and face all obstacles with hard work and perseverance. I miss him.

ABSTRACT

Yvette M. Pryse

USING EVIDENCE BASED PRACTICE: THE RELATIONSHIP BETWEEN WORK ENVIRONMENT, NURSING LEADERSHIP AND NURSE AT THE BEDSIDE

Evidence based practice (EBP) is essential to the practice of nursing for purposes of promoting optimal patient outcomes. Research suggests that the implementation of EBP by staff nurses is problematic and influenced by beliefs, nursing leadership and the work environment.

The purpose of this descriptive study was to examine variables that describe the relationship among beliefs about EBP, the work environment and nursing leadership on the EBP implementation activities of the staff nurse. The variables of interest were 1) individual staff nurse characteristics, 2) beliefs about EBP, 3) the EBP work environment and 4) nursing leadership for EBP.

A descriptive, quantitative method was used. A sample of 422 Registered Nurses from two urban hospitals (one Magnet and one non-Magnet) completed an online 58 item survey that included questions related to individual belief's about EBP, the EBP work environment and nursing leadership for EBP as well as EBP implementation activities.

Education, tenure and Magnet status were not significantly related to EBP implementation activities in either the univariate or multivariate analysis. EBP beliefs had a significantly positive relationship with EBP implementation activities in both the univariate and multivariate analyses. Work environment and nursing leadership support for EBP had significant positive relationships with self-reported implementation activities in only the univariate analysis. The most surprising finding was that there were no

differences between Magnet and non-Magnet work environments for EBP implementation scores, yet the Magnet hospitals reported higher means on the EBP Beliefs Scale than the non-Magnet hospital.

The results of this have implications for identifying and testing strategies to influence EBP implementation activities through development of nursing leadership skills for EBP and creating a more EBP friendly work environment.

Anna M. McDaniel, PhD, RN, FAAN, Chair

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Chapter I

Introduction

Defining best practice has never been more important than in the current environment of healthcare. Evidence based practice (EBP) is receiving attention from a societal and a clinical perspective as consumers, governmental agencies and third-party payers insist that healthcare decisions be based on the latest evidence and in a timely manner (Melnyk & Fineout-Overholt, 2005, p. 45).

The importance of this emphasis on EBP can be felt, first and foremost, from the perspective of the patient as it has been shown that patient outcomes are 28% better when nursing care is based on evidence rather than common sense or tradition (Heater, Becker, & Olson, 1988). It is estimated that 30-45% of patients are not receiving care according to scientific evidence and that 20-25% of the care provided is not needed or is potentially harmful (Graham, et al., 2006).

From an equally important perspective, improved patient outcomes decrease healthcare costs, which is a priority of governmental and funding agencies (Melnyk & Fineout-Overholt, 2005). Health care consumers, society, government, and third-party payers expect care based on the latest evidence. Emphasis on the use of evidence to guide health care decisions and interventions is being exerted by all stakeholders (Melnyk & Fineout-Overholt, 2005). Policy makers and professional organizations continue to voice an urgent need for speedier mechanisms that promote evidence based practice (Melnyk & Fineout-Overholt, 2005). Melnyk (2004) recognized early on that third-party payers would soon influence healthcare practices where reimbursement for some services would be dependent on practices supported by scientific evidence. Melnyk was proven right,

when in 2008, the Centers for Medicare and Medicaid Services (CMS) decided to disallow payments associated with conditions that could reasonably have been prevented through the application of evidence based practice guidelines (Rosenthal, 2007).

However, in spite of the emphasis on EBP, implementation poses challenges in today's healthcare arena and it is understood that individuals, organizations, and the innovation itself contribute to an EBP gap (Dobson, 2007; Estabrooks, 2004; Funk, Champagne, & Wiese, 1991; Melnyk, 2005; Rycroft-Malone, 2008a; Stetler & Caramanica, 2007; Titler, 2004c). In 2000 it was reported to take as long as 17 years to translate research findings into practice (Balas & Boren, 2000). This research/practice gap is narrowing, partially due to the push by Magnet accreditation requirements and organizations like the Cochrane Collaboration, but still remains problematic. Healthcare systems struggle with implementing EBP processes, which permit the rapid dissemination and incorporation of new evidence by the healthcare practitioner (Dopson, 2007b; Meijers, et al., 2006; Melnyk, Fineout-Overholt, Stetler, & Allan, 2005; Rycroft-Malone, 2008a; Rycroft-Malone, et al., 2004a; Stetler, 2003b; Titler, 2004b, 2007). It has been reported that nurses lack the skills necessary to locate research information, critically appraise or synthesize the literature and then implement evidence based changes in complex healthcare settings (Brown, et al., 2010; Estabrooks, Kenny, Adewale, Cummings, & Mallidou, 2007; French, 2005; Gerrish & Clayton, 2004; Melnyk & Fineout-Overholt, 2005).

Evidence based practice has, until recently, been viewed as an individual activity. Recent research suggests that changes and implementation of policies and procedures based on new evidence are often beyond the control of the individual nurse (Foxcroft &

Cole, 2005; Rycroft-Malone, 2008a; Titler, 2007). Research suggests that the use of evidence to guide practice decisions is indeed *not* an individual activity and questions how the work environment and nursing management influence EBP (Estabrooks, Midodzi, Cummings, & Wallin, 2007b; Fink, Thompson, & Bonnes, 2005; Foxcroft & Cole, 2005; Rycroft-Malone, 2008a; Titler, 2007). Focusing solely on the individual nurse oversimplifies a solution and leads us to explore the context in which the implementation of EBP occurs.

Rycroft-Malone (2008a), an expert in the field of translation science suggests that a shift in *evidence-informed* practice may be moving away from the individual to organizational influences. It is not suggested that the staff nurse's contribution to EBP is minimal, but instead that the success of the staff nurse to engage in EBP relies on a supportive work environment and effective nursing leadership. The staff nurse's knowledge, beliefs, attitudes, and tenure undoubtedly work synergistically with the work environment and leadership found in the clinical arena to create an effective EBP site (Crow, 2006; Cummings, Estabrooks, Midodzi, Wallin, & Hayduk, 2007a; Dopson, 2007a; Estabrooks, Midodzi, et al., 2007b; French, et al., 2009; Gerrish & Clayton, 2004; Marchionni & Ritchie, 2008; Rosenheck, 2001; Royle, Blythe, Ciliska, & Ing, 2000; Xiaoshi, 2008)

Research supports that the organizational context found in the healthcare arena plays a major role in influencing EBP in nursing (Adewale, et al., 2007; AHRQ, 2000; Aita, Richer, & Heon, 2007; Austin & Claassen, 2008; Cummings, et al., 2007a; Dopson, 2007b; Estabrooks, Midodzi, et al., 2007b; Kitson, 2007; Rycroft-Malone, 2008a, 2008b), yet there remains confusion surrounding the impact of the organizational context on EBP

implementation by staff nurses. The purpose of this study is to explore staff nurses' perceptions of organizational work environment and nursing leadership, and the relationship of these variables to their implementation activities suggestive of EBP.

The Problem

Evidence based practice occurs in the context of complex systems where a multiplicity of variables affect the nurse's ability to engage in evidence based practice. There have been a plethora of studies that focus on the individual nurse's use of the latest evidence to guide practice decisions and a comprehensive list of EBP barriers has been described (Adamsen, Larsen, Bjerregaard, & Madsen, 2003; Andersson, Jylli, Kajermo, & Klang, 2007; Asselin, 2001; Bahtsevani, Khalaf, & Willman, 2005; Beyea & Nicoll, 1997; Bonner & Sando, 2008; Cadmus, et al., 2008; Carroll, et al., 1997; Cullum, 2002; Eccles, Grimshaw, Walker, Johnston, & Pitts, 2004; Estabrooks, Floyd, Scott-Findlay, O'Leary, & Gushta, 2003; Estabrooks, et al., 2005; Fink, et al., 2005; Funk, Champagne, & Wiese, 1991; Goodfellow, 2004; Henderson, Winch, Holzhauser, & De Vries, 2006; Jacobson, 2000; Jennings & Loan, 2001; Kajermo, Nordstrom, Krusebrant, & Lutzen, 2001; Kajermo, et al., 2008; Koehn & Lehman, 2008; Kuuppelomaki & Tuomi, 2003; LaPierre, Ritchey, & Newhouse, 2004; Lee, 2004; McCaughan, Thompson, Cullum, Sheldon, & Thompson, 2002; McSherry, Artley, & Holloran, 2006; Melnyk, et al., 2004; Micevski, Sarkissian, Byrne, & Smirnis, 2004; Olade, 2003; Olade, 2004a; Parahoo, 2000; Parahoo & McCaughan, 2001; Paramonczyk, 2005; Rizzuto, Bostrom, Suter, & Chenitz, 1994; Rolfe, Segrott, & Jordan, 2008; Thompson, Cullum, McCaughan, Sheldon, & Raynor, 2004; Thompson, McCaughan, Cullum, Sheldon, & Raynor, 2005; Ven, 1995; Williams, 2004). Additionally, researchers have created a number of models

that reveal a variety of variables that consider system influences that surround the nurse's ability to engage in evidence-based practice (Dufault, 2001; Jones, 2000; Logan & Grahm, 1998; Olade, 2004b; Rosswurm & Larrabee, 1999; Rycroft-Malone, 2004; Stetler, 2001; Titler, et al., 2001). However, very little research explores staff nurses' perceptions of those variables, particularly those surrounding organizational work environments and nursing management/leadership.

Research Question/Specific Aims

The multiplicity of variables that effect the implementation of EBP by staff nurses is complex and comprises multiple forms and layers of influence. Two of these influences are identified as work environment and nursing management/leadership. Research that explores the levels of influence that the work environment exerts on the practitioner is limited. The purpose of this research is to further our understanding of the relationship of the work environment and nursing management on the staff nurse's implementation of EBP.

Specific Aims:

1. Explore the relationship among staff nurses' tenure, educational level, and Magnet status of the institution and their beliefs and attitudes about EBP.
2. Explore staff nurses' perceptions of nursing leadership support for EBP and its association with staff nurses' beliefs and attitudes about EBP.

3. Explore staff nurses' perceptions of the degree that the healthcare work environment is associated with staff nurses' beliefs and attitudes about EBP.

Research Question:

1. Which of the following variables, alone or in combination predict staff nurses' implementation of EBP: staff nurses' individual characteristics, beliefs about EBP, and/or perceptions of nursing leadership and the work environment in which the staff nurse practices?

Method

A convenience sample of two hospitals was used for this study. The hospitals selected are large urban hospitals: a 695 bed university non-Magnet, acute care hospital, and a 555 bed inner-city Magnet community hospital. After Institutional Review Board approval was obtained from each institution, the nursing staff providing direct patient care from each institution were asked to complete a 58-item questionnaire measuring the independent variables (demographic data, beliefs, leadership , and work environment) and the dependent variable (EBP implementation activities). The sample population comprised 2539 acute care registered nurses involved in direct patient care. Data were collected via an online survey system consisting of four questionnaires. These questionnaires are the *Evidence Based Practice Beliefs Scale* and the *Evidence Based Practice Implementation Scale* (Melnyk, Fineout-Overholt, & Mays, 2008) as well as the *Evidence Based Practice Leadership Scale* and the *EBP Work Environment Scale* created by this researcher (See Chapter III for further discussion).

Definitions

The following definitions were applied to form the basis of this study.

A. *Evidence-based practice:* A systemic and conscientious use of current best evidence in making decisions about patient care which integrates a systematic search for the most relevant evidence to answer questions, and includes individual clinical expertise and patient preferences, values , and circumstances, all of which is informed by empirical knowledge (Melnyk & Fineout-Overholt, 2005; Straus, Richardson, Glasziou, & Haynes, 2005). The empirical knowledge comes from a wide variety of sources and includes nursing research and findings from the biological and psycho-social sciences and was measured by the 12 item EBP implementation scale (Melnyk, et al., 2008).

B. *Organizational context:* The characteristics of the care environment in which healthcare occurs; work environment, leadership, and infrastructures (tangible and non-tangible) resources are the major contextual variables (McCormack, et al., 2002).

C. *Work environment:* A construct of context, is defined, for purposes of this study, as a culture and climate for EBP. *Culture* is defined as nurses' values, shared expectations, and assumptions about support for EBP. *Climate* is defined as perceptions of those organizational features, such as decision making, leadership, working, and practice, which serve as resources for EBP. Support (culture) for EBP was measured by the 8 item *EBP Work Environment Scale* (Pryse, 2009) .

D. *Nurse leader:* Bass (1990), Koontz and O'Donnell (1964), and Stogdill (1948, as cited in Gifford et al. 2007) describe leadership from a classical perspective as influencing others to achieve goals. A more modern definition of leadership emphasizes organizational activities and interpersonal relationships to achieve goals. For the purposes

of this research, the definition of nursing leadership is borrowed from Gifford et al. (2007) and conceptualized as a "multidimensional process of influence to enable nurses to use research evidence in clinical practice, and includes behaviors and activities of managers that exert direct and indirect influence on individuals, their environment and organizational infrastructures" (p. 128). Leadership is expected to influence the staff nurse's beliefs, attitudes, and implementation activities suggestive of implementation activities related to EBP. Nursing leadership was measured by the 10-item *Evidence Based Practice Leadership Scale* (Pryse, 2009).

E. *Beliefs:* Melynk et al. (2004) asserts that beliefs are instrumental to implementation activities. Beliefs for this study is defined as the staff nurses belief's that EBP will produce better outcomes, improve clinical care , and will most likely trigger a higher level of motivation to learn about and engage in evidence based practice implementation practices. Beliefs are expected to influence the staff nurses' EBP implementation activities. Beliefs was measured with the 16 item *Evidence Based Practice Beliefs Scale* ((Melnyk, et al., 2008)

Assumptions

No study will answer its research questions with complete certainty and this imperfection lies in the assumptions that can be found in those particular views of the researcher that are believed to be true (Bryant, 2004; Powers & Knapp, 1995). This research is conducted from a perspective that systems are complex and highly interactive where the parts are greater than the sum.

The first assumption in this research is that the study population was representative of nursing units with different levels of engagement in EBP to support

decisions. This assumption is rooted in the decision to sample one Magnet status hospital and one non-Magnet status hospital for the purpose of practice site comparison. Magnet accreditation requires that the hospital adhere to the five model components supported by the *Forces of Magnetism*, which are described as 1) transformational leadership, 2) structural empowerment, 3) exemplary professional practice, 4) new knowledge, innovation, and improvements, and 5) empirical quality results (ANCC, 2011a). Magnet reviewers look for professional models of care where nurses have responsibility, accountability, and authority in the provision of patient care, which is necessary in an EBP environment. In addition, the Magnet credentialing process assesses nurses' contribution to the quality of care provided to patients and that the organization reflects indicators that quality of care and quality improvement are priorities. Additionally, Magnet status also implies that consultation and resources are available to nurses working as a multidisciplinary team. The attainment of the standards set by Magnet suggests that the healthcare environment is supportive of EBP. A second assumption is that the sample will understand the survey questions and will respond to them accurately.

Limitations

This study is designed to explore the organizational work environment and nursing leadership from the perception of the staff nurse. Perceptions of individuals about the organization are necessarily limited. They may know their part of the organization well, but not be able to appreciate the organization from a broader perspective. It is necessary that the researcher not assume that the staff nurse perspective is reflective of all aspects of the organizational work environment.

Addressing EBP from the perspective of staff nurses regarding the organization and nursing leadership is only part of this complex issue. It is recognized that a number of other variables are influential, such as the healthcare team, available funding, and resources, external mandates, and societal and governmental influences.

The study population is drawn from a convenience sample of staff nurses of large urban hospitals which limits the generalizability of the results. This study is limited to urban hospitals and may not represent the perceptions of all staff nurses in differing practice environments. An additional limitation is related to the use of self-reported surveys. Self-reports capture a restricted range of content and can be influenced by false reporting, inattentive responding, cognitive or memory limits, and acquiescence (Waltz, Strickland, & Lenz, 2005).

Significance

Nursing is a science and a profession with its own body of knowledge, and practice should be based on the best available evidence. There is now a hierarchy of evidence that exists to guide the practitioner in evaluating the strength of the evidence (Ackley, Ladwig, Swan, & Tucker, 2008; Craig & Smyth, 2007; Melnyk & Fineout-Overholt, 2005). However, the ability to locate, read, analyze and implement the best evidence requires a supportive environment (Marriner Tomey, 2009; Rycroft-Malone, 2008a, 2008b; Veeramah, 2008; Xiaoshi, 2008; Yano, 2008). This study helps redirect the current emphasis on the individual staff nurse's use of EBP to a more holistic perspective that takes into consideration the complexity and influence of the healthcare system. Nursing leadership has a major role in allocating resources that create a supportive EBP work environment. This focus is consistent with the current direction of

the literature which suggests that it is unrealistic to expect the individual staff nurse to locate, read, comprehend, implement and change policy based on new evidence without appropriate organizational and managerial support systems (Adewale, et al., 2007; AHRQ, 2000; Aita, et al., 2007; Austin & Claassen, 2008; Cummings, et al., 2007a; Dopson, 2007b; Estabrooks, Midodzi, et al., 2007b; Kitson, 2007; Rycroft-Malone, 2008a, 2008b). This study can make a valuable contribution to the theoretical knowledge base regarding the use of evidence in decision-making in complex healthcare systems.

Perhaps the most important reason to conduct this study is the potential for informing organizational, governmental, and unit-based policy decisions regarding the use of evidence for decision-making. This study may inform our understanding of the impact of work environment and leadership for the support and implementation of EBP. It is known that consumers of healthcare, governmental agencies, third-party payers, and accreditation organizations are emphasizing the use of evidence to guide practice decisions for the purpose of improving patient outcomes. It is also known that in spite of the large volume of literature and research that has identified the numerous barriers to a robust evidence-based practice environment, utilizing the latest evidence to inform decision-making remains problematic (Brown, et al., 2010; Brown, Wickline, Ecoff, & Glaser, 2009; Scott, Estabrooks, Allen, & Pollock, 2008; Strickland & O'Leary-Kelley, 2009; Toma, et al., 2010; Yava, et al., 2009). The results of this study will contribute to the understanding of the relationship between organizational support and nursing management on the individual staff nurse's EBP beliefs and implementation activities.

This study will examine staff nurses' perceptions of the organizational work environment and nursing management which influence nurses' self-reported engagement

EBP activities. This information can guide future intervention studies that shape the work environment or leadership on a unit striving to develop a robust and effective evidenced based practice.

Chapter II: Literature Review

The literature review comprises the empirical and conceptual literature on EBP within the context of the healthcare organization. The literature will focus on EBP and three characteristics assumed to influence evidence practice: a) the organizational work environment, b) nursing leadership and c) the individual nurse.

Conceptual Analysis

A concept analysis leading to the identification of variables and definitions for a concept is needed when undertaking research. Schwartz and Russek (1997) assert that differing observations of a concept under study are influenced by the researcher's presumed beliefs. Integrative diversity, as described by Schwartz and Russek is descriptive of the worldview held and the approach to this work. It is recognized and asserted that all phenomena reflect complex interconnections and the integration of diverse processes.

In keeping with the purpose of this work to examine the effect of the work environment and nursing leadership on EBP by the staff nurse, it is necessary to examine EBP in the context of the organization. In order to begin this examination, the ways that EBP has been conceptualized needs to be investigated. A logical progression of exploration begins with EBP, then organizational context, work environment, followed by leadership and concludes with the association of both on the individual nurse's self-reported EBP activities.

Historical Background

It was not until the 1970s when a sufficient number of published clinical nursing research studies were available that efforts in research utilization began. This was the

beginning of the current EBP movement. At this time, three major projects were undertaken for the purposes of using research to inform practice decisions (Kirchhoff, 2004). The Conduct and Utilization of Research in Nursing (CURN) project was spearheaded in Michigan for the purposes of implementing 10 medical surgical protocols developed from the latest evidence (Horsley, Crane, Crabtree, & Wood, 1983). Conducted during the late 1970s, the purpose of the CURN Project was to facilitate the use of scientific nursing knowledge in clinical practice settings (Larson, 1989). The CURN project revealed three major observations: 1) not all the protocols worked in practice settings, 2) readiness of nursing research for practice implementation was questioned, and 3) the use of research by the clinician revealed that implementation was problematic (Kirchhoff, 2004).

In 1994 the Nursing Child Assessment Satellite Training (NCAST) used various methods for the dissemination of the latest evidence in the field (Kirchhoff, 2004) and the Western Interstate Commission on Higher Education in Nursing (WICHEN) developed teams of researchers and clinicians who attended workshops and worked together to solve clinical problems using research (Krueger, Nelson, & Wolanin, 1978). All three projects were met with resistance that ranged from practice settings barriers to protocol implementation strategies and questions regarding the readiness of research for use (Kirchhoff, 2004).

During the 1980s and1990s continuing efforts to move research into practice was occurring. Multiple demonstration projects suggested that nursing care could be changed from tradition-based to evidence-based practices, but the organizational variables, the dose, type and frequency of the interventions were not clear (Titler, 2004a).

In the late 1990s the Agency for Healthcare Research and Quality (AHRQ) issued two calls for translating research into practice (TRIP) by providing funding for the purpose of improving the practice environment through the use of empirical evidence (AHRQ, 2000). The primary objective of this funding was to gather data to be used to inform the decision-making processes of policy makers at the clinical, organizational, and public policy level. The emphasis was on "the testing of effective and efficient interventions that had the potential to improve clinical practice, enhance patient safety, and sustain practitioner behavior changes across multiple health conditions, populations, and healthcare systems" (Duffy, 2005, p. 61). The findings from the TRIP I and TRIP II grants provided information regarding the providers, collaborators, recipients, environments and educational strategies in various settings and continues to lead national efforts in the use of evidence to guide healthcare decisions (NIH, 2002). Today, global efforts to incorporate the latest evidence for the purposes of decision-making in healthcare are apparent in the establishment of the National Institute for Health and Clinical Excellence in England, the Scottish Intercollegiate Guidelines Networks and the National Institute for Clinical Studies in Australia (Gerrish, et al., 2006).

During the late 1990s a distinction between research utilization and EBP began to appear in the literature. Sackett and colleagues (1996) offered one of the most widely cited definitions of EBP as "the conscientious, explicit, and judicious use of current evidence in making decisions about the care of individual patients" (p. 72). In 2000, they added to this definition the need to take into account patient values (Sackett, Straus, Richardson, Rosenberg, & Haynes, 2000). In 2007, Newhouse made an additional important distinction. Research utilization was a process that began with the research,

whereas, evidence based practice began with a question (Newhouse, 2007). This definition drew a clearer understanding that EBP was unlike research utilization. The use of empirical evidence to support the nurse *and* patient in the decision-making process is lacking when focusing only on research utilization, primarily because the process is not driven by clinical questions but instead a research study.

In 2006, Estabrooks et al. described "poor definitional clarity, discipline specific terminology and implicit assumptions…" (p. 25) as confounding when engaged in the study of EBP. Related concepts are frequently missing or absent from articles and were found to rest on a variety of assumptions that are rarely made clear. The terms research utilization and EBP were used interchangeably.

Evidence based practice was loosely defined as the use of knowledge to ensure the best outcomes for patients. However, it was suggested that nurses who engaged in EBP drew their knowledge from a variety of sources. Research was used to support/inform the nurse's experience and expertise and included patient preferences with the goal of informed decision-making by the nurse and patient in the evidence based environment (Estabrooks, et al., 2005; Fineout-Overholt & Johnston, 2006; Ingersoll, Kirsch, Merk, & Lightfoot, 2000; Melnyk & Fineout-Overholt, 2005; Newhouse, Dearholt, Poe, Pugh, & White, 2005). The definition was evolving and included the "integration of systematically derived research-based knowledge with the practitioner's tacit knowledge drawn from experience and their interpretation of the needs and perspectives of each person with whom they interact" (Craig & Smyth, 2007, p. 9).

What makes EBP an activity that is unique to the way *things have always been done* is the added dimension of research-based evidence that challenges traditional

experiential nursing practice by incorporating empirical findings in the decision-making process. Empirical evidence comes from a variety of sources and informs the nurse about not only the physical, but also the psychological and sociological dimensions of the patient's health and well-being. This knowledge is communicated to patients and secondarily supports the use of evidence to inform the patient's decision making processes.

In the late 1990s, Goode and Titler (1996) introduced a pragmatic and action-oriented dimension to the use of EBP. They identified three building blocks that need to be present for EBP to occur: a) organizational commitment operationalized through the philosophy and mission statement, objectives outlined in the strategic plan, nurse leaders communicating the value of evidence and job descriptions that enforce EBP; b) identifying and empowering change agents; and c) instituting a planned change process (Goode & Titler, 1996). This heuristic model identified as the IOWA model of EBP (Titler, et al., 2001) is the framework many hospitals use today to foster and implement EBP.

Therefore, EBP is the integration of a systematically acquired research knowledge base by the nurse clinician that enhances the nurse's tacit knowledge and his/her understanding and interpretation of patient values, needs, and expectations to make health care decisions. This requires that nursing use

> methodologically sound clinically relevant research about the effectiveness and safety of nursing interventions, the accuracy and precision of nursing assessment measures, the power of prognostic markers, the strength of causal relationships, the cost effectiveness of nursing interventions and the meaning of illness or patient experiences… via a hierarchy of evidence to guide clinical decision-making (DiCenso, Guyatt, & Ciliska, 2005, p. 4).

Today, the challenge revolves around the need to accurately identify the organizational barriers to implementing EBP and focus on those obstacles that can be changed and controlled to improve the use of evidence to support staff nurses' clinical decision-making. It appears that a fully encompassing conceptual EBP model designed to guide implementation studies and to guide strategies to promote EBP remains lacking (Estabrooks, Midodzi, et al., 2007b; Rycroft-Malone, 2007b, 2008a, 2008b; Titler, Everett, & Adams, 2007). Furthermore, it has not been until recently that research related to EBP barriers is shifting from the individual staff nurse to organizational and leadership barriers. It is becoming more apparent that EBP is not an individual activity (Estabrooks, Midodzi, et al., 2007b; Rycroft-Malone, 2008a; Titler, 2007). Although the staff nurse is instrumental to the implementation of new evidence, the ability to locate, read, analyze, and implement change may be outside the realm of possibility in the complex healthcare system where change is greatly influenced by the nurse, organization, leadership, and other providers.

Organizational Context

In a systematic review conducted by Foxcroft and Cole (2005) for the Cochrane Collaboration, 6300 published empirical works were reviewed and it was determined that no one type of organizational infrastructural intervention could be recommended as being effective in promoting evidence-based nursing practice. The understanding of organizational context (which includes nursing leadership) to promote EBP is found lacking.

Foxcroft and Cole (2005) found that the understanding of organizational context was complex. It is important to understand that context is a broad term that houses the

various constructs that have been explored by organizational scientists and that work environment and leadership are but two constructs. For purposes of clarity, it is helpful to briefly describe what is known about organizational context and then focus on organizational work environment.

The role of organizational context for purposes of research is complicated by a lack of consistency in the definitions. Additionally, the multiple clusters and multiple systems environment found in the healthcare arena suggest that components of an organization can be grouped in a variety of ways (Chin, 1985 as cited in McCormack et al. 2002). It has been noted that terminology including "work environment, practice environment, organizational culture, organizational climate and context have been used to describe the health care practice environment" (Wallin, Ewald, Wikblad, Scott-Findlay, & Arnetz, 2006, p. 154). The terminology is not only confounding, but is further complicated by the disagreement regarding the variables that describe context.

Conceptual analysis of organizational context points out the many and varied variables that influence individuals in the workplace (Kimberly & Cook, 2008; McCormack, et al., 2002; Newhouse, 2007). The attributes ranged from commitment and resources (Newhouse, 2007) to implementation variables such as centralized and formalized processes (Kimberly & Cook, 2008), leadership (Kimberly & Cook, 2008; McCormack, et al., 2002; Newhouse, 2007; Rycroft-Malone, 2008a) and culture (Rycroft-Malone, 2008a).

The organization as the context in which providers operate and are subsequently influenced is comprised of complex and interactive patterns of associations. Associations as obvious as the management hierarchy to less obvious complex lateral and

interdepartmental collaborations collectively combine to influence the clinical practitioner (Kimberly & Cook, 2008; McCormack, et al., 2002; McCormack, McCarthy, Wright, Slater, & Coffey, 2009; Newhouse, 2007). Organizational and individual characteristics are part of a dynamic and interwoven social network where interactive, interpreted, and enacted phenomena influence the research practice gap and are not merely a *back-drop* but an integral part of the process (Dopson, 2007b). It is important to recognize that experts in the area of organizational science have suggested that nurse researchers in the field of EBP are not studying context for the *active role* it takes in the implementation of EBP, but instead, the work reflects a positivist approach where context is viewed via a series of hypotheses (Dopson, 2007a). Analysis of the PHARIS EBP model was conducted by an organizational expert to reveal these shortcomings (See Table 1: A View from Organizational Science). It is recognized that the study of organizational context is complex. This study will limit the focus with a more positivistic approach to context and leadership and its impact on the ability of the nurse to implement EBP.

Author	Aim	Purpose	Points
(Dopson, 2007a)	Attention is drawn to a number of dimensions of organizational complexity: knowledge translation as a processual phenomena, the contestability of knowledge, the existence and influence of multiple actors in healthcare contacts, the influence of professional and cognitive boundaries and the active role of context.	Expert commentary on the complexity of studying EBP within the context of the organization. An entire issue of *Nursing Research* was devoted to the topic and Dopson served as the organizational expert to critique work presented by Estabrooks on the impact of context on EBP.	The author challenges the PHARIS model and suggests it does not fully encompass context as an "active role" in the implementation of EBP and reflects a positivist approach, where context is viewed via a series of hypotheses. Dopson suggests it is more complex and begs us to consider other approaches: 1. Contingency Theory a. Deterministic view that plays down the ability of managerial action or perceptions to influence behavior b. Criticized for its reductionists analysis c. Highlights that different styles of promoting knowledge translation needs to be a match between leadership styles and context d. Organizational Configuration • View that conceptually distinct characteristic that occur together can be situated at multiple levels of analysis • Limited by the attributes tendency to fall into coherent patterns 2. Institutional Theory a. Adoption of innovation and change is not a means of improving performance but instead a means of achieving legitimacy within the organizational field b. Social constructionism (mediated by existing power relationship, where the most powerful regarded as legitimate practice, i.e, benchmarking orgs, government mandates. 3. Configuration Theory a. Heuristic (problem focused) 4. Social Network Theory a. Attributes of individuals are less important than their relationship and ties with others in the network. Unidirectional view of context contributes to: 1. Individuals portrayed as passive recipients 2. Components of context separated and loss of an integrated configuration occurs 3. Static view of context versus evolving and changing.

Table 1: A View from Organizational Science

Gershon, Stone, Bakken, and Larson (2004) assert that there is evidence that organizational climate and culture impact outcomes in healthcare organizations and are two separate constructs. Climate and culture are difficult to separate and measure (MacDavitt, Chou, & Stone, 2007). The most confusing tendency is to use these terms interchangeably. There is disagreement on the definition of these terms, how they are related and the impact of each on the work environment (Aarons & Sawitzky, 2006; Gershon, et al., 2004). Denison (1996) argues that the conceptualizations of culture and

climate are more apparent in the literature than in reality. It is known that there are at least 54 different definitions of organizational climate (Verbeke, Volgering, & Hessels, 1998) and 150 differing definitions for the term culture (Bali & Bloor, 1999). It is difficult to determine "where culture leaves and climate begins, because they so intimately affect and define each other" (Gershon, et al., 2004, p. 35).

Work Environment

It is important to appreciate that culture and climate are two separate constructs at the theoretical level; however, on a practical level it is suggested that culture and climate are intertwined (Denison, 1996). Dennison's (1996) extensive review of the literature defined climate as a *situation* with links to thoughts, feelings, and behaviors of organizational members, whereas, culture in contrast, is described as an *evolved* context in which the situation is embedded. A widely used definition of climate is shared perceptions of organizational features such as decision making, leadership, and norms about work as well as working and practice conditions which may be influenced by mangers. Culture is defined as the norms, values and beliefs within an organization (MacDavitt, et al., 2007).

It is beyond the scope of this study to make the necessary distinctions which adhere strictly to the theoretical definitions of these two constructs, but it is recognized that there is a difference. The focus of this work will attempt to measure support and resources as attributes of culture and climate. For this study, it is recognized that the work environment is comprised of a culture and a climate for EBP. The term *work environment* was used throughout this study to explore nurses' values, shared expectations, and assumptions about support for EBP (culture) and their perceptions of those organizational

features such as decision making, leadership, working and practice conditions that serve as resources (climate) for EBP.

Culture. Deal and Kennedy (1982) indicated many years ago that culture was a significant contributing factor accounting for the success or failure of an organization. Organizational culture has a number of dimensions and levels within and surrounding the EBP environment. It has been shown that the culture in which the nurse practices holds a dominant position in organizational context and is a legitimate research concern related to EBP (Chang & Lin, 2007; Cummings, et al., 2007a; Dobson, 2007; Estabrooks, Midodzi, et al., 2007b; Marchionni & Ritchie, 2008; Melnyk, 2004; Schein, 1992). Culture is a link between management and organizational behaviors and is an important factor for supporting and guiding EBP efforts.

Culture is viewed as a construct of organizational context or as a way to conceptualize the organization (Golden, 1992). The latter view implies that the culture and context of the organization are intertwined and cannot be untangled, that culture is what the organization *is*. Culture is viewed as the implicit norms, values, shared behavioral expectations, and assumptions that guide the behaviors of the worker (Cooke & Rousseau, 1988). A functional view of culture emphasizes what the culture does for the individual and the organization and is viewed as a *sharing of sorts*; i.e., sharing certain important beliefs (Golden, 1992).

The concept of culture was not applied to organizations until the late 1970s and early 1980s and was referred to as "socially constructed systems of meaning" (Morrill, 2008, p. 23). It has been suggested that organizational culture exists as a hierarchy of sorts and is seen through values (articulated norms, social principles, and ideologies

which are important to the organization) and basic underlying assumptions (the deepest level or core of the organization that influences perceptions, thoughts, and feelings about the organization) (Schein, 1992; Scott-Findlay & Golden-Biddle, 2005).

Additional views of culture can be found in the literature as descriptors of what can be assumed as a positive impact on EBP within a culture. Organizations described as learning organizations (Kajermo, et al., 2008; Marchionni & Ritchie, 2008) with a responsive administration (Cummings, et al., 2007a; Gerrish & Clayton, 2004; Ploeg, Davies, Edwards, Gifford, & Miller, 2007) and embedded with effective change strategies (Cummings, et al., 2007a; Gerrish & Clayton, 2004; VanDeusen Ludas, et al., 2007) are found to create a culture, receptive to EBP. A certain commitment to EBP is instrumental in creating an EBP culture, and the notion of commitment is supported in the literature as a broad category that describes how the organization as an entity facilitates or hinders EBP in the clinical area (Golden, 1992; Ingersoll, et al., 2000; Rappolt, Pearce, MeEwen, & Polatajko, 2005; Schein, 1992). The commitment of the organization to the use of evidence by the nurse is demonstrated in a variety of ways and is apparent when the mission, objectives and strategic plan are clearly communicated through policy and procedures, job descriptions, and financial support for EBP (Goode & Titler, 1996; Greenhalgh, Robert, Bate, Macfarlane, & Kyriakidou, 2004).

A single study stands alone and strongly supports the argument that an organization committed to creating an EBP culture in the practice setting is influential (Karkos & Peters, 2006). Karkos and Peters (2006) addressed whether or not administrative priorities, awareness, commitment and empowerment were consistent with the goal of an EBP environment. The researchers used Funk's Barrier measurement

instrument (a frequently used 29-item assessment tool designed to evaluate research utilization by the individual nurse) (Funk, Champagne, Wiese, & Tornquist, 1991) to identify the clinicians' perceived barriers to research utilization in a Magnet hospital. Barriers were identified that reflected much of what the literature revealed with this frequently used measurement tool. However, the researchers (Karkos & Peters, 2006) found an unexpected result. Each of the four domain barriers were lower than barrier studies conducted in the previous 15 years. This study revealed that the sample organization had lower means in four barrier domains (adoption, organization, innovation and communication), implying fewer barriers to research. This was attributed to nursing leadership supportive of innovation, resources to assist nursing research efforts and the presence of a research council, all results of the pursuit for Magnet status. Karkos and Peters suggest that the Magnet culture positively influences EBP and that organizational support/culture does indeed, influence research use by clinicians.

This assertion that organizational influences impact the implementation of new knowledge (EBP) is supported by an unpublished pilot study conducted by this author (Pryse, 2008). A case study was conducted to illuminate the variables embedded in the process of implementing an innovation (i.e., Rapid Response Teams) in a small rural hospital. "Rapid Response Teams (RRT) provide a method for sending experts to the bedside to assist with patient evaluation and treatment before clinical deterioration progresses to cardiac arrest" (Simmonds, 2005, p. 41). The main task for the case study was to explore those organizational characteristics that support or hinder the use of new knowledge. This researcher explored how a new evidence based project entered into the awareness of the organizational leaders and the barriers encountered from the perspective

of senior management, middle management and the staff nurse during the assessment and implementation phase of the project. Using a qualitative approach, participants were asked to describe their part in instituting rapid response teams. Interviews with nine individuals at key *gatekeeping* positions within the organization were conducted. Individuals interviewed were the chief executive officer, chief nursing executive, nurse managers, staff development educators and members of the implementation committee comprised of nursing supervisors and staff nurses (three management positions, five staff nursing positions and one ancillary department manager). It was revealed that the implementation of the rapid response teams as envisioned by the nurse-driven committee, failed due to barriers related to a lack of administrative commitment, physician resistance and poor leadership in facilitating this externally mandated change (Pryse, 2008).

Climate. The term *work environment* is used throughout this study to explore nurses' values, shared expectations and assumptions about support for EBP (culture) and their perceptions of those organizational features such as decision making, leadership, and working and practice conditions that serve as resources (climate) for EBP.

Organizational climate is defined as "shared perceptions of organizational features such as decision making, leadership, and norms about work as well as working and practice conditions, many of which may be directly influenced by the (nurse leader) manager" (MacDavitt, et al., 2007, p. 45). It is suggested that climate is easier to measure than culture and is viewed as the more tangible components in the work environment (Denison, 1996).

The work environment primed for EBP is in an ongoing state of preparedness for change, which requires purposeful planning, refinement, and the flexibility within the

available social and technical resources to initiate and sustain change. Adequate facilities (e.g., computers, access to databases, quiet areas for research reflective thinking); opportunities to collaborates with scientifically sophisticated colleagues; staff development which focuses on skill development in accessing, reading and analyzing research; time to read research; and authority to change practice in the presence of managerial and physician support is necessary.

An integrative model of organizational climate based on an analysis of 20 studies focused on macro and mid-level variables that impact nursing outcomes (See Table 2: The Work Environment Impact). The synthesis revealed that leadership and the organization's structural characteristics at the macro level and supervision, work design, group behavior and an emphasis on quality at the mid unit level influence nursing outcomes (MacDavitt, et al., 2007). Conversely, rigid leadership styles and poor communication styles are related negatively to patient quality care issues and are a key to the workplace climate (Gershon, et al., 2004).

Reference	Purpose/Aims	Methodology	Findings
(Aarons & Sawitzky, 2006)	Hypothesized that the organizational characteristics of culture and climate would be associated with more positive attitudes toward EBP and perceived practice and EBP	Quantitative *N* = 301 Mental Health Providers Measurements: Attitudes toward EBP • 15 items with 4 subscales • α = .77 Organizational Context: Derived from the Organizational Culture Inventory • α = .86-.89 for constructive culture scale • α = .75 - .86 for defensive culture scale Organizational Climate (from the Children's Services Survey) • α = .69 -.92	1. Constructive culture significantly positively associated with attitudes (r = .133 p <.05) 2. Demoralizing climate was significantly negatively associated with constructive culture (r = -0.312 and positively highly associated with defensive culture (r = .470)
(Andersson, et al., 2007)	Describe how nurses' working within pediatric care in different professional levels evaluate their professional self and their perceived barriers to research utilization	Quantitative Intervention study *N* = 113 pediatric nurses at two university hospitals in Sweden • *N* = 36 control group • *N* = 42 Trainee group • *N* = 35 Specialist group Two instruments: 1. Professional Self Description form (21 items) α = 0.94 2. BARRIERS scale (29 items) α = 0.84	3. Insufficient time to implement new ideas means: (Likert scale from 'no extent' (1) 'to a great extent' (4). A 'no opinion') a. 2.74 control group b. 3.07 trainee group c. 3.09 specialist group 4. Do not have time to read research a. 2.85 control group b. 3.28 trainee group c. 3.09 specialist group 5. Research not readily available a. 2.79 control group b. 2.71 trainee group c. 2.86 specialist group 6. Facilities are inadequate for implementation a. 2.87 control group b. 2.92 trainee group c. 3.23 specialist group 7. Nurse is isolated from knowledgeable colleagues ($p \leq 0.003$) a. 2.22control group b. 2.84 trainee group c. 2.97 specialist group 8. Administration will not allow implementation ($p \leq 0.028$) a. 1.54 control group b. 1.52 trainee group c. 2.04 specialist group

Reference	Purpose/Aims	Methodology	Findings
(Bonner & Sando, 2008)	Determine the knowledge, attitudes and use of research by nurses	Descriptive design *N* = 347 nurses Measurement: Edmonton Research Orientation Survey • (α = 0.93) • 5-point Likert scale • Higher scores indicate a positive research orientation	Showed few differences between the three groups of nurses, indicating that the professional self is independent of educational level while barriers to RU increase with competence and experience. Kruskal– Wallis analysis found statistically significant results support that a positive attitude towards research was associated with higher level positions. 1. Level of position and their use of research (H = 12.67,d.f. = 3, $p < 0.05$), 2. Attitude towards research(H = 11.59, d.f. = 3, $p < 0.05$) Knowledge about research was significantly associated with higher level positions. 3. Knowledge of research (H = 19.03, d.f. = 3, $p < 0.001$). 4. Statistically significant relationship between participants attitude towards research (H = 7.40, d.f. = 1, $p < 0.05$) and university subjects completed and knowledge of research (H = 4.05, d.f. = 1, $p < 0.05$) and university subjects completed.
(Cummings, et al., 2007a)	Test a theoretical model (PARIHS) that predicts RU by nurses and influence and asses the influence of varying degrees of context.	Quantitative Census survey n = 6,526 nurses 52.8% response rate Acute care RNs in Canada	Developed a model that reflected causal relationship from hospital variables (causal latent variables) to nursing unit characteristics (intervening variables) and then to RU; staff and patient adverse events (outcome variables) Regression coefficients considered significant if the coefficient exceeded more than 2 standard errors: • Opportunities for nurse to nurse collaboration and staff development had a positive significant influence on RU
(Fink, et al., 2005)	Identify the changes in nurse attitudes toward RU and the organizational environment, pre and post a multifaceted intervention to promote RU	Quantitative (Qualitative comments included from questions) Descriptive, cross-sectional pre and post survey design N = 215 Measurement: BARRIERS Scale • (α = .91) Research Utilization Scale • (α = .89) Research Factor Questionnaire • (α = .85-.88))	Pre-Post implementation results: moderate to great extent (>3.0 on a 0–4 scale) 1. Perceived organization as greatest barrier a. ($\overline{X}$ = 2.76 pre; 2.61 post) 2. Communication a. ($\overline{X}$ = 2.65 pre; 2.57 post) 3. Adopter a. ($\overline{X}$ = 2.38 pre; 2.26 post) 4. Innovation a. ($\overline{X}$ = 2.17 pre; 2.14 post) Pre implementation: # research use barriers rated as moderate to great extent:

Reference	Purpose/Aims	Methodology	Findings
			1. Authority to change practice 2. Awareness of research 3. Time on the job to read research
(Gerrish & Clayton, 2004)	Examine factors that influence the achievement of EBP	Quantitative *N* = 330 Unidentified survey instrument to determine the sources of nurse knowledge to inform their practice and adaptation of the BARRIER Scale. No reliability data provided.	Sources of knowledge of the staff nurse: (18 items; 5 point scale ranging from never (score 1) to always (score 5). Top 13 mean score (standard deviation): 1. Information that I learn about each patient as an individual 4.37 (0.678) 2. My personal experience of caring for patients over time 4.08 (0.675) 3. Information my fellow practitioners share 3.85 (0.607) 4. What doctors discuss with me 3.63 (0.745) 5. Information I get from attending in-service training/conferences 3.58 (0.776) 6. Information I get from policy and procedure manuals 3.57 (0.831) 7. New treatments and medications that I learn about when doctors prescribe them or patients3.55 (0.705) 8. My intuitions about what seems to be right for the patient 3.36 (0.719) 9. Information I learned in my training 3.30 (0.825) 10. Articles published in professional journals 3.12 (0.754) 11. Information in textbooks 3.05 (0.732) 12. Information I get from audit reports 3.05 (0.884) 13. Articles published in research journals 2.92 (0.828)

Reference	Purpose/Aims	Methodology	Findings
(Gifford, et al., 2007)	Describe leadership activities of nurse managers that influence nurses' use of research evidence and interventions aimed at supporting nurse managers to influence research us in clinical nursing practice.	Literature search (*n* = 849 titles) *n* = 8 Quantitative *n* = 4 Qualitative Inclusion Criteria: 1. *Quantitative*: Activities of nurse managers and research use by clinical nurses must have been study variables. Research use variables included research implementation, utilization, clinical guideline use, and/or evidence-based practice. 2. *Qualitative*: Studies must have specifically focused on nurse managers' roles or activities and their influence on clinical nurses' research use. 3. *Design*. Original research of qualitative and quantitative designs. 4. *Participants*: Nursing healthcare professionals in the sample. 5. *Language*: English only.	Highlights the strategic role managers have in research transfer. Facilitative and regularly activities appear to be necessary for mangers to influence research use. Quantitative studies revealed three activities of managers and the use of EBP by staff nurses: 1. Managerial support 2. Policy revision 3. Auditing Qualitative studies revealed organizational issues as barriers to the manager's ability to affect research use. All articles had insufficient information about leadership development.
(Hutchinson & Johnston, 2004)	Explore perceived influences on nurses' utilization of research, and explore what differences or commonalities exist between the findings and studies conducted within the past 10 years.	Quantitative *N* = 317 nurses Measurement: BARRIERS scale A = 0.65-0.80	Barriers identified in this study: (% of responses) 1. Time constraints (78.3%) 2. Lack of awareness of available research (66.2%) 3. Insufficient authority to change practice (64.7%) 4. Inadequate skills (55.8 %) 5. Lack of support for implementation (52%) 6. Physicians will not cooperate with the implementation (56.1%) 7. Nurses isolated from knowledgeable colleagues with whom to discuss research (41%) Facilitators identified in this study: More time to review and implement research findings (89.6 %) Available relevant research (81.4 %) Colleague support (81.4%) Employing nurses with research skills to serve as role models (78.2%) Findings consistent with the reported findings during the past 10 years.

Reference	Purpose/Aims	Methodology	Findings
(Kajermo, et al., 2008)	Identify the predictors of nurses' self reported barriers to using research finding s in clinical practice.	Quantitative *N* = 833 nurses Measurement: 1. BARRIERS Scale (α = 0.69-0.83) 2. Quality Work Competence Questionnaire (α = 0.70-0.94) 3. Huddinge University Hospital Model Questionnaire (author developed)	24% of the variance for the subscale setting (adjusted R^2) explained by six variables: 1. Work Tempos 2. Immediate superiors support for participating in research 3. Participatory management 4. Supplementary education 5. Goal clarity 6. Academic degree 13% % of the variance for the subscale presentation explained by six variables (top two) 1. Participatory management 2. Academic degree 5% of Variance (nurse) 1. Basic education 2. Goal clarity Perceiving unclear and unrealistic goals and dissatisfaction with support from superiors, having no academic degree, significant increased the risk of perceiving barriers within "setting" with 110-150% (OR 2.1-2.5, $p < 0.001$-0.027)
(Karkos & Peters, 2006)	Identify barriers to RU in Magnet Hospitals	Quantitative Descriptive Measurement BARRIERS Scale *N* = 275 BSN (*n* = 121) LPN/Dip (*n* = 70) ASN (*n* = 49) MSN (*n* = 34)	Four domains of barriers: 1. Nurse (significance $F = 2.932$; $p = 0.34$) 2. Setting (cited as top barrier) 3. Research 4. Presentation Facilitators 1. Access and availability 2. Education and communication 3. Practical application 4. Supportive Environment

Reference	Purpose/Aims	Methodology	Findings
(LaPierre, et al., 2004)	Explore barriers perceived by nurses in one PACU stetting	Quantitative BARRIERS Scale *N*=20	Positive bivariate correlations between Organizational domain and: 1. adopter (*r* =.802, P =.002) 2. innovation (*r* =.896, P =.016) 3. communication (*r* =.611, P =.035)
(Newman, Papadopoulos, & Sigsworth, 1998)	The capacity of individual and organizational infrastructures, structures and cultures to support EBP.	Qualitative Rapid appraisal design Interviews, focus groups and observations Interviews *n* = 9 non-clinical mangers *n* = 5 ward mangers *n* = 7 staff nurses *n* = 3 clinical nurse specialists Focus groups *n* = 12 ward managers *n* = 22 staff nurses *n* = 10 junior medical staff *n* = 4 QA staff *n* = 8 CNSs	Two broad categories identified: 1. Organizational Barriers a. Poor management priorities b. Team work: feel excluded from decision making and powerless c. Systems for personal and professional development: Lack of professional development plans, no systematic staff education/training d. Managing Innovation: Standards not based on a rigorous appraisal for research, not audited and not influential in determining practice. e. Dissemination: Breakdown in communication between management and staff nurse, not aware of policies and resources (i.e., Cochrane Collaboration) f. Assessing the evidence: Access to libraries restricted, no plans to stock EBP studies g. Resource Constraints: Differing views of staff as a resource, in terms of time off for research work. 2. Cultural Barriers a. Motivation: lack the competencies for EBP, feel overworked, marginalized from decision making and not valued b. Nursing roles and practice: Feel 100% of time is committed to patient care activities, no time for accessing research; do not see practice in terms of problem solving but use standardized tools for planning patient care. c. Nursing sub-culture: Most felt they had the knowledge needed to practice and gaps were filled by "others". Not the norm to search or the answer to a practice question.

Reference	Purpose/Aims	Methodology	Findings
(Ploeg, et al., 2007)	Report the perceptions of administrators, staff, and project leaders about factors influencing implementation of nursing best practice guidelines.	Qualitative thematic analysis *n* = 59 administrators *n* = 58 staff *n* = 8 project leaders From 22 organizations who had implemented one of seven guidelines in acute, community and long term care settings.	Three levels identified as influencing guideline implementation: 1. <u>Individual</u> a. Facilitators • Learning about guideline development through small group interaction • Positive staff attitudes and beliefs b. Barriers • Negative staff attitudes and beliefs 2. <u>Organizational</u> a. Facilitators • Leadership support • Champions • Teamwork and collaboration b. Barriers • Limited integration of recommendations • Time and resource constraints • Organizational and system level change 3. <u>Environmental</u> a. Facilitators • Professional association support b. Inter-organizational collaboration and networks
(Tolson, Booth, & Lowndes, 2008)	Explore the impact of the Caledonian Development Models impact on EBP (Model sensitive to the nursing culture)	Quantitative: pre-post intervention N= 24 nurses from 18 practice sites Measurement: Revised Nursing Work Index Nurse survey compared to audits of older patients charts using instruments that addressed: • Preventing Depression (25 items and corresponding patient audit tool of 28 items) • Nutrition audit (29 items and corresponding patient audit tool of 11 items) • Promoting Physical Activity (12 items and corresponding patient audit tool of 10 items) (no reliability data provided)	Within this culture sensitive model improved EBP resulted when: • Nurses experienced greater autonomy ($p = 0.019$) • Had increased organizational support ($p = 0.037$)

Table 2: The Work Environment's Impact

It is important to note that resources provided by the organization are more than merely tangible and quantifiable "objects". Computer access to research databases, budget lines that support research days and the time necessary for the staff nurse to locate, analyze, understand, and implement new evidence are also extremely important. When the investment in databases and time is lacking, a major barrier to EBP exists. Commitment is demonstrated when there is synergistic alignment between philosophical beliefs, financial commitment, and leadership and is a direct reflection of the organization's dedication to an EBP climate. The organization as a whole must be aware of the dynamics of EBP and the complexities involved in the implementation of practice changes by the staff nurse. More than a *buzzword*, evidence-based practice improves and enhances outcomes, reduces expenditures and promotes professionalism. An awareness and understanding of the benefits of EBP culture are evident when the organization demonstrates commitment through the allocation of resources, alignment of priorities and investment in leaders. Ingersol (2000) describes commitment from the perspective of the individual and as an identification with and involvement with the organization. For the conceptual framework created here, the need for a purposeful commitment to shape an EBP culture/climate is present when the work environment and nursing leadership are vested in providing necessary resources. Valuing and prioritizing research use and EBP needs are uppermost in the daily management and organizational routine (French, 2005; Gifford, et al., 2007).

A lack of commitment is reflected in studies which explored barriers from the individual nurse's perspective and the organization (a component of culture). It was revealed that a lack of administrative support, a work environment not receptive to

changing practice, lack of management support, and lack of goal clarity were frequently identified barriers and can be directly attributed to the work environment's impact on the nurse's ability to engage in evidence based practice (See Table 2: The Work Environment's Impact).

The conceptual framework (See Figure 1) offers a visual representation of how the work environment is viewed in this dissertation. Nursing leadership and the work environment in which the culture (support) and climate (resources) encourage EBP allows the implementation of EBP by the nurse. The organization's priorities are manifest when there are clear goals, the empowerment of others, and support for the individuals' abilities to fully implement change based on the latest evidence and are found within the work environment and supported by nursing leadership.

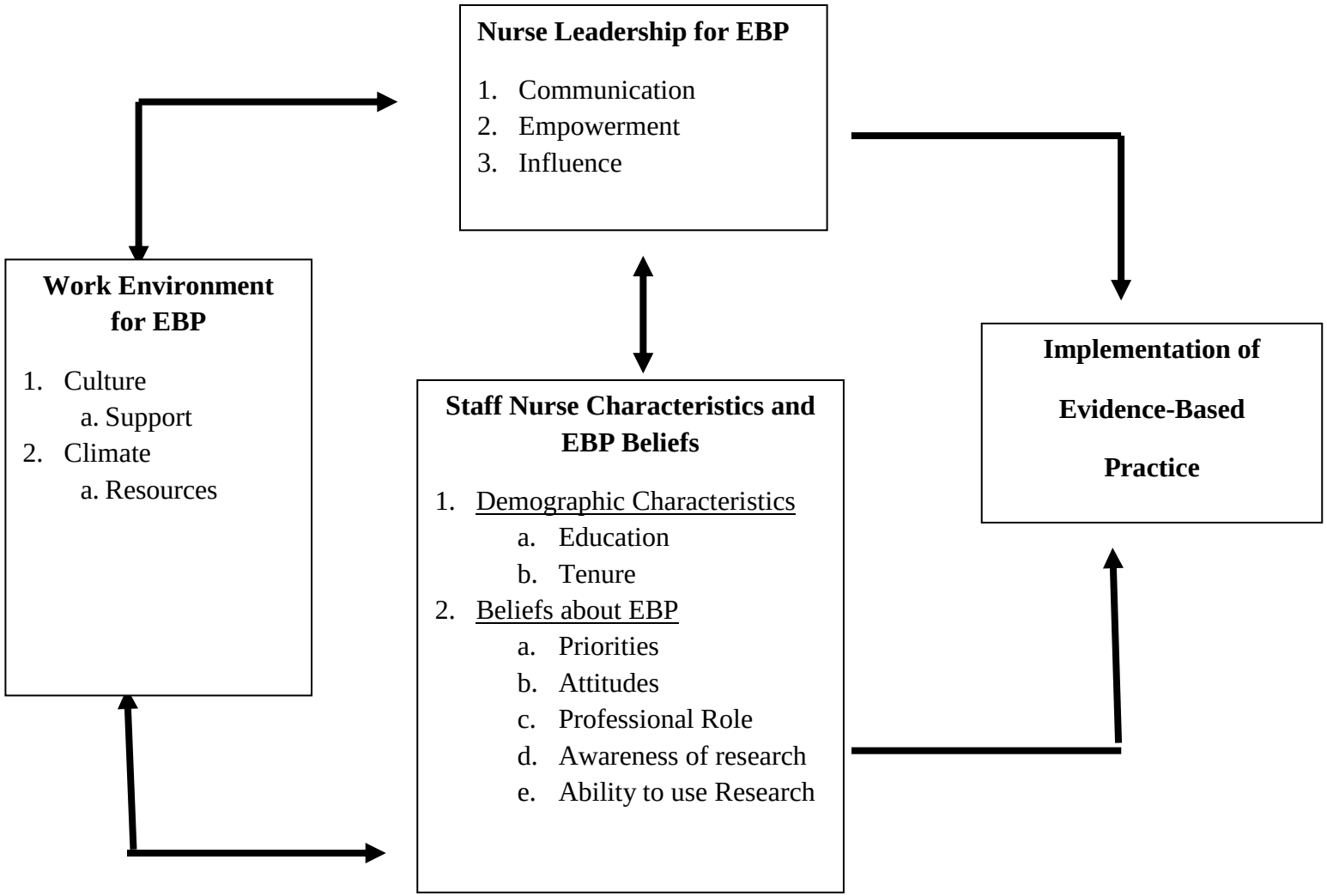

Figure 1: EBP Conceptual Framework

Nursing Leadership

There has been little emphasis placed on the constructs that describe effective management/leadership strategies that promote evidence-based practice by the individual nurse except to say that lack of support is a barrier. There have been a plethora of studies conducted on the use of evidence by the practitioner that has revealed multiple barriers to this complex process among which the lack of various types of support prevails (See Table 3: Barriers). It is asserted that the lack of financial support, technology, nurse autonomy, unreceptive EBP work environments, the absence of scientifically sophisticated colleagues, lack of time, and knowledge deficits on the part of the staff nurse about research and EBP fall under the management umbrella of the nurse leader/manger. In this study, nursing leadership encompasses the role of the nurse manger; the position of authority that is responsible for unit EBP activities.

Reference	Purpose/Aims	Methodology	Findings
(Adamsen, et al., 2003)	Examine the differences between research active and on research active nurses in the utilization of research and identify the most significant barriers.	Quantitative: Descriptive Exploratory *n* = 79 Danish clinical nurses	Barriers identified: 1. Amount of research results overwhelming (90%) 2. Inability to evaluate the quality of the study (75%) 3. Lack of financial support (47%) 4. Lack of time to read research (35%) 5. Insufficient time to implement new ideas (33%) 6. Research not readily available (25%) Research active nurses' experienced more success in overcoming the barrier of applying research to practice
(Brown, et al., 2009)	Describe nurses' practices, knowledge and attitudes related to evidence based nursing and the relation to barriers and facilitators	Quantitative Descriptive, cross sectional study *N* = 458 nurses Measurement: BARRIERS Scale • α = 0.91 EBP Questionnaire • 3 subscales • Practice; knowledge/skills, and attitudes • α = 0.87	Perceived barriers 1. Lack of time 2. Lack of nursing autonomy Facilitators 1. Learning opportunities 2. Culture building 3. Availability and simplicity of resources Significant correlations found between: 1. Characteristics of the organization (BARRIERs subscale) and the knowledge/skills subscale of the EBPQ scale (r = _0.179, p = 0.004) (the more the organization is perceived as a barrier, the lower nurses' perceive self knowledge and skills about EBP) Open ended questions; four themes identified related Barriers: 1. Time 2. Knowledge 3. Support 4. Culture Open ended questions: three themes identified related to facilitators: 1. Learning environment 2. Building culture a. Mechanisms to implement change b. Involvement of staff nurses c. Environment that encourages thinking d. Environment open to change e. Environment of mutual respect 3. Availability and simplicity of evidence

Reference	Purpose/Aims	Methodology	Findings
(Kenny, Richard, Ceniceros, & Blaize, 2010)	Describe the processes of a collaborative project to train nurses in EBP.	Intervention case study 3 day training seminar by expert: Marita Titler *N* = MSN military nurses	Multiple limitations for attendance at intervention training program related to war impact on patient acuity and priorities of nurses Barriers Identified: 1. Support from managers 2. Time 3. Skills needed to evaluate the literature Facilitators 1. Collaboration 2. Doctorally prepared and EBP trained experts available 3. Visible champions Conclusion: 1. Organizational context must be considered when developing and implanting an EBP program
(Schreiber, Stern, Marchetti, & Provident, 2009)	Identify, implement and evaluate the effectiveness of strategies aimed at enhancing the ability of pediatric physical therapist to integrate scientific research evidence into clinical decision making.	Mixed Method Qualitative 3-phase formative evaluation *N* = 15 Quantitative 10 item survey to assess knowledge and behaviors r/t research (Established tool, reliability not reported)	Barriers identified: 1. Lack of time 2. Colleagues not regularly using research evidence 3. Few incentives from the clinical environment to carry out EBP
(Strickland & O'Leary-Kelley, 2009)	Understand Barriers to research utilization for the application of EBP.	Quantitative *N* = 122 Nurses Measurement: BARRIERS Scale *(4 = to a great extent) to the least (1 = to no extent)*	Barriers identified (mean, s.d.): 1. Setting ($\bar{x}$ 2.94, *sd* 0.55) a. No authority to change practice ($\bar{x}$ = 3.30) b. Insufficient time ($\bar{x}$ = 3.26) c. Not time to read research ($\bar{x}$ = 3.21) d. Physicians will not cooperate with implantation ($\bar{x}$ = 2.94) e. Other staff not supportive of implementation (2.83) 2. Nurse (*x* 2.80, *sd* 0.60) a. Do not feel capable of evaluating quality research ($\bar{x}$ = 3.25) b. Unaware of the research ($\bar{x}$ = 3.19) 3. Communication ($\bar{x}$ 2.65, *sd* 0.58) 4. The research itself ($\bar{x}$2.19, *sd* 0.58) a. Statistical analysis not understandable

Reference	Purpose/Aims	Methodology	Findings
			Additional results: 1. 97% report lack of education/research knowledge as a barrier 2. 93.6% report lack motivation, interest and/or incentive 3. 93.5% report lack of resources, funding and technology as a barrier 4. 80% report lack of time as a barrier
(Toma, et al., 2010)	Identify barriers to implementation of mild therapeutic hypothermia for adult survivors of cardiac arrest.	Qualitative Semi-structured interviews Stratified random sample of 14 sites from 43 hospitals in Canada *N* = 21 ICU nurses and MDs	Respondents identified the following barriers to implementation: 1. Lack of familiarity and availability of protocols on procedure 2. Availability of equipment 3. Financial support 4. High workload demands 5. Lack of agreement with supporting evidence 6. Lack of interdisciplinary collaboration 7. Lack of inter-professional education between MS and Nurses
(Yava, et al., 2009)	Determine nurses' perceptions of the barriers to and facilitators of RU in Turkey	Quantitative Measurement: BARRIERS Scale *N* = 631	Barriers Identified: 1. Inadequate authority (63.6%) 2. Lack of time (54.0%) 3. Insufficient facilities (52.8%) 4. MDs will cooperate with implementation (45.3%) 5. Isolated from knowledgeable colleagues (37.1%) 6. Unaware of the research (29.0%) 7. Administration will not allow implementation (21.7%)
(Gale & Schaffer, 2009)	Explore the factors that affect the adoption or rejection of EBP changes.	Quantitative Measurement: EBP Changes Survey • 12 items *N* = 92 nurses	Top Barriers to EBP (percentage of respondents) 1. Insufficient time (88%) 2. Lack of staff (57.7%) 3. Not having the right equipment and supplies 42.5 %) Top Facilitators for EBP (percentage of respondents) 1. Personal interest in the practice change (72%) 2. Avoiding the risk for negative consequences to the patient (58%) 3. Manager supports it (42%) 4. A regulatory agency says I have to do it (28%) A greater percentage of staff nurses agreed that EBP does not take into account the limitations of the practice setting in comparison with nurse managers (Pearson χ^2 = 5.117; p = .024)

Table 3: Barriers

A literature synthesis of all publications between 1991 and 2005 which met inclusion criteria that stipulated Funk's Barrier Scale as the data collection instrument was conducted by Hutchinson and Johnson (2006). The Barrier Scale is an instrument designed to assess the practitioner's perceptions of barriers to the use of research. Utilizing a 4-point Likert scale, respondents were asked to self-evaluate personal adoption characteristics (8 items), organizational barriers (8 items), the innovation (research) itself (6 items), and the impact of communication (6 items) on the use of research. The synthesis of 35 studies revealed the major barriers as reported by the clinician. Ranked in order of the number of times the top three barriers were identified among the 35 studies (number in parentheses), the following list reveals the primary barriers to the use of research by the practitioner.

1. Insufficient time to implement research (19 out of 35 studies ranked this barrier as one of the top three barriers)
2. Nurses does not feel they have the authority to change practice (11 of the 35 ranked this barrier as one of the top three barriers)
3. Statistics are not understandable (9/35)
4. Unaware of the research (8/35)
5. Facilities are inadequate for implementation (7/35)
6. No time to read research (7/35)
7. Physicians will not cooperate with implementation (4/35)
8. Relevant literature not compiled in one place (4/35)
9. Research not readily available (3/35)
10. Management will not allow implementation (1/35)

11. Isolated from knowledgeable colleagues (1/35)
12. Literature contains conflicting reports (1/35)
13. Amount of research is overwhelming (1/35)
14. Resources are inadequate for implementation (1/35)
15. Other staff not supportive (1/35)
16. Research not reported clearly or understandable (1/35)

This information is useful in asserting what is *needed* to support EBP. These needs are incorporated into the conceptual framework for this study, and many fall under the construct of nurse manager. The three sub-constructs of nurse leadership identified in the model serve conceptually as areas where barriers could be removed or manipulated to support EBP by the nurse manager. The three sub-constructs are identified as communication, empowerment, and influence (See Figure 1: Conceptual Model).

Upon review of this list of barriers identified by Hutchinson and Johnson (2006) in this meta-analysis, it is helpful to draw inferences about which barrier could be linked to each of the sub-constructs of nursing leadership for EBP: 1) communication, 2) empowerment, and 3) influence. Leadership for EBP that is identified as communication skills needed for EBP is apparent when a nurse manager manipulates or removes barriers 7, 12, 15, and 16 of the previously identified list of barriers. Empowerment is demonstrated by the leader that manipulates, controls, or removes barriers 1, 2, 6 and 11, and influence is noted when 3, 4, 5, 9, 10, and 14 are addressed by the manager who supports EBP.

Communication. It is known that leaders who articulate clear and realistic goals, have a high degree of influence, engage in ongoing feedback, and demonstrate effective

leadership strategies foster research use (Marquis & Huston, 2007; Porter-O'Grady & Malloch, 2011). The leader that creates a culture of learning, demonstrates effective change agent skills, and has an authentic passion for the use of research in practice is supportive of EBP. Skills related to communication, participatory management, and an awareness of when to use transformational versus a transactional leadership style, are attributable to leaders who facilitate integration across traditional unit boundaries and engage in supportive leadership behaviors. (Aarons, 2006; Gerrish, et al., 2006; Kajermo, et al., 2008; Lukas, et al., 2007; Marchionni & Ritchie, 2008; Marquis & Huston, 2007; Porter-O'Grady & Malloch, 2011; Wallin, et al., 2006) (See Table 4: Communication, Empowerment and Influence).

Empowerment. Empowerment has been defined as the ability to get things done, mobilize resources, and meet the goals of the individual (Kanter, 1993). There has been a link made between the degree of control that people have in the work environment and their autonomous decision making abilities (Kanter, 1993; Laschinger, Sabiston, & Kutszcher, 1997). There are two perspectives of empowerment identified as structural empowerment and psychological empowerment (Laschinger, et al., 1997). Both of these types of empowerment are needed for the nurse to engage in EBP. The nurse manager who ensures that the staff nurse has the information, resources, and opportunities to learn about EBP (structural empowerment); fosters motivation about EBP; and promotes congruency between EBP values, beliefs, and behaviors of the staff nurse and the work place environment (psychological empowerment) supports EBP.

Gifford (2007) found that leadership activities can enhance, influence, and stimulate the intrinsic motivation of the nurse to use research in the clinical setting. This

was accomplished through support, encouragement, education, and appeal to a common purpose. Those attributes of the nurse manager by the clinician to influence knowledge use positively were immediate supervisor support, effective communication skills, and managers who practice in the immediate clinical setting and provide a role model for research utilization activities (Andersson, et al., 2007; Gifford, et al., 2007; Kajermo, et al., 2008; Laschinger, Spence, Finegan, Shamian, & Casier, 2000; Lukas, et al., 2007; Marchionni & Ritchie, 2008; Patrick & Laschinger, 2006; Stewart, McNulty, Griffin, & Fitzpatrick, 2010) (See Table 4: Communication, Empowerment, and Influence).

Supportive skills are as obvious as ensuring that the fiscal support for time, education, and access to the literature are present. However, more than that, additional supportive skills that have been revealed in the literature are related to empowering the staff nurse to change practice based on new knowledge, engaging in ongoing quality improvement initiatives and maintaining a high level of involvement in monitoring those happenings which impact nurses' ability to engage in EBP (Brown, et al., 2010; Livsey, 2009; Mark, Latimir, & Hardy, 2010; Marriner Tomey, 2009; Schreiber, et al., 2009; Stewart, et al., 2010; Yava, et al., 2009).

Influential. Until recently, much emphasis on the individual nurse's beliefs and attitudes about EBP have prevailed (Melnyk & Fineout-Overholt, 2005). However, organizational influences are now being recognized as influential. When addressing the barrier research, three categories of organizational barriers previously identified in the literature from the perspective of the staff nurse are a lack of: 1) administrative priorities, (Gifford, et al., 2007; Newman, et al., 1998; Ploeg, et al., 2007); 2) administrative awareness, (Ploeg, et al., 2007); and 3) financial commitment, (French, 2005). It is

asserted that the influential skills of the nurse manager are paramount to the tangible support needed by the staff nurse (Hutchinson & Johnston, 2006) for these barriers to be removed.

Reference	Purpose/Aims	Methodology	Findings
(Aarons, 2006)	Examine the association between leadership and mental health providers attitudes toward adopting EBP	Quantitative *N* = 303 mental health providers Attitudes toward Evidence-Based Practice 1. 15 item 2. α = .77 3. 1-5 Likert Scale Multifactor Leadership Scale 1. 45 item 4. α = .74-.91 5. 1-5 Likert Scale	1. Transformational and transactional leadership were positively associated with providers having more positive attitudes toward EBP • Transformational Leadership on Openness (*r* =.063, *p* <.05) (more participative leadership style) • Transformational Leadership on Openness (*r* =.360, *p* < .05) (more active leadership style)
(Gerrish & Clayton, 2004)	To examine factors influencing the achievement of evidence based practice	Quantitative. *n* = 330 clinical nurses BARRIERS Scale • 29 items. • 4- point Likert scale The A Canadian instrument, cited as developed by Estabrooks, was, designed to examine sources of knowledge. This tool was modified and piloted with 15 nurses. However, no validity or reliability results reported. Sources of knowledge • 18 items • 5- point Likert scale • Ranging from never (1) to always (5)	1. Sources of knowledge: (mean and standard deviation) 1. Patients (4.37/0.678) 2. Experience (4.08/0.675 3. Peers (3.85/0.607) 4. MDs (3.63/0.745) 5. Inservices/Conferences (3.58/0.776) • Barriers 1. Time to review 2.29 (0.889) 2. Time to find 2.67 (0.914) 3. Research not readily available 2.75 (0.912 4. Lack confidence with research 3.01 (1.045) 5. Org info not available 3.10 (0.925) 6. Difficult to understand Research 3.12 (0.993) 7. Can't identify implications for practice 3.27 (0.923) 8. Don't know how to find Org information 3.72 (0.869) 9. Don't know how to find research 3.78 (0.890)

Reference	Purpose/Aims	Methodology	Findings
(Gifford, et al., 2007)	Describe leadership activities of nurse managers that influence nurses use of research	Synthesis *N* = 12 studies that met the inclusion criteria • 8 quantitative • 4 qualitative	Activities found that influenced nurse uses of research: 1. Managerial Support 2. Policy revision 3. Auditing Qualitative studies revealed: 1. Organizational issues as barriers to managers ability to affect research use 2. Role modeling and valuing research facilitated research use All had insufficient information about leadership development.
(Hutchinson & Johnston, 2004)	To gain an understanding of perceived influences on the nurse's utilization of research and explore the difference is between the findings of this research and studies conducted in various countries during the past 10 years.	Quantitative *n* = 317 <u>BARRIERS Scale</u> • 29 items. • 4-point point Likert scale • Ranging from "to no extent"(1) to a "large extent" (5) • Cronbach alpha between 0.65 and 0.80 <u>Facilitators scale.</u> • Assess the extent to which the nurse considers themselves to be a facilitator of RU. • 8 items • 4- point Likert scale • Ranging from "to no extent"(1) to a "large extent" (5) • No reliability and validity information provided	The four factor solution accounted for 39.2% of the total variance in response to all their items. The four factors: • Organizational influences on research-based change. • Qualities of the research and potential outcomes of implementation. • Nurses research skills, beliefs, and role limitations. • Communication accessibility research findings.

Reference	Purpose/Aims	Methodology	Findings
(Kajermo, et al., 2008)	Identify predictors of nurses self-reported barriers to using research	Quantitative *N* = 833 nurses Measurement: 1. BARRIERS Scale (α = 0.69-0.83) 2. Quality Work Competence Questionnaire (α = 0.70-0.94) 3. Huddinge University Hospital Model Questionnaire (author developed)	24% of the variance for the subscale setting (adjusted R^2) explained by six variables: 7. Work Tempos 8. Immediate superiors support for participating in research 9. Participatory management 10. Supplementary education 11. Goal clarity 12. Academic degree 13% of the variance for the subscale presentation explained by six variables (top two) 3. Participatory management 4. Academic degree 5% of variance (nurse) 3. Basic education 4. Goal clarity Perceiving unclear and unrealistic goals and dissatisfaction with support from superiors, having no academic degree, significant increased the risk of perceiving barriers within "setting" with 110-150% (OR 2.1-2.5, $p < 0.001$-0.027)
(Laschinger, et al., 1997)	Explore perceived work empowerment with two aspects of staff nurse decisional involvement.	Secondary analysis of two studies using Kanter's theory of structural power in organizations for model development. Study 1: • Descriptive correlational • *N* = 170 nurses Study 2: • Quantitative • *N* = 123	Formal and informal power and access to empowerment structures, in combination, were found to be significant predictors of the extent of involvement in decisions related to the content and context of nursing practice.

Reference	Purpose/Aims	Methodology	Findings
		Both studies used the following measurements: 1. Conditions for Work Effectiveness Questionnaire 1. (α = .82-.85) 2. Empowerment 2. Job Activities Scale 1. (α = .71-.72) 2. Formal Power 3. Organizational Relationships Scale 1. (α = .85-.91) 2. Informal Power	
(Lukas, et al., 2007)	Create a model for moving organizations from short-term isolated performance improvements to sustained organization wide evidence based improvements in health care.	Mixed methods Longitudinal comparative case studies *N* = 12 health care systems (Robert Wood Johnson Foundation recipients)	Five interactive elements identified: 1. Impetus to transform 2. Leadership commitment to quality 3. Improvement initiative that actively engage staff 4. Alignment of goals 5. Integration to bridge intra-organizational boundaries among individuals These elements drive change by: 1. Mission, vision and strategies that set direction 2. Culture that reflects its informal values and norms 3. Operational functions and processes embody the work at the bedside 4. Infrastructure resources (technological and human)

Reference	Purpose/Aims	Methodology	Findings
(Marchionni & Ritchie, 2008)	Examine whether a culture of learning and transformational leadership was present on two units where a nursing best practice guideline was implemented	Quantitative *N* = 20 from two differing units Organizational Learning Survey • 21-item • 1-7 Likert • α = .90 Multifactor Leadership Questionnaire • 45- item • 0-4 Likert • α = .55-.85	Findings both units scored high on 1. Culture 2. Leadership However, only partial implementation occurred Attributed to: • Established change in practice behavior established too high • The units reflected those attributes of "early adopters" prior to the study (receptive contexts) explaining the high culture and leadership scores.
(Patrick & Laschinger, 2006)	Examine the relationship between structural empowerment and perceived organizational support and the effect of these factors on the role satisfaction of middle level nurse managers	Quantitative Secondary Analysis of a larger study *N* = 84 nurse managers Measurement: 1. Conditions for Work Effectiveness Questionnaire 1. (α = .79 to .82) 2. 19 items 3. 5 point Likert scale 2. Perceived Organizational Support Survey 1. (α = .90) 2. 13 items 3. 7 point Likert scale 3. Alienation from Work scale 1. (α = .85) 2. 6 items 3. 5 point Likert scale	1. Structural empowerment was positively related to perceived organizational support (r = 0.654, p = 0.0001). Structural empowerment accounted for 42% of the variance in perceived organizational support

Reference	Purpose/Aims	Methodology	Findings
(Ploeg, et al., 2007)	Explore the perceptions of administrators, staff and project leaders about factors influencing implementation of nursing best practice guidelines.	Qualitative Thematic Analysis *N* = 22 organizations *N* = 59 administrators *N* = 8 project leaders	Factors identified at three levels: Facilitators: 1. Individual a. Group interactions b. Positive staff attitudes and beliefs c. Leadership support d. Champions e. Teamwork and collaboration f. Support 2. Organizational a. Inter-organizational collaboration and networks 3. Environmental Barriers: 1. Individual a. Negative staff attitudes and beliefs b. Limited integration c. Time and resources 2. Organizational a. Organizational and system level changes 3. Environmental
(Stewart, et al., 2010)	Explore the link between psychological empowerment and structural empowerment among NPs	Quantitative Descriptive correlational design Measurement: 1. Conditions for Work Effectiveness Questionnaire 1. (α = .86) 2. 19 items 3. 5 point Likert scale 2. Psychological Empowerment scale 1. (α = .86) 2. 12 items 3. 7 point Likert scale	The relationship between psychological empowerment and structural empowerment has been linked to work effectiveness and quality patient care. Psychological empowerment was significantly related to CWEQ-II subscales support (r = .25, p = .04)

Reference	Purpose/Aims	Methodology	Findings
(Thompson, Chau, & Lopez, 2006)	Examine barriers to and facilitators of RU among RNs in Hong Kong	Quantitative *N* =1487 Research Utilization Questionnaire • 31 items Barriers • 8 item facilitators	Facilitators: (% of respondents) 1. Managerial support (83.3) 2. Peer support/network mechanisms (81.6) 3. Nurses with research skills (62.6) Barriers: 1. Inadequate facilities (74.8) 2. No authority to change practice (73.9) 3. Time constraints (70.7)
(Wallin, et al., 2006)	Identify predictors of organizational improvement by measuring staff perceptions of work contextual factors	Quantitative Repeated measures survey Paired sample with a one-year interval All managers received the results of the first survey after four months to do with as they wished. *N* = 134 Quality Work Competence • Dynamic Focus Score (DFS) (dependent variable, indicates the orgs potential for renewal and improvement)	Major predictors identified: (42.8% of the variance attributed to the DFS) 1. Skills development 2. Participatory management 3. Years of professional experience Improvement in skills development and performance feedback predicted improvement in leadership The results showed an OR of • 7.8 (95% CI 3.2–18.9, $p < 0.001$) for leadership when skills development improved • (95% CI 1.1-6.8, $p = 0.038$) when performance feedback improved.

Table 4: Communication, Empowerment, and Influence

The leadership attributes that the clinicians viewed as absent were not explained or operationalized and frequently referred to as merely, *leadership support*. Karkos and Peters (2006) and Kajermo (2008) found that supportive, encouraging environments are necessary for EBP to occur, yet again, failed to identify how that support was operationalized. The literature frequently identifies that a lack of contextual support (Karkos & Peters, 2006; LaPierre, et al., 2004; Newman, et al., 1998; Rycroft-Malone, et al., 2004a; VanDeusen Lukas, et al., 2007) and leadership support (Aarons, 2006; Kajermo, et al., 2008; Marchionni & Ritchie, 2008; Thomsen, Dallender, Soares, Nolan, & Arnetz, 1998; Wallin, et al., 2006) impacts the staff nurse's use of evidence in decision-making. It is suggested that the support needed by the staff nurse as presented in the literature is the result of an influential nurse manager who supports EBP. Marchionni and Ritchie (2008) and Ploeg (2007) suggest that the leader who demonstrates EBP supportive behaviors attends to the allocation of needed resources, has strategic goals to support research utilization, attends and encourages educational opportunities, and increases organizational capacity to engage in research utilization by working through policy revisions and monitoring quality improvement.

The argument can be made that this view of administrative priorities makes the assumption that nursing leadership is fully aware, supports, understands and commits to an EBP environment in a meaningful way. The intent is not to suggest that the nurse manager must be expert in locating, analyzing, and implementing new knowledge, but instead says that the nurse manager must be fully aware of EBP complexity and supports the staff nurse with resources, both human and tangible, while actively working to remove barriers to the process.

Influential skills are the more subtle aspects associated with the nurse manager who supports an EBP culture. He/she, in the background, provides the resources needed, empowers the staff nurse to make practice changes, considers time and staffing issues, engages in ongoing quality monitoring, is aware of the complexities of the practice environment that may serve as barriers to EBP and acts to remove barriers that arise within the healthcare setting.

The Staff Nurse

The practice of nursing is a science-based profession and has a body of research to guide decision making. It has been shown that practice decisions based on research improve outcomes. Nursing as a profession is tasked with utilizing scientific research to support nursing practice and decision-making. The American Nurses Association (ANA) (2010) asserts that research is an integral part of professional practice. In a policy statement the ANA (2003) depicts the role of research in practice:

> "…to refine and expand the knowledge base and science of the discipline, nurses generate and use theories and research findings that are selected on the basis of their fit with professional nursing values of health and health care, as well as their relevance to professional nursing practice" (p. 5).

The code of ethics for nurses (ANA, 2001) requires that the "nurse participate in the advancement of the profession through contributions to practice, education, administration and knowledge development" (p. 22). The accountability and responsibility for ensuring EBP is a component of healthcare, falls to the nurse and is not an optional component of practice (Rycroft-Malone, et al., 2004a; Stetler, 2003b; Titler, 2004b, 2004c). Additionally, Bonner and Sando (2008) empirically refute that nurses lack awareness or an appreciation for the necessity of research in practice. Nurses appear to

have a high awareness for and appreciation for research in practice, yet are unable to engage in a dynamic evidence-based practice.

The individual nurse has been the focus of much research regarding the use of new knowledge to support decision-making in practice. This singular perspective is currently viewed as too simplistic in the complex healthcare arena where the individual nurse is balancing a variety of competing priorities (Estabrooks, Midodzi, et al., 2007b; Rycroft-Malone, et al., 2004a). Evidence-based practice appears to be a system-wide activity and the focus of research is changing to reflect this understanding. The effect of the organization and nursing leadership on the staff nurse has been identified as a needed area of study for EBP (Meijers, et al., 2006; Rycroft-Malone, 2008a; Stetler, et al., 2006; Wallin, et al., 2006). The focus is shifting from the individual to organizational dynamics; however, the individual nurse remains an integral part of the process.

Demographics. In spite of the changing focus to context, the individual nurse remains central to the use of research at the bedside, so an understanding of the nurse's perspective is important. Numerous studies address the individual nurse characteristics or perceptions of the use of new knowledge or EBP (Andersson, et al., 2007; Bonner & Sando, 2008; Gerrish & Clayton, 2004; Henderson, et al., 2006; Kajermo, et al., 2008; Thomsen, et al., 1998). The literature has revealed a variety of individual characteristics that influence the use of evidence in decision-making. Much of the literature speaks to barriers and places little emphasis on the professional expectation outlined in the code of ethics and the ANA position statement on research use, which states that research use and EBP is an important expectation of the professional nurse (ANA, 2001, 2003). The educational level of the nurse is an important factor to address, as educational preparation

is assumed to introduce key knowledge on locating, reading, comprehending and implementing change on a busy unit. The length of tenure, gender, and age are also of interest. Anderson et al., (2007) suggest that the more tenured a nurse, the more resistant to evidence based practice. This echoes findings from other studies which suggest that more experienced nurses are more likely to draw knowledge from policy and procedures, experience, and work based communications (Gerrish & Clayton, 2004).

Limited education on research and EBP has been assumed or explicitly described in studies as a barrier to EBP activities. A finding that prevailed throughout the literature was that the more education (Bonner & Sando, 2008; LaPierre, et al., 2004) or research classes (Bonner & Sando, 2008; Rycroft-Malone, et al., 2004a) that the nurse received, the greater the impact on EBP behaviors. However, Rycroft-Malone et al., (2004) refer to this as *skilling up* the nurse and found that education as a single intervention to promote the use of evidence by the clinical nurse was ineffective.

The literature also reveals that nurses' perceptions of their professional self is independent of educational level (Andersson, et al., 2007). If the associate degree nurse is unaware of the complexity of EBP and has an inflated sense of understanding its implementation into practice, the concern then becomes one of the nurse's ability to assess and assimilate new knowledge in a meaningful way. Has the research to date been misleading regarding barriers and awareness of research from the practitioner's perspective if professional self-attributes have not been evaluated and correlated to the individual's ability to implement EBP?

Bonner and Sando (2008) found little evidence regarding the nurse's awareness of research and how much of it is actually used in practice. Does *this awareness versus use*

reflect the finding that Andersson et al. (2007) reported regarding the clinician's self - perception of professionalism? Research that includes the educational background of the clinician and nurse leader is needed for correlational studies with EBP as the dependent variable.

Experience, like education, would be easily assumed to have a positive impact on research utilization behaviors, but Andersson et al., (2007) found that with increased competence and experience of the nurse, positive attitudes and behaviors about the use of research decrease. Gerrish and Clayton (2004) suggest that nurses prefer to call on experiential knowledge and work-based information (i.e., policy and procedures) to inform practice. It was also found that *other sources* of nursing knowledge were correlated with organizational transfer of new knowledge (i.e., health care reports), instead of research use (Leiter, Day, Harvie, & Shaughnessy, 2007).

Beliefs About EBP. In a study by the American Academy of Nursing it was found that out of 1,097 registered nurses more than half held negative beliefs about the use of research by their colleagues and did not feel competent in EBP (Pravikoff, Tanner, & Pierce, 2005). Estabrooks et al. (2003) in a systematic review of individual determinants for EBP, it was found that the association between individual beliefs and attitudes impact the use of research.

The *Theory of Reasoned Action* examines an association among behavioral and normative beliefs and attitudes toward behaviors and the intention to change or to adopt particular behaviors (Ajzen, 2001; Fishbein & Middlestadt, 1995). This theory suggests that an individual's actual behavior is affected by the individual's behavioral intention; therefore attitudes, which are affected by beliefs, will result in an expected outcome.

Intention is also impacted by normative beliefs (i.e., the belief where colleagues support or oppose a behavior) and the motivation to follow those colleagues (Montano & Kasprzyk, 2002).

The ability to critique research is viewed as a barrier by the nurse (Hutchinson & Johnston, 2004) in that the researcher's toolkit (methodology, questions, outcomes, and goals) appears to be irrelevant to the nurse and his/her task at hand (Newman, et al., 1998). Evidence based practice has been found to be impacted not only by organizational context and nursing management, but also by education (Bonner & Sando, 2008; LaPierre, et al., 2004; Rycroft-Malone, et al., 2004a). Many of these identified variables may find positive or negative correlations to leadership behaviors and requires more investigation. It has been found that education, role, abilities, and awareness of research impacts staff nurses' beliefs about EBP (See Table 5: Beliefs About EBP).

The bedside nurse is a strategic point of practice where empirical knowledge is required to ensure the best outcomes for patients. The pendulum of understanding is now swinging toward the contextual environment in which the staff nurse resides. It is with caution that we do not focus solely on contextual factors to the exclusion of the individual nurse as he/she remains central to EBP.

Conceptual Framework

Conceptual frameworks assist in drawing a visual representation of major concepts and how they are related. Walker and Avant (2005) suggest that applying a concept unchanged to a phenomenon where it has not been previously used, is simplistic. For example, the concept of leadership within organizations not linked to the activities of the nurse in regards to the use of evidence is useless; particularly when it has been

empirically determined that leadership does in fact influence the nurse's use of research. It has been demonstrated that leadership support is influential to the practice environment in which employees work (Aarons, 2006; Angus, Hodnett, & O'Brien-Pallas, 2003; Bondas, 2006).

Providing classification schemes within a framework is useful for further research, theory development, and clinical practice (Walker & Avant, 2005). Conceptual frameworks can further science empirically by guiding tool development for systematic measurement in operationalizing concepts.

The debate about an EBP theoretical framework is alive and well in this relatively young field of study (Bucknall, 2007; Cummings, Estabrooks, Midodzi, Wallin, & Hayduk, 2007b; Dobson, 2007; Estabrooks, 2007; Graham, 2007; Rycroft-Malone, 2007b; Titler, 2007; Titler, et al., 2007; Williams, 2004). The debate exists on a continuum from the use of terminology and conceptual definitions found surrounding discussions of EBP to the need for and use of theories to support and guide the design of testable and useable interventions studies (Bucknall, 2007; Dobson, 2007; Graham & Tetroe, 2007; Rycroft-Malone, 2007a; Titler, 2007; Titler, et al., 2007). The concluding remarks by experts generally point to the complex nature of EBP within systems by groups/individuals and point to the lack of consensus regarding a fully encompassing model to guide empirical research (Estabrooks, 2004; Foxcroft & Cole, 2005; Rycroft-Malone, et al., 2002; Titler, 2004b, 2004c; Tripp-Reimer & Doebbeling, 2004). It has been suggested that a model that explains the contextual, organizational, and individual determinants, and borrows from organizational, systems, social, and behavioral sciences is necessary (Bucknall, 2007; Dobson, 2007; Eccles, et al., 2004; Fineout-Overholt &

Johnston, 2006; Graham & Tetroe, 2007; Rycroft-Malone, 2007b; Sladek, Phillips, & Malcolm, 2006; Titler, 2007; Titler, et al., 2007). Much of the literature on EBP (Aarons, 2006; Andersson, et al., 2007; Bondas, 2006) does not provide a theoretical framework.

Meijerset et al. (2006) examined relationships between organizational factors and the use of evidence for the purpose of mapping the contextual factors to the Promoting Action on Research Implementation in Health Services (PARIHS) model which is one of the more frequently utilized frameworks (Cummings, et al., 2007a; Fink, et al., 2005; Leiter, et al., 2007; Meijers, et al., 2006; Rycroft-Malone, et al., 2004a) The PARIHS model is comprised of three domains labeled evidence, context, and facilitation but fails to encompass all that the literature suggests is within the domain of context and facilitation (Titler, et al., 2007).

Another framework frequently identified in the literature is Rogers Diffusion of Innovations (Rogers, 2003) and is often used to address the adopter's (nurse) time-dependent characteristics in describing how soon or late an individual *adopts* a new change once exposed to the change (Cummings, et al., 2007a; Fink, et al., 2005; Leiter, et al., 2007; Meijers, et al., 2006; Rycroft-Malone, et al., 2004a). This framework suggests a linear approach that places emphasis on the individual with little emphasis on context, leadership, and organizational characteristics. It suggests a linear approach to adoption behaviors, where awareness of an innovation triggers a series of events that lead to adoption and emphasizes only the individual. Roger's framework fails to capture the circular, organizational, and complex dynamics that impact the adoption behaviors of the nurse.

This complex field of study is resistant to conceptualization and full identification of all the determinants of EBP in healthcare systems. The conceptual model for this study examines selected attributes of evidence-based practice (Figure 1). It is believed that .96 (nursing leadership, work environment, and the staff nurse's characteristics and beliefs impact the nurse's ability to implement EBP. It is suggested that when the organizational culture and nursing management/leadership factors are united to develop intervention strategies designed to eliminate barriers, EBP is enhanced. The organizational factors are drawn from the literature in an attempt to capture the many complex dynamics that operate as a *back-drop* in influencing the use of evidence by the nurse manager and the staff nurse.

Summary

The organization as a whole is a direct reflection of its mission, vision, goals, and objectives. It is a living, breathing entity that is comprised of a complex integrated web of collaborations and leadership strategies designed to work as a unified whole to meet stated outcomes. Leaders are influential in supporting and promoting agreed-upon priorities and values. Studies reveal that staff nurses view multiple barriers to EBP that can be directly linked to organizational strategies and leadership support (e.g., poor staffing, scarce educational funds, lack of internet databases). The use of evidence by the clinician is impacted by a lack of organizational commitment that is not only reflected in the organization's priorities, but also by a failure of nursing leadership to facilitate and implement goals at the unit level. Research that examines the staff nurses' beliefs about the culture and leadership and the impact of those perceptions on EBP is lacking.

Furthermore, exploration of how work environment and nursing leadership impact EBP is needed.

The nurse leader is asked to create a motivating environment, establish organizational communication, and facilitate collaboration and negotiation within the context of complex organizations (Marquis & Huston, 2007). The degree and quality of evidence use in the practice setting is influenced by the manager and correlated with leadership skills, priorities, and awareness of the contextual factors that impact the individual clinician (Aarons, 2006; Marquis & Huston, 2007; Rycroft-Malone, 2008a; Stetler, 2003b). The nurse manager vested in EBP ultimately must focus on the task at hand that requires an awareness and appreciation of the role empirical data makes in promoting improved patient outcomes and how best to accomplish improved patient outcomes through the individual nurse. Understanding the organizational culture and how to best facilitate and create an EBP friendly unit is an important constituent of nursing management.

As suggested in this literature review, barriers perceived by the nurse are the result of barriers imposed within the work environment and nursing management/leadership behaviors. Investigation into organizational commitment, coupled with organizational culture from the perspective of the staff nurse is needed. Few studies have been conducted to examine the effect of the work environment and nursing management's impact on staff nurses' ability to create and sustain an EBP environment (Estabrooks, Midodzi, Cummings, & Wallin, 2007a; Estabrooks, Midodzi, et al., 2007b; Gifford, Davies, Edwards, & Griffin, 2004; Gifford, et al., 2007; Porter-O'Grady, 2003).

If history teaches by past mistakes, it is with caution that we prevent the pendulum of understanding from swinging from an emphasis on the individual to a singular interest on the organizational work environment and nursing leadership. The complexity of organizational dynamics demands that researchers recognize the importance of both the organizational factors and the individual nurse's responsibilities and explore these dynamics as a collective. The discussion then becomes one of increasing professional self-awareness and providing the support and resources needed to assist the already burdened individual clinician in such a way that creates a work environment that lends itself to research use.

Chapter III: Methodology

Introduction

The purpose of this study is to examine variables, alone or in combination that describe the relationship between the work environment and nursing leadership on the ability of the staff nurse to implement evidence based practice (EBP). The variables of interest are individual staff nurse characteristics, beliefs about EBP, work environment, and nursing leadership. This chapter describes the research questions, research methodology/design, population and sample, instrumentation, data collection and analysis techniques.

Specific Aims:

1. Explore the relationship among staff nurses' tenure, educational level, and Magnet status of the institution and their beliefs and attitudes about EBP.
2. Explore staff nurses' perceptions of nursing leadership support for EBP and its association with staff nurses' beliefs and attitudes about EBP.
3. Explore staff nurses' perceptions of the degree that the healthcare work environment is associated with staff nurses' beliefs and attitudes about EBP.

Research Question:

1. Which of the following variables, alone or in combination, predict staff nurses' implementation of EBP: staff nurses' individual characteristics,

beliefs about EBP, and/or perceptions of nursing leadership and the work environment in which the staff nurse practices?

Method

Sample

This study was conducted in two large urban hospitals. One is a Magnet hospital and the second a large urban university teaching institution. Each hospital has 30 and 32 nursing units respectively with between 30 to 40 Registered Nurses (RNs) on each unit. All RNs involved in direct patient care at a .50 FTE or greater who have worked on their respective units for at least six months served as the population in this non-randomized sample. LPNs and nurse managers or those RNs who do not work at least 50% of the time do not meet the inclusion criteria. Approximately 3000 nurses were contacted for participation in this study.

Data Collection

After Institutional Review Board approval, participants were recruited to participate in the study. Inclusion criteria stipulated that the respondent must be an RN, working in direct patient care at a .5 FTE or greater, having worked on their respective units for at least six months, and able to read and write English. There is minimal risk associated with participation.

The Chief Nursing Officer of each sample site was approached and permission sought to discuss the project at the next nurse manager meeting. After receiving approval, both sites provided time at nurse manager meetings for the sole purpose of explaining the study and obtaining permission to attend unit meetings in order to gain staff nurse participation. At this time, demographic data about each unit was collected from each

manager. Data included number of RNs, shift schedules, email of the nurse manager, suggested times of unit meetings, and times to visit the unit. A modified Tailored Design Method (TDM) (Dillman, 2007) was implemented using an internet-based distribution of the survey tool. Dillman's (2007) TDM provides a framework for survey development and distribution that has been shown to increase respondent rates by at least 70% in studies conducted outside the clinical setting. It is recommended that at least three contacts are made with subjects along with a tangible "gift" as a gesture of trust. Initially, it was planned to have four contacts to boost response rates. However, a total of seven contacts were made (a combination of in-person and by email). The data were collected using Research Electronic Data Capture (REDCap), an online survey tool. This application captures data in a secure server that can then be exported to a statistical software program for analysis.

The first contact with respondents occurred during staff meetings. A cover letter (Appendix 1) inviting participation was distributed during the first contact along with directions for accessing the survey, as well as information on confidentiality and anonymity of responses. At the same time, large posters about the survey were posted on each unit, inviting participation and providing the internet link to the survey. Two weeks after the initial contact, a second visit to all staff meetings occurred. A *gift* of four colored pens with the internet address embossed on the pens, along with a card (with the internet address), served as a reminder to fill out the survey and also to thank those that had already completed the survey. A third and fourth contact were made via unit meetings to thank those who had participated and remind those who had not completed

the survey to consider participation, and cards redistributed. Three email contacts were made between physical visits to the unit to remind and thank participation.

Protection of Participants

Participant anonymity was built into the online survey, a feature provided by the web survey software, REDCap. The data collected was housed on a secure server without any individual traceable information. Respondents were not asked for any personally identifiable information other than hospital site and unit. Confidentiality and anonymity of the data to be collected, was reiterated on the internet link and consent implied once the respondent had begun the survey.

Measures

Four questionnaires (See Appendices A, B, C, and D) were used to address the research question in this study, including the *Evidence Based Practice Beliefs Scale* the *Evidence Based Practice Implementation Scale* (Melnyk, et al., 2008) and the *Evidence Based Practice Work Environment Scale* and *Evidence Based Nurse Leadership Scale* the latter two created by this researcher. The EBP Beliefs Scale and the EBP Nurse Leadership and EBP Work Environment Scales were utilized to measure the independent variables (beliefs, leadership, and work environment). The dependent variable, implementation of EBP, was assessed using the EBP Implementation Scale.

The EBP Beliefs Scale was developed by Melnyk, Fineout-Overholt and Mays (2008) and consists of 16 items on a 5-point Likert scale that ranges from 1(strongly disagree) to 5 (strongly agree) and measures EBP beliefs. Reliability was assessed using Cronbach's alpha (α =.90) and split-half Spearman Brown was measured for intra-scale correlation r = .87.

The EBP Implementation Scale is 18 items on a 5-point frequency scale, which asks the respondent to indicate how often in the past 8 weeks they performed an EBP activity. The scale ranged from 0 (none) to 4 (greater than 8 times within the past 8 weeks) (Melnyk, et al., 2008). Reliability was assessed using Cronbach's alpha (α =.96) and split-half Spearman Brown was measured for intra-scale correlation (r = .95).

The EBP Beliefs and Implementation Scales were subjected to face and content validity and reviewed by subject matter experts (n = 8) for content and clarity. The instruments were piloted with a convenience sample (n = 20) of practicing nurses for content and clarity.

The EBP Nurse Leadership and the EBP Work Environment scales were developed after reviewing the literature related to the barriers nurses have reported and the organizational work environment and nursing leadership literature. Five experts in the field of organizational research and/or evidence based practice research reviewed the instruments for face and content reliability. To determine face validity, the experts were asked to review the survey items and assess whether or not the items seem reasonable and assess the attribute in question (Fink, 1995). Unlike content validity, face validity does not depend on the literature review (Fink, 1995). Content validity focuses on determining whether or not the survey items adequately represent the domain of interest and if the items are relevant to the proposed interpretation (Waltz, et al., 2005). Therefore, content validity is defined "as the extent to which an instrument adequately samples the research domain of interest when attempting to measure phenomena" (Wynd, Schmidt, & Atkins-Schaefer, 2003, p. 509). A widely used method of quantifying content validity is the content validity index (CVI). The CVI is computed for each item by each expert to rate

the relevance of each item on a 4 point scale (Polit, Beck, & Owen, 2007). The content validity evaluation form for this work was rated as 1 = the item is not representative/relevant for the attribute, 2 = the item is somewhat representative/relevant for the attribute, 3 = the item is quite representative/relevant for the attribute and 4 = the item is very representative/relevant of the attribute (Melnyk, et al., 2008).

The EBP Nurse Leadership and EBP Work Environment Scale was subjected to content validity analysis utilizing the process outlined by Polit et al. (2007). A persistent argument against the CVI stems from a concern about chance agreement or inter-rater agreement among expert analysis of the instrument (Polit, et al., 2007). A solution posed by Polit et al. (2007) is to increase the number of experts, where for example, with five experts the probability is .938 that there will be at least one disagreement on relevance by chance alone which makes achieving total consensus increasingly difficult (and unlikely) as the number of experts increases.

Five doctorally-prepared experts in the field of EBP or organizational science examined and critiqued the two scales. Two experts served as hospital consultants in the implementation of EBP, two reviewers had an established line of research in the area of organizational research and the final reviewer was a university-based director of research with a history of consulting for the purposes of facilitating an EBP work environment.

For the first round of evaluating content validity, the item level content validity index (I-CVI) and the scale content validity (S-CVI) was determined using a 4 point scale ranging from 1= not relevant/representative to 4 = very relevant/representative (see Appendices E & F). One reviewer did not rate any items and indicated that the tool failed to provide the needed directions for completion and, as a result, was unable to distinguish

Item	1	2	3	4	5	Experts in Agreement	Item CVI
1.	√	NR	√	√	√	4	1.00
2.	√	NR	√	√	√	4	1.00
3.	---	NR	√	√	√	3	.75
4.	√	NR	√	√	√	4	1.00
5.	√	NR	√	√	√	4	1.00
6.	---	NR	√	---	√	2	.50
7.	---	NR	√	√	√	3	.75
8.	√	NR	√	√	√	4	1.00
9.	√	NR	√	√	√	4	1.00
10.	√	NR	√	√	√	4	1.00
11.	---	NR	√	√	√	3	.75
12.	---	NR	---	√	√	2	.50
13.	√	NR	√	√	√	4	1.00
14.	---	NR	√	√	√	3	.75
15.	√	NR	√	√	√	4	1.00
16.	√	NR	√	√	√	4	1.00
17.	√	NR	√	√	√	4	1.00
18.	√	NR	√	√	√	4	1.00
19.	√	NR	√	√	√	4	1.00
20.	√	NR	√	√	√	4	1.00
21.	√	NR	√	√	√	4	1.00
22.	√	NR	√	√	√	4	1.00
Proportion relevant	.73	---	.95	.95	1.00		
Avg I-CVI							.91
NR: Not Rated: Expert did not rate the item's offered extensive narrative Item CVI calculated using 4 experts instead of 5. NR's not included.							

Table 5: Initial Content Validity Analysis

between the two separate scales of representativeness and relevance. However, this organizational expert offered copious narrative on each item, which was considered when assessing the results from the four experts that completed the scales (See Table 5: Initial Content Validity Analysis).

The I-CVI was determined by the proportion of the four experts who rated the item as content valid (a rating of 3 or 4) and the S-CVI was the proportion of the total items judged as content valid. Lynn (1986) identified that for the item to be considered

valid, the number of experts and the level of agreement must be considered before asserting that an item is content valid. In order to establish content validity beyond the .05 level of significance using only four experts, the item must be found at a 1.00 (Lynn, 1986). The S-CVI of .91 and items 3, 6, 7, 11, 12, and 14 fell below the required I-CVI of 1.00.

In addition to the less than optimal findings of the content validity analysis, written comments revealed a need to more closely align the questions with the concepts and attributes in the model. As one expert commented, "The leadership items seem to me to be *scattered* in focus". In response to this feedback, questions were linked with each concept and attribute of the model. Four questions were deleted, and with these changes it was decided to conduct a second round to re-evaluate content validity. Based on the experiences with the first CVI evaluation, a definition of relevance was written and representativeness measured by highlighting the attribute (See Appendix A).

For the second round of evaluating content validity the CVI evaluation form was distributed to 13 experts who were all doctorally-prepared (except for one doctoral student with an EBP focus). Nine completed forms were returned, and I-CVI and S-CVI was calculated as described by Polit et al. (2007). Eight of the nine experts were doctorally-prepared and one was current doctoral student who led the EBP implementation efforts in a large urban hospital. Two experts served as consultants for Magnet pursuit in large urban hospitals, one was an organizational specialist and served as a Magnet reviewer for ANA, and four had established lines of research and publications related to organizational science and/or EBP. One expert was selected for her expertise in the psycho-social sciences.

The larger number of experts reduces the concern for chance agreement and according to Lynn (1986) an item is considered valid at a .05 level of significance if the proportion of experts endorse the item at .78 or greater (See Table 6: Second Round for Content Validity Analysis). The S-CVI was .96 and each item analysis was found above the .78 level of agreement. Based on the second round analysis, it was determined that the content validity of the scale was acceptable and no further changes were made.

Item	1	2	3	4	5	6	7	8	9	Experts in Agreement	Item CVI
1.	√	√	√	√	√	√	√	√	√	9	1.00
2.	√	√	√	√	√	√	√	√	√	9	1.00
3.	√	√	√	√	√	√	√	√	√	9	1.00
4.	√	√	√	√	√	√	√	√	√	9	1.00
5.	√	√	----	√	√	√	√	√	√	8	.89
6.	√	√	√	√	√	√	√	√	----	8	.89
7.	√	√	√	√	√	√	√	√	√	9	1.00
8.	√	√	√	√	√	√	√	√	√	9	1.00
9.	√	√	√	√	√	√	√	√	√	9	1.00
10.	√	----	√	√	√	√	√	√	√	8	.89
11.	√	√	√	√	√	√	√	√	√	9	1.00
12.	√	√	√	√	√	√	√	√	√	9	1.00
13.	√	√	√	√	√	√	√	√	√	9	1.00
14.	√	√	√	√	√	√	√	√	√	9	1.00
15.	√	√	√	√	√	----	----	√	√	7	.78
16.	√	√	√	√	√	√	√	√	√	9	1.00
17.	√	√	√	√	√	√	----	√	√	8	.89
18.	√	√	√	√	√	√	√	√	√	9	1.00
Proportion relevant	1.00	.94	.94	1.00	1.00	.94	.88	1.00	.94		
Avg I-CVI											.96

Table 6: Second Round for Content Validity Analysis

Analysis

In an effort to examine those variables that impact the implementation of EBP, regression analysis was used to address the research question of this study. Because this study has more than one independent variable (beliefs, leadership and work environment)

the use of multiple regression (an extension of simple linear regression) was used (Burns & Grove, 1993). For this study, the purpose of the regression analysis is to predict or explain the variance that contributes to the implementation of EBP. In other words, the values of the independent variable can be used to predict and perhaps explain the dependent variable (Burns & Grove, 1993).

Demographic information (educational level, practice area, tenure, and age) collected from respondents was analyzed using simple non-parametric descriptive statistics. Specifically, means, frequencies and percentages were utilized in the course of analysis of the data.

Assumptions. To generate accurate conclusions and avoid Type I and II errors, statistical assumptions must be tested (Garson, 2009; Osborn & Water, 2002). These will include:

1. Normality: Regression assumes that variables have normal distributions.
2. Linearity: The relationship between the independent and dependent variable is linear.
3. Variables are measured without error (Reliability): Reliability is measured with Cronbach alphas.
4. Homoscedasticity: The variance of errors is the same across all levels of the independent variables.
5. No Outliers: Data that is numerically distant from the rest of the data that occurs by chance or through measurement data and must be explained or removed.

6. Data Range Non-Truncated: There are as many observations of the independents as for the dependents.
7. Absence of Multicollinearity: Predictor variables are highly correlated.

Limitations. The major limitation of all regression techniques is that only relationships between variables can be asserted. With multiple regression analysis, it is never assured that there is a causal relationship (Osborn & Water, 2002).

The distributional nature of the dependent variable is an additional consideration. Multiple regression allows for continuous, ordinal, and/or categorical independent variables (Pohlmann & Leitner, 2003). The dependent measure in this study uses the following response categories: None; 1-3 times within the last week; 4-6 times within the last week; 7-8 times within the last week; and greater than 8 times within the last week. The dependent variable will provide categorical/ordinal data. Ordinal data are categorical data where there is a logical ordering to the categories. A good example is the Likert-type scale utilized in many surveys: 1 = Strongly disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly agree (Pagano & Gauvreau, 2000). Thus, it was determined that it was highly likely that the dependent variable, implementation would be skewed and the most appropriate regression model utilized for reporting purposes.

Chapter IV: Findings/Results

Analysis of Data

The purpose of this chapter is to report the results of the analysis examining which of the following variables, alone or in combination, predict staff nurses' implementation of evidence-based practice (EBP): staff nurses' individual characteristics (age, education, tenure, and practice setting), beliefs about EBP, and perceptions of managerial/organization support for EBP. The purpose of this research is to further the understanding of the relationship of the work environment and nursing management on the staff nurse's implementation of EBP.

Specific Aims:

1. Explore the relationship among staff nurses' tenure, educational level, and Magnet status of the institution and their beliefs and attitudes about EBP.
2. Explore staff nurses' perceptions of nursing leadership support for EBP and its association with staff nurses' beliefs and attitudes about EBP.
3. Explore staff nurses' perceptions of the degree that the healthcare work environment is associated with staff nurses' beliefs and attitudes about EBP.

Research Question:

Which of the following variables, alone or in combination predict the staff nurse's implementation of EBP: staff nurse's individual characteristics,

beliefs about EBP, and/or perceptions of nursing leadership and the work environment in which the staff nurse practices?

Chapter IV presents: a) reliability coefficients for the instrument scales, b) demographic data of the sample population, c) descriptive statistics on study variables, and d) statistical analyses performed to examine the three specific aims and answer the research question.

Instrumentation

The variables of beliefs, nursing leadership, work environment, and implementation were measured utilizing four different scales. Independent variables were measured by the *EBP Beliefs Scale* (Melnyk, Fineout-Overholt & Mays, 2008) the *EBP Work Environment Scale* and the *EBP Leadership Scale* were created by this author. The dependent variable was measured by the *EBP Implementation Scale* (Melnyk, et al., 2008).

EBP Beliefs Scale. The EBP beliefs scale was developed by Melnyk et al. (2008). The beliefs scale is a 16-item scale utilizing a 5-point scale ranging from one (strongly disagree) to five (strongly agree), which assesses the respondents' beliefs about ability to implement EBP (See Appendix A).

Reliability for the EBP Beliefs Scale was assessed using Cronbach's alpha (α) (Cronbach, 1951) for measuring internal consistency and the split-half, equal length, Spearman-Brown *r* (Shrout & Fleiss, 1979) procedure for measuring intra-scale correlation. The reliability and intra-scale correlations of the results found in this study compare with Melnyk et al. (2008) findings. A duplicate statistical analysis was conducted and revealed similar Cronbach's alphas.

Melnyk et al. (2008) original analysis revealed a Cronbach's α of .90 (N = 330) and equal length, split-half Spearman-Brown r of .87 for the beliefs scale. Reliability analysis repeated on the responses in this study, revealed a Cronbach's α of .90 (N = 442) for the beliefs scale.

EBP Nurse Leadership Scale. The EBP Nurse Leadership Scale was developed by this author (See Appendix D). The Nurse Leadership Scale asked the respondents to evaluate the nursing leadership on their units as supportive or not supportive, utilizing a five-point scale ranging from one (strongly disagree) to five (strongly agree). A pilot study (See Chapter III) was conducted which revealed Cronbach's α of .95 (N = 20) for the scale and in the larger, current study, the EBP Leadership Scale reveals a Cronbach's α = .96 (N = 422).

EBP Work Environment Scale. The EBP Work Environment scale was developed by this author (See Appendix C). The Work Environment Scale asked the respondents to evaluate their respective work environments as supportive or not supportive, utilizing a five-point scale ranging from one (strongly disagree) to five (strongly agree). A pilot study (See Chapter III) was conducted which revealed Cronbach's α of .75 (N = 20) for the Work Environment Scale. In the larger, current study, the EBP Work Environment Scale reveals a Cronbach's α of .86 (N = 422).

EBP Implementation Scale. The EBP Implementation scale was developed by Melnyk et al. (2008). The implementation scale is a 17-item scale utilizing a five-point categorical response set that assessed the number of times within a previous week that the respondents engaged in EBP implementation behaviors. This scale ranged from 1 (none), 2 (1-2 times within the last week), 3 (4-6 times within the last week), 4 (7-8 times within

the last week) and 5 (greater than 8 times within the last week) (See Appendix B). Cronbach's α of .92 (N = 422) was found for the implementation responses compared with Melnyk et al.'s findings of Cronbach's α of .96 (N = 319) and Spearman-Brown r of 0.95.

Sample

The sample was drawn from RNs working in two large urban acute care hospitals in Ohio, one a non-Magnet 695 bed medical university hospital, and the second, a 689 bed private, teaching, Magnet-accredited hospital. Nurses that met the inclusion criteria of 1) working in an acute care setting, 2) involved in direct patient care, 3) working at a .5 FTE employment status or above and 4) at least 6 months or more tenure on the current unit, were asked to complete the 58 item online survey utilizing RedCap (an online research survey tool). The target population was identified as meeting the inclusion criteria.

Initially, contact was made with the nurse managers of all units in each hospital. This was accomplished by attending one of the monthly nurse managers' meetings. At this first contact, the study was explained and contact information was obtained via a distributed data collection form (See Appendix I). The form collected information regarding the unit shifts, meetings and the number of nurses per unit that met the inclusion criteria of working on the unit for at least six months and employed as a .5 FTE, from all nurse managers. The second contact was directly with staff nurses during unit meetings in which the study was explained. During this meeting, invitation cards with the internet address of the survey site were distributed to invite participation and advertise inclusion criteria (Appendix I). A third contact was made two weeks later during all

shifts and on all units at both hospitals. At this reminder contact, pens and post-cards advertising the internet address for the survey were placed in all the nurses mailboxes. A fourth and fifth contact were made approximately two to three weeks apart with an additional distribution of reminder cards and pens. Three e-mail contacts in between physical contacts that invited, reminded, and thanked the potential participants, were e-mailed to the entire RN population in both hospitals. This totaled seven contacts (e-mail and in-person). Of the 2,539 RNs contacted, 1,766 met the inclusion criteria with a return rate of 24% (*N* = 422), (See Table 7: Response by Site).

Hospital	Beds	N	*n* of RNs that met the inclusion criteria	# of nurses responding to survey	%
Non-Magnet	695	1139	930	215	23%
Magnet	689	1400	836	207	25%
Totals		2539	1766	422	24%

Table 7: Response by Site

Individual Demographics

The sample population was fairly homogenous. The following discussion describes the demographic data of the entire data set and by site and includes a comparison of the responses by nurses who work in the Magnet or Non-Magnet setting. Table 8 (Individual Demographic Data) shows the percentages of responses as a collective and by site.

Education. More Associate of Science (ASN) prepared nurses (*n* = 211, 50%) participated in the study than Bachelor of Science (BSN) prepared nurses (*n* = 193, 46%). Data for educational level were collapsed into three groups; ASN, BSN and Master's

degree and higher (*n* = 18 or 4%). This was done to combine the smaller number of graduate staff nurses into one category. There were more advanced practice nurses in the non-Magnet hospital (*n* = 13 or 6%) than in the Magnet hospital (*n* = 5 or 2%). Both sample sites are fairly homogenous but it is of interest to note that there were slightly more BSN nurses (*n* = 109 or 51%) in the non-Magnet hospital than in the Magnet hospital (*n* = 84 or 41%). This is likely the result of the associated schools of nursing at the two sites. A BSN program was closely affiliated with the non-Magnet University hospital and an ASN program with the Magnet status hospital.

An additional examination of the age of the nurse and their educational background was done. A cross-tabulation evaluation examined the ages of the nurses with their educational levels. Nurses between the ages of 31 and 40 were more likely to be educated at the ASN level (*n* = 107 or 51%) and nurses between the ages of 21 and 30 were more likely to be educated at the BSN level (*n* = 99 or 52%).

Practice Specialty. The majority of respondents worked in the critical care practice area (*n* = 152 or 36%), or on a medical/surgical unit (*n* = 144 or 34%) which is consistent with the findings of the Northeast Ohio Nursing Initiative (NEONI, 2006) (See Figure 2: Northeast Ohio Nursing Workforce Facts Regarding RNs and Practice). The remainder of the respondents worked in obstetrics/maternity (*n* = 57 or 14%), emergency room (*n* = 20 or 4.7%), operating room (*n* = 19, 4.5%), or a psychiatric/rehabilitation unit (*n* = 30 or 7%).

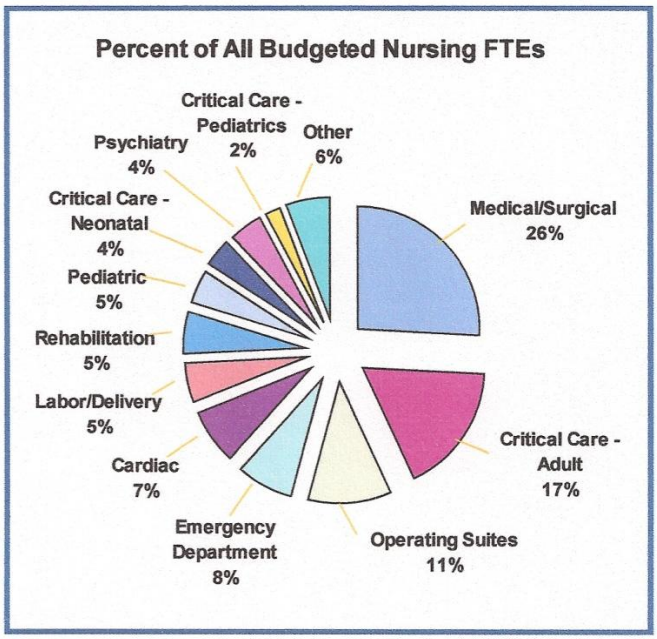

Figure 2: Northeast Ohio Nursing Workforce Facts Regarding RNs and Practice

Tenure. The length of time (tenure) that the respondent had been a nurse was collected as ordered categorical data and categorized in increments of five years (0-5; 5-10; 10-15; 15-20; 20-25; 25-30; >30 years). Thirty-six percent (n = 151) of the respondents reported that they had been a nurse less than five years This was found to be consistent between the two sites where the non-Magnet facility had a slightly larger percentage of less tenured nurses (*n* = 79 or 37%) than the Magnet hospital (*n* = 72 or 35%).

Age. Age was collected as ordered categorical data, and a precise mean age is difficult to ascertain. The Ohio Nurses Association reports that the average age of a nurse in Ohio is forty-eight which is consistent with the data collected in this research study (ONA, 2011). The age of respondents was collected in five year increments (<20; 21-30; 31-40; 41-50; 51-60; >60). The largest percentage of the respondents were between 41

and 50 years of age, (*n* = 108 or 26%) with the next highest ranking percentage between 31 and 40 years of age (*n* = 107 or 25%). Examination of the ages of the nurses in the Magnet versus non-Magnet organizations revealed that there were slightly younger nurses (between the ages of 21-30) in the Magnet Hospital (*n* = 50, 24%) than the non-Magnet hospital (*n* = 49, 23%).

Continuing Education/College Classes. Additional data were collected to examine the respondents' education about EBP by asking whether or not the respondent had taken any formal college level classes on the topic of EBP or had attended any continuing education (CE) offerings on the topic of EBP. Over half of the respondents had attended an educational offering on the topic of EBP (*n* = 230, 54.4%) and/or a college course on the topic (*n* = 218 or 52%). A higher percentage of nurses at the non-Magnet hospital (*n* = 114 or 53%) had attended a college level course on EBP and a greater percentage of the nurses at the non-Magnet hospital (*n* = 117 or 57%) had attended a CE offering on the topic of EBP (See Table 8: Individual Demographic Data)

Individual Demographic Data

Variable	Magnet Hospital *N* = 207 *n* (%)	Non-Magnet Hospital *N* = 215 *n* (%)	Combined *N* = 422 *n* (%)
Educational Level			
1. ASN	118(57%)	93(43.26%)	211(49.9%)
2. BSN	84(40.58%)	109(50.70%)	193(45.6%)
3. MSN/NP/DNS/PhD	5 (2.42%)	13(6.05%)	18(4.26%)
Practice Area			
1. Adult Med/Surg	74(35.75%)	70(32.56%)	144(34%)
2. Critical Care	73(35.27%)	79(36.74%)	152(35.9%)
3. OB/Maternity	36(17.39%)	21(9.77%)	57(13.5%)
4. Emergency	3(1.45%)	17(7.91%)	20(4.7%)
5. OR	4(1.93%)	15(6.98%)	19(4.5%)
6. Psychiatric/Rehab	17(8.21%)	13(6.05%)	30(7.1%)
Length of time in years as Nurse (Tenure)			
1. 0-5	72(34.78%)	79(36.74%)	151(35.7%)
2. 5-10	22(10.63%)	30(13.95%)	52(12.3%)
3. 10-15	29(14.01%)	20(9.30%)	49(11.6%)
4. 15-20	15(7.25%)	19(8.84%)	34(8.0%)
5. 20-25	20(9.66%)	22(10.23%)	42(9.9%)
6. 25-30	26(12.56%)	24(11.16%)	50(11.8%)
7. >30	23(11.11%)	21(9.77%)	44(10.4%)
Age Categories			
1. 21-30	50(24.15%)	49(22.79%)	99(23.4%)
2. 31-40	54(26.09%)	53(24.65%)	107(25.3%)
3. 41-50	52(25.12%)	56(26.05%)	108(25.5%)
4. 51-60	47(22.71%)	45(20.93%)	92(21.7%)
5. >60	4(1.93%)	12(5.58%)	16(3.8%)
Attended EBP CE			
1. Yes	117(56.52%)	113(52.56%)	230(54.4%)
2. No	90(43.48%)	102(47.44%)	192(45.4%)
EBP College Courses			
1. Yes	104(50.24%)	114(53.02%)	218(51.5%)
2. No	103(49.76%)	101(46.98%)	204(48.2%)

Table 8: Individual Demographic Data

Analysis

Specific Aim #1: Explore the relationship among staff nurses' tenure, educational level, and Magnet status of the institution and their beliefs and attitudes about EBP.

Tenure. A one-way analysis of variance (ANOVA) was computed comparing the EBP beliefs of respondents based on tenure (length of time as a nurse). Tenure was collected in increments of 5 years from 0-5, 5-10, 10-15, 15-20, 20-25, 25-30 and greater than 30 years. The ANOVA revealed no significance for tenure on beliefs ($F(6,415) = 1.499$, $p = .177$). The tenure data tended to be heavier in the 0-5 year category ($n = 151$ or 36%), suggesting that more respondents had been nurses for less than five years, whereas only 44 (10%) of the 422 respondents reported being nurses longer than 30 years. It was decided to collapse the tenured data into three categories to minimize the skewed distribution for purposes of investigating any hidden significance. The data were collapsed as follows: category one, 0-5 years; category two, 5 to 15 years; category three, 15 to 30 years and beyond. Collapsing of the data was done while considering Benner's (2001) theory, *From Novice to Expert*. It is believed that if looking at the data with *experience* as a defining factor, it can be argued that 0-5 years is the novice-competent level of expertise, whereas the 5-15 year category is viewed as the expert nurse. The 15-30 years is also considered in the expert category but nurses in this category received their education before EBP was well known.. With the collapsed data, a one-way ANOVA was repeated, and again, no significance between tenure and beliefs was found; ($F(2,419) = 1.724$, $p = .174$).

Education. Examination of the means of beliefs by educational level revealed that ASN nurses scored lower on the EBP Beliefs Scale ($\bar{x}$ = 58.14, *SD* = 7.81) than the graduate level nurses ($\bar{x}$ = 58.39, *SD* = 7.40), and that the BSN level nurses scored higher ($\bar{x}$ = 60.25, *SD* = 8.72) than the graduate level nurses (See Figure 3: Means of Beliefs by Education). A one-way ANOVA was computed, comparing the EBP beliefs of respondents who were educated at the ASN, BSN, or MSN/NP/DNS/PhD (collapsed category) level. A significant difference was found among the three categories of education ($F(2,419) = 3.398$, $p = .034$) (See Table 9: One-way ANOVA for Beliefs and Education). The Welch test (F=3.285, $p = .046$) also demonstrated significance, but the magnitude of the difference is not large.

ANOVA
BELIEF

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	459.504	2	229.752	3.398	.034
Within Groups	28330.572	419	67.615		
Total	28790.076	421			

Table 9: One-way ANOVA for Beliefs and Education

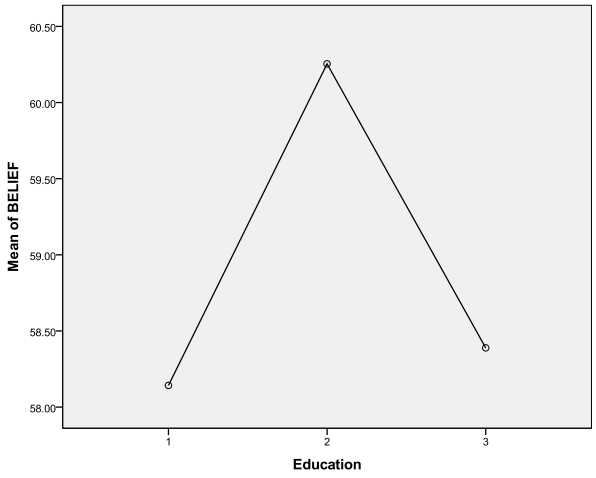

Figure 3: Means of Beliefs by Education (1 = ASN, 2 = BSN, 3 = MSN or >)

The significance of education on beliefs was so marginal that an additional exploration of the data was conducted. Examination of histograms for each of the educational levels revealed an outlier for data collected from the ASN nurses (n = 211 (See Figure 4: Histogram of Belief Scores for ASN).

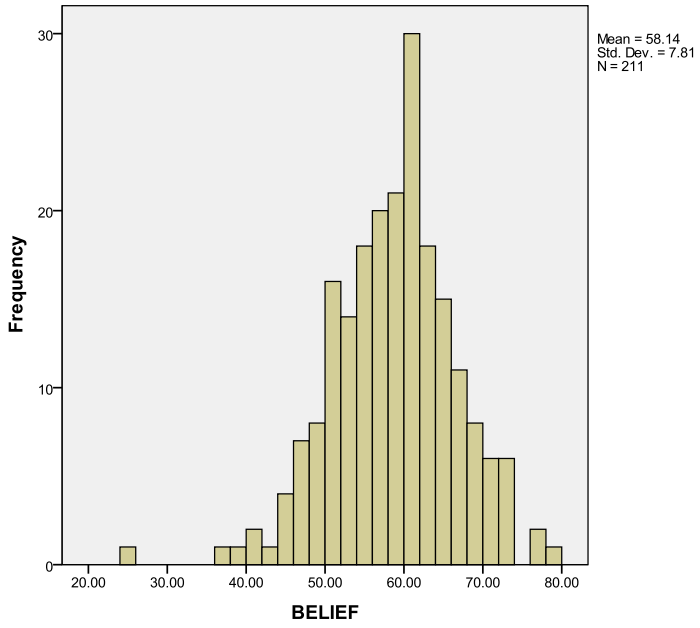

Figure 4: Histogram of Belief scores for ASN (n = 211) nurses

The outlier (s) was removed as it is believed that the outlier (scored less than 30 as a mean) is not representative of the larger population. A second ANOVA was calculated beliefs and education. With the outlier removed, the ANOVA remained weakly significant ($F(2,418) = 3.042$, $p = .049$) and the Welch test found no significance ($F = 2.926$, $p = .063$). The original $p = .034$ changed to a $p = .049$ with a .015 difference

which suggests that almost half of the effect is due to one person out of the 422 respondents reported a low score on beliefs and that this one individual is exerting an undue amount of leverage on the results.

It appears that most of the significance found in the first ANOVA is likely attributed to the outlier. It was determined that an *exact test* was needed to assert that there is or is not significance that education influences beliefs about EBP. The *exact ANOVA* was run utilizing *STATXact* software (Cytel, 2011). Exact testing (also referred to as permutation or randomization tests) has the advantage of making no distributional assumptions and is a useful alternative to the more standard parametric tests (Horgan & Rouault, 2000). An exact test can be used when testing the statistical significance of differences between observations from two or more groups and is useful if the data does not follow assumptions for the standard/classical tests (Hogan & Rouault, 2000). The Monte Carlo test, with the outlier removed (an approximate exact test) revealed a p = .0507 with a 99.9% confidence interval (accurate to .00005). Therefore, education does not have a significant association with beliefs in this sample.

Magnet versus non-Magnet. An independent-samples *t* test comparing the mean scores (See Table 10: Means of Respondents Scores on Belief Scale by Site) of the Magnet and non-Magnet nurses' beliefs about EBP revealed a statistically significant difference between the means of the two groups (t (419) = 3.183, p =.002) (See Table 11: Independent Samples t-test for Beliefs by Site).

Group Statistics

	Site	N	Mean	Std. Deviation	Std. Error Mean
BELIEF	Magnet	206	60.4709	7.47527	.52083
	Non-Magnet	215	57.9814	8.51495	.58071

Table 10: Means of Respondents Scores on Belief Scale by Site

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
BELIEF	Equal variances assumed	4.620	.032	3.183	419	.002	2.48948	.78223	.95190	4.02705
	Equal variances not assumed			3.191	415.856	.002	2.48948	.78006	.95613	4.02283

Table 11: Independent samples t-test for beliefs by site (Magnet vs. non-Magnet)

Specific Aim #2: Explore staff nurses' perception of nursing leadership support for EBP and its association with staff nurses' beliefs and attitudes about EBP. A Pearson correlation coefficient was calculated to examine the relationship between the respondents' perceptions of nursing leadership support for EBP and its association with the respondents' beliefs and attitudes about EBP. A moderate positive correlation was found ($r(422) = .430$, $p < .000$) indicating a significant linear relationship between the two variables (See Table 12: Correlation of the Relationship Between Nursing Leadership and Staff Nurse Beliefs About EBP). Nursing leadership was associated with the respondent's beliefs about EBP.

Correlations

		LEADER	BELIEF
LEADER	Pearson Correlation	1	.430**
	Sig. (2-tailed)		.000
	N	422	422
BELIEF	Pearson Correlation	.430**	1
	Sig. (2-tailed)	.000	
	N	422	422

**. Correlation is significant at the 0.01 level (2-tailed).

Table 12: Correlation of the Relationship Between Nursing Leadership and Staff Nurse Beliefs About EBP

Examination of a scatterplot for beliefs and leadership revealed a curvi-linear relationship (See Figure 5: Scatterplot Demonstrating Quadratic Relationship Between Nursing Leadership and Beliefs about EBP). When the quadratic relationship was entered into the correlation the Pearson *r* increased from .430 to .467. This finding suggests that the higher the score on EBP beliefs or nursing leadership, the stronger the relationship. The relationship between nursing leadership and EBP beliefs is significant.

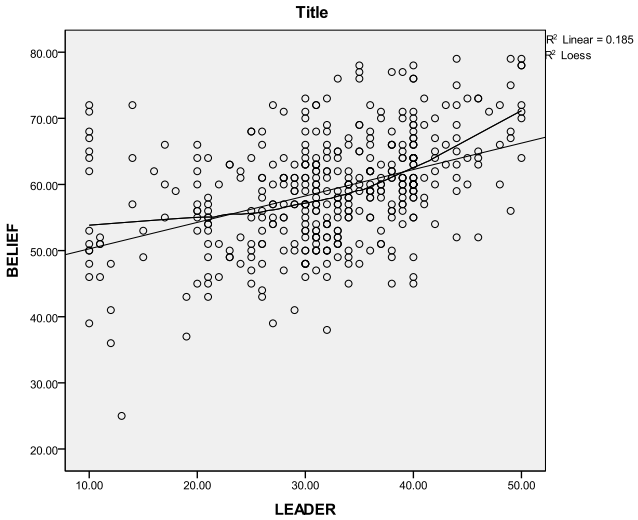

Figure 5: Scatterplot Demonstrating Quadratic Relationship Between Nursing Leadership and Beliefs about EBP.

Specific Aim #3: Explore staff nurses' perceptions of the degree that the healthcare work environment is associated with staff nurses' beliefs and attitudes about EBP. A Pearson correlation coefficient was calculated for the relationship between the respondent's perception of the work environment and beliefs and attitudes about EBP. A scatterplot revealed a linear relationship between work environment and EBP beliefs and attitudes. A moderately positive correlation was found ($r(422) = .486$, $p < .000$) indicating a linear relationship between the work environment and the subject's beliefs and attitudes about EBP (See Table 13: Correlation Between Work Environment and Beliefs and Attitudes About EBP). The work environment is found to have a relationship with respondents' beliefs and attitudes about EBP.

Correlations

		WORK	BELIEF
WORK	Pearson Correlation	1	.486**
	Sig. (2-tailed)		.000
	N	422	422
BELIEF	Pearson Correlation	.486**	1
	Sig. (2-tailed)	.000	
	N	422	422

**. Correlation is significant at the 0.01 level (2-tailed).

Table 13: Correlation Between Work Environment and Beliefs and Attitudes About EBP

Research Question: Which of the following variables, alone or in combination, predict the staff nurse's implementation of EBP: the staff nurse's individual characteristics, beliefs about EBP, and/or perceptions of nursing leadership and the work environment in which the staff nurse practices? Analysis of the research question requires a brief discussion of the statistical methods employed due

to the skewed results of the dependent variable. Descriptive statistics for the dependent variable, the EBP Implementation Scale, revealed a range of 17 to 61 with an *SD* of 6.79 revealing marked skewness violating a major assumption for simple linear regression and suggestive of a Poisson distribution (See Figure 6: Histogram of Implementation). Important properties of the Poisson distribution are (Long, 1997):

1. As the mean increases the mass of the distribution shifts to the right.
2. The means equals the variance (equidisperson)
3. As the mean increases the Poisson distribution approximates a normal distribution.
4. As the mean increases the probability of 0's decreases
5. This distribution is usually used to represent counted data. (p. 218-219)

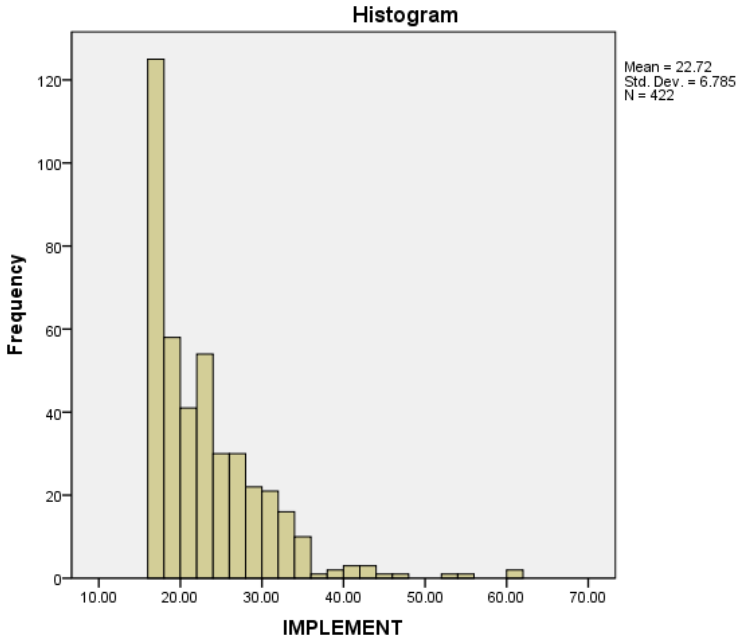

Figure 6: Histogram of Implementation

When the data comes from a Poisson distribution, as it does in the case of the dependent variable EBP implementation, the mean and the variance should be roughly equal (equidispersion) (Long, 1997). Unlike the more traditional *general* linear models (GLM's) with the basic assumption requirements of normality, heteroscedasticity and linearity, this distribution of implementation requires a *generalized* linear model (GLzM) which relaxes the linearity assumptions and permits differing relationships between the independent and dependent variables. Poisson regression falls under the umbrella of the generalized linear regression model (McCullagh & Nelder, 1989). In Poisson regression models the overdispersion is treated as a *nuisance* parameter which is then used to correct the standard errors produced by the traditional Poisson regression model, thereby making the standard errors *robust* (Long, 1997). The assumption of equidispersion was violated in the current study and the data are highly over-dispersed (s^2= 46.04, $\bar{x}$ = 5.72, $s^2/\bar{x}$ = 8.05); therefore robust standard errors for the Poisson regression were calculated to control for the overdispersion.

Overall multivariate model. The generalized linear regression of the overall model which included the variables education, tenure, Magnet vs. non-Magnet, beliefs, work environment and nursing leadership revealed a significant overall association (X^2 = 841.021, df = 8, p < .000) (See Table 14: Multivariate Analysis of Overall Model; Omnibus Test) Upon further examination of each of the individual predictors in the multivariate model, it was found that beliefs was the only variable of statistical significance (X^2 = 45.261, df = 1, p < .000) (See Table 15: Multivariate Analysis of Model Effects and Table 16: Parameter Estimates).

Omnibus Test[a]

Likelihood Ratio Chi-Square	df	Sig.
841.021	8	.000

Dependent Variable: IMPLEMENT
Model: (Intercept), Education, Tenure, Magnet, Belief, Work, Leader
Compares the fitted model against the intercept-only model.

Table 14: Multivariate Analysis of Overall Model (Omnibus test)

Tests of Model Effects

	Type III		
Source	Wald Chi-Square	df	Sig.
(Intercept)	36.768	1	.000
Site	2.899	1	.089
Education	2.785	2	.248
Tenure	4.033	2	.133
Belief	45.261	1	.000
Leader	1.350	1	.245
Work	2.012	1	.156

Dependent Variable: IMPLEMENT
Model: (Intercept), Site, Education, Tenure, Belief, Leader, Work

Table 15: Multivariate Analysis of Model Effects

Parameter Estimates

			95% Wald Confidence Interval		Hypothesis Test				95% Wald Confidence Interval for Exp(B)	
Parameter	B	Std. Error	Lower	Upper	Wald Chi-Square	df	Sig.	Exp (B)	Lower	Upper
(Intercept)	-2.147	.4762	-3.081	-1.214	20.339	1	.000	.117	.046	.297
Magnet	-.179	.1053	-.386	.027	2.899	1	.089	.836	.680	1.027
Non-Magnet	0[a]	.	.	.	.	.	.	1	.	.
ASN	-.353	.2434	-.829	.124	2.098	1	.147	.703	.436	1.133
BSN	-.224	.2404	-.695	.247	.870	1	.351	.799	.499	1.280
Grad	0[a]	.	.	.	.	.	.	1	.	.
Tenure (0-5 yrs)	-.188	.1194	-.422	.046	2.482	1	.115	.829	.656	1.047
Tenure (5-15 yrs)	-.230	.1326	-.489	.030	3.000	1	.083	.795	.613	1.031
Tenure (15-30 yrs)	0[a]	.	.	.	.	.	.	1	.	.
Belief	.054	.0080	.038	.070	45.261	1	.000	1.055	1.039	1.072
Leader	.012	.0100	-.008	.031	1.350	1	.245	1.012	.992	1.032
Work	.024	.0168	-.009	.057	2.012	1	.156	1.024	.991	1.059
(Scale)	1[b]									

Dependent Variable: IMPLEMENT
Model: (Intercept), Site, Education, Tenure2, BELIEF, LEADER, WORK
a. Set to zero because this parameter is redundant.
b. Fixed at the displayed value.

Table 16: Parameter Estimates

Univariate examination. The univariate analysis revealed that nursing leadership, the work environment, and beliefs were statistically significant for implementation activities, whereas, education, tenure, and Magnet status were not found significant. The relationship between education and implementation using direct entry method of regression analysis was not found to be statistically significant (X^2 = 2.410, *df* = 2, *p* = .300) (See Table 19: Univariate Analysis of the Influence of Education on Implementation Activities).

Estimates

			95% Wald Confidence Interval	
Education	Mean	Std. Error	Lower	Upper
ASN (Level 1)	21.9092	.38136	21.1618	22.6567
BSN (Level 2)	22.7095	.43394	21.8590	23.5600
Graduate (Level 3)	24.0593	1.64152	20.8419	27.2766

Covariates appearing in the model are fixed at the following values: BELIEF=59.1995; LEADER=32.1971; WORK=26.7577

Table 17: Mean Implementation Scores by Educational Level

Individual Test Results

Education Difference Contrast	Contrast Estimate	Std. Error	Wald Chi-Square	df	Sig.
Level 2 vs. Previous	.6030	.52163	1.337	1	.248
Level 3 vs. Previous	1.5601	1.47174	1.124	1	.289

Table 18: Test Results by Educational Level

Overall Test Results

Wald Chi-Square	df	Sig.
2.410	2	.300

Table 19: Univariate Analysis of the Influence of Education on Implementation Activities

The relationship between tenure and implementation using direct entry method of regression analysis failed to find any significance (X^2 = 4.169, *df* = 2, *p* =.124) (See Table 22: Univariate Analysis of the Influence of Tenure on Implementation Activities).

Estimates

			95% Wald Confidence Interval	
Tenure2	Mean	Std. Error	Lower	Upper
0-5 years (Level 1)	22.4717	.68126	21.1364	23.8069
5-15 years (Level 2)	22.3627	.74696	20.8987	23.8268
15-30 years (Level 3)	23.8208	.65057	22.5457	25.0959

Covariates appearing in the model are fixed at the following values: BELIEF=59.1995; LEADER=32.1971; WORK=26.7577

Table 20: Means of Implementation Scores by Tenure

Individual Test Results

Tenure2 Difference Contrast	Contrast Estimate	Std. Error	Wald Chi-Square	df	Sig.
Level 2.00 vs. Previous	-.2004	.68426	.086	1	.770
Level 3.00 vs. Previous	1.1191	.55019	4.137	1	.042

Table 21: Test Results by Tenure

Overall Test Results

Wald Chi-Square	df	Sig.
4.169	2	.124

Table 22: Univariate Analysis of the Influence of Tenure on Implementation Activities

The relationship between sample site (Magnet versus non-Magnet and implementation using direct entry method of regression analysis failed to find any significance (X^2 = 2.812, df = 1, p =.094) (See Table 25: Univariate Analysis of the Influence of Site: Magnet versus non-Magnet on Implementation Activities).

Estimates

			95% Wald Confidence Interval	
Site	Mean	Std. Error	Lower	Upper
Magnet	22.3373	.61836	21.1254	23.5493
Non-Magnet	23.4268	.66009	22.1330	24.7206

Covariates appearing in the model are fixed at the following values: BELIEF=59.1995; LEADER=32.1971; WORK=26.7577

Table 23: Means of Implementation Scores by Site

Individual Test Results

Site Difference Contrast	Contrast Estimate	Std. Error	Wald Chi-Square	df	Sig.
Level 2 vs. Previous	.9280	.55342	2.812	1	.094

Table 24: Test results by site (Magnet vs. non-Magnet)

Overall Test Results

Wald Chi-Square	df	Sig.
2.812	1	.094

Table 25: Univariate Analysis of the Influence of Site (Magnet versus non-Magnet on Implementation Activities

The relationship between staff nurses' beliefs and attitudes about EBP and implementation using direct entry method of regression analysis, was found to be statistically significant (X^2 = 712.881, df = 1, β = .067, p < .000) (See Table 26: Univariate Analysis of Beliefs Effect on Implementation and Table 27: Model Effects of Beliefs About EBP on EBP Implementation: Univariate Examination).

Omnibus Test[a]

Likelihood Ratio Chi-Square	df	Sig.
712.881	1	.000

Dependent Variable: IMPLEMENT
Model: (Intercept), BELIEF
a. Compares the fitted model against the intercept-only model.

Table 26: Univariate Analysis of Beliefs Effect on Implementation

Parameters

Parameter	B	Std. Error	95% Wald Confidence Interval Lower	95% Wald Confidence Interval Upper	Hypothesis Test Wald Chi-Square	df	Sig.	Exp(B)	95% Wald Confidence Interval for Exp(B) Lower	95% Wald Confidence Interval for Exp(B) Upper
(Intercept)	-2.382	.1622	-2.700	-2.064	215.645	1	.000	.092	.067	.127
BELIEF	.067	.0025	.062	.072	705.708	1	.000	1.070	1.064	1.075
(Scale)	1[a]									

Dependent Variable: IMPLEMENT
Model: (Intercept), BELIEF
a. Fixed at the displayed value.

Table 27: Model Effects of Beliefs About EBP on EBP Implementation: Univariate Examination.

The relationship between staff nurses' perceptions about the work environment for EBP and implementation using direct entry method of regression analysis, was found to be statistically significant (X^2 = 382.991, df = 1, β = .074, p < .000) (See Table 28: Univariate Analysis of the Influence of Work Environment on Implementation Activities and Table 29: Model Effects of the Work Environment Influence on EBP Implementation: Univariate Examination).

Omnibus Test[a]

Likelihood Ratio Chi-Square	df	Sig.
382.991	1	.000

Dependent Variable: IMPLEMENT
Model: (Intercept), WORK
a. Compares the fitted model against the intercept-only model.

Table 28: Univariate Analysis of the Influence of Work Environment on Implementation Activities.

Parameter Estimates

Parameter	B	Std. Error	95% Wald Confidence Interval Lower	95% Wald Confidence Interval Upper	Hypothesis Test Wald Chi-Square	df	Sig.	Exp(B)	95% Wald Confidence Interval for Exp(B) Lower	95% Wald Confidence Interval for Exp(B) Upper
(Intercept)	-.319	.1134	-.541	-.097	7.935	1	.005	.727	.582	.907
WORK	.074	.0039	.067	.082	369.781	1	.000	1.077	1.069	1.085
(Scale)	1[a]									

Dependent Variable: IMPLEMENT
Model: (Intercept), WORK
a. Fixed at the displayed value.

Table 29: Model Effects of the Work Environment Influence on EBP Implementation: Univariate Examination.

The relationship between staff nurses' perceptions about nursing leadership for EBP and implementation using direct entry method of regression analysis, was found to be statistically significant (X^2 = 336.839, df = 1, β = .045, p < .000) (See Table 30: Univariate Analysis of the Influence of Nursing Leadership on Implementation Activities and Table 31: Model Effects of the Influence of Nursing Leadership on EBP Implementation: Univariate Examination).

Omnibus Test[a]

Likelihood Ratio Chi-Square	df	Sig.
336.839	1	.000

Dependent Variable: IMPLEMENT
Model: (Intercept), LEADER
a. Compares the fitted model against the intercept-only model.

Table 30: Univariate Analysis of the Influence of Nursing Leadership on Implementation Activities.

Parameter Estimates

Parameter	B	Std. Error	95% Wald Confidence Interval Lower	95% Wald Confidence Interval Upper	Hypothesis Test Wald Chi-Square	df	Sig.	Exp(B)	95% Wald Confidence Interval for Exp(B) Lower	95% Wald Confidence Interval for Exp(B) Upper
(Intercept)	.209	.0929	.026	.391	5.035	1	.025	1.232	1.027	1.478
LEADER	.045	.0026	.040	.050	314.086	1	.000	1.046	1.041	1.052
(Scale)	1[a]									

Dependent Variable: IMPLEMENT
Model: (Intercept), LEADER
a. Fixed at the displayed value.

Table 31: Model Effects of the Influence of Nursing Leadership on EBP Implementation: Univariate Examination.

Summary

This chapter evaluated the descriptive statistics for the variables of interest: staff nurse's individual characteristics, beliefs about EBP, and/or perceptions of nursing leadership and the work environment in which the staff nurse practices. It was shown that the dependent variable, implementation of EBP, was highly skewed, thus violating a number of assumptions for the *general* linear model. The use of a *generalized* linear regression model with robust standard errors accounts for over-dispersion was utilized for analysis. A summary of findings is provided in Table 32.

Specific Aims	Analysis/Significance
1. Explore the relationship among staff nurses' tenure, educational level, and Magnet status of the institution and their beliefs and attitudes about EBP.	• Tenure was not found to be significant for beliefs, suggesting that the length of time the respondent had been a nurse did not influence EBP beliefs and attitudes. • Education was found to be significant for beliefs about EBP, however, the significance was marginal. An exact test was run to further assess this significance and education was not found to be significant for EBP Beliefs. • The Magnet vs. non-Magnet status of the hospital was significant for beliefs about EBP. The respondents who worked in the Magnet setting reveal higher means on the beliefs scale than the non-Magnet site.
2. Explore staff nurses' perceptions of nursing leadership support for EBP and its association with staff nurses' beliefs and attitudes about EBP.	• Analysis revealed a significantly positive linear correlation between nursing leadership and beliefs about EBP. • An examination of a scatter plot for nursing leadership and EBP beliefs revealed a curvi-linear relationship. A second analysis that entered the curvi-linear relationship into the equation revealed an increase in the strength of the correlation from .430 to .467
3. Explore staff nurses' perceptions of the degree that the healthcare work environment is associated with staff nurses' beliefs and attitudes about EBP.	• Analysis revealed a significantly positive linear correlation between work environment and beliefs about EBP.
Research Question	**Analysis/Significance**
Which of the following variables, alone or in combination, predict staff nurses' implementation of EBP: staff nurses' individual characteristics (education, tenure and Magnet status), beliefs about EBP, and/or perceptions of nursing leadership and the work environment in which the staff nurse practices?	• Only one variable was found to be significant in the multivariate analysis for implementation, and it was respondents' beliefs about EBP. • Three variables were found significant in the univariate analysis: 1) beliefs, 2) work environment and 3) nursing leadership for the implementation of EBP. • Tenure, education and Magnet status were not found to be significant in the univariate analysis for implementation of EBP.

Table 32: Summary of Analysis

Chapter V: Conclusion

Findings, Conclusions, Limitations and Future Research

The purpose of this descriptive study is to examine which of the following variables, alone or in combination predict the staff nurse's implementation of evidence based practice (EBP): the staff nurse's individual characteristics (education, tenure, and Magnet status), beliefs about EBP, nurse leadership, and/or work environment. An examination of the variables that influence evidence based practice (EBP) is needed to inform the development of practice models that support the staff nurse's engagement in EBP. The implementation of new evidence into mainstream healthcare decision making has been proven to be difficult, crucial, underemphasized, and the final translational hurdle (Avorn, 2010). This chapter will focus on the findings of this research study and address the implications of the study based on data obtained for each research question. Limitations and future research needs are identified.

Evidence based practice models have been found resistant to conceptualization and the full identification of all determinants elusive (Scott & McSherry, 2008). The current state of the science was found lacking in providing an adequate theoretical framework for this research study. Previous models were examined and informed the conceptual framework used in this study, and as a result, it is postulated that the implementation of EBP is multidimensional and inclusive of at least the following three dimensions: beliefs, work environment, and nursing leadership, which predict staff nurses' implementation of evidence based practice.

Findings and Conclusions

The sample hospitals that participated in this study were two large inner city hospitals, one a Magnet accredited facility and the other an academic medical center. The sample of registered nurses working at least .5FTE for at least six months on the current unit were accessed from these two facilities via personal and email contact. The total number of nurses meeting the inclusion criteria was 1766 with 422 completing the online survey (24% return rate). Generally, the respondents were ASN prepared nurses (*n* = 211 or 50%) and practiced in the critical care environment (*n* = 152 or 36%). Age was difficult to ascertain as it was collected as categorical data, but found that the greater number of respondents were between 41 and 50 years of age (*n* = 108 or 26%) and reflected the average age of 48 for the nurse in the state of Ohio (ONA, 2011). The greatest number of respondents in the sample population had been in practice between 0 to 5 years (*n* = 151 or 36%) and had attended either continuing education on the topic of EBP (*n* = 230 or 54.%) or a college course (*n* = 218 or 52%). The demographic information when examined independently by hospital (Magnet versus non-Magnet) (See Table 8, Chapter 4) revealed that there were more ASNs than BSNs in the Magnet hospital, compared to the university affiliated non-Magnet hospital.

Specific Aim 1: Explore the relationship among staff nurses' tenure, educational level and Magnet status of the institution and their beliefs and attitudes about EBP. The discussion of specific aims is brief and shares what is known in the literature with limited commentary/analysis. An in-depth discussion of the each of the variables will occur in the section that addresses the research question. It is difficult and

confusing to separate these variables and draw meaningful conclusions when discussed separately.

Tenure. The length of time that a nurse had been in practice (tenure) was not found to influence the respondent's beliefs about EBP.

Education. Education was not found to be a significant factor that influenced the respondent's beliefs about the ability to implement EBP after careful analysis with the exact test (p = .507).

Magnet status. EBP beliefs scores were significantly different by site (Magnet versus non-Magnet) (t (419) = 3.183, p =.002). The mean of the Magnet hospital was significantly higher ($\bar{x}$ = 60.47, SD = 7.48) than the non-Magnet hospital ($\bar{x}$ = 57.98, SD = 8.51) (See Table 10, Chapter IV).

It is suggested that, while mean scores for beliefs about the ability to implement EBP are higher in the Magnet hospital than in the non-Magnet hospital and the Magnet hospital is comprised of a majority of ASN registered nurses, beliefs about the ability to engage in implementation activities is likely the result of the Magnet *emphasis* on the value and vision related to nursing and EBP. Recall that this study did not find education influential. This examination of beliefs regarding the respondent's ability to implement EBP is important as Melnyk, et al. (2004) found that positive belief about the ability to implement EBP is predictive of the individual's likelihood to seek out more education and information on a topic. Therefore, where these beliefs are fostered and nurtured is an important issue for examination.

Specific Aim 2: Explore staff nurses' perception of nursing leadership support for EBP and its association with staff nurses' beliefs and attitudes about EBP. The American Nurses Credentialing Center (ANCC) recently increased the weighting of EBP as the foundation for an infrastructure that supports achievement of Magnet designation (ANCC, 2011b). In order to achieve Magnet status, the Chief Nurse Executive is required to foster and sustain a practice environment where EBP is an integral component of nursing care and a framework for decision making (Turkel, Reidinger, Ferket, & Reno, 2005). This emphasis is believed to influence the endorsed beliefs about EBP of the staff nurses who work in the Magnet hospital.

It was found that there is a moderately significant positive correlation (r = .419, p = <.000) between nursing leadership and beliefs and attitudes about EBP (See Appendix L). This finding is consistent with the literature related to the nurse manager's role in setting the milieu and fostering a positive attitude regarding beliefs and attitudes related to EBP (Aarons, 2006; Gifford, et al., 2007; Marchionni & Ritchie, 2008; Rycroft-Malone, 2008b). Making EBP a reality for the staff nurse makes the nurse manager instrumental in leading and *facilitating* EBP however, the nature of this role has not been fully explored or articulated (Wilkenson, Nutley, & Davies, 2011).

Specific Aim 3: Explore staff nurses' perceptions of the degree that the healthcare work environment is associated with staff nurses' beliefs and attitudes about EBP. A statistically significant positive correlation was found between staff nurses' beliefs and attitudes about EBP and work environment (r = .475, p = <.000) (See Appendix L). This is consistent with the literature, which suggests that work environment is influential on EBP beliefs and attitudes (Gerrish & Clayton, 2004;

Melnyk & Fineout-Overholt, 2005; Rycroft-Malone, 2008a; Wallin, Bostrom, Wikblad, & Ewald, 2003).

Research Question: Which of the following variables, alone or in combination, predict the staff nurse's implementation of EBP: the staff nurse's individual characteristics (education, tenure), Magnet status, beliefs about EBP, and/or perceptions of nursing leadership and the work environment in which the staff nurse practices? Discussion of the research question will examine the association of each individual independent variables with implementation of EBP and how each of these variables contributed to the model as a whole.

Education. In the examination of education in the multivariate model where all independent variables were entered, education was not found to be statistically significant (X^2 = 2.785, *df* = 2, *p* = .248) suggesting that education does not influence the implementation of EBP. It was previously discussed in specific aim #1 that education was not significantly associated with the nurse's perceived ability to implement EBP. In the univariate analysis, education is again, not shown to be of statistical significance for the implementation of EBP (X^2 = 2.410, *df* = 2, *p* = .300). In the examination of education by type (ASN, BSN or Graduate) of educational background, no statistical significance was again shown for EBP implementation activities.

The literature reflects that one of the keys to research use in everyday practice is that the nurse is master's prepared (Thompson, et al., 2001). However, other research suggests that there is little evidence to imply that any potential individual determinants influence research use for purposes of EBP, including education (Estabrooks, et al., 2003).

In the examination of specific aim # 1, it was found that education was not significant for beliefs about EBP, raising the question, *From where does the nurse's beliefs and knowledge base regarding EBP come from*? In this sample there are more ASN (50%) than BSN (46%) nurses, yet both groups report high beliefs about their ability to implement EBP and relatively low scores on the implementation scale that assesses actual implementation behaviors. Does this finding reflect a phenomenon where the nurse *doesn't know what he/she doesn't know, but values and implements EBP based on work environment and leadership influences only*? Since there are few implementation activities it is concluded that education is not influential in developing beliefs about EBP or implementation activities.

A quick web search was conducted to examine the curriculum content of 10 randomly selected large, well-known, university based BSN nursing programs. This examination is not presented as a scientifically sophisticated examination of curriculum content, but instead as a quick examination of required courses listed for the traditional BSN nurse related to EBP implementation. These traditional BSN curricula revealed that only three of the selected universities included an obvious EBP implementation course. Of these three, the course was a one or two credit hours. The course descriptions of a number of the core courses included the terms *evidence based content;* however, the *implementation complexity* of EBP as a focus was not readily apparent. It is assumed that students are exposed to the concept of EBP and *hear* that it is valuable and therefore *value* and *believe* in EBP with *little* exposure or understanding of implementation activities. This is reflective of the mean scores on the beliefs and implementation scales, where strong beliefs are recorded, yet few implementation activities are realized.

Tenure. Tenure was not found to be statistically significant for implementation of EBP in the multivariate analysis of the overall model effects, nor found significant upon examination of parameter estimates. However, there is a mixed message found in the research related to tenure as a variable of influence in the implementation activities involved in EBP. There are a number of studies that failed to find statistical significance for tenure (Bostrom & Newton-Suter, 1993; Coyle & Sokop, 1990; Estabrooks, 1999), yet there is at least one study that suggests tenure is influential. Bostrom and Newton-Suter (1993) found that nurses had more confidence in the ability to engage in EBP decisions if they had previously participated in research *along with years of nursing experience* and was shown to share 14% of the explained variance for EBP implementation activities. In a large systematic review of the literature designed to examine the individual characteristics of the nurse that contribute to EBP, 13 articles examined the role of tenure and the use of evidence, and only the current role of the nurse was found to correlate consistently with the use of research (Estabrooks, et al., 2003). The longer an individual nurse has been in practice, the higher the likelihood that the more tenured nurse entered health care at a time when research was not largely recognized as a basis for care (Wilkenson, et al., 2011). It is also known that the more experienced and older nurse prefers to obtain new knowledge primarily through informal sources at the unit level (Asselin, 2001; Estabrooks, et al., 2005; Gerrish & Clayton, 2004). The findings from this research generally reflect low implementation scores regardless of tenure. Tenure is discussed further in the limitation section.

Magnet Status. There were no statistically significant findings in the multivariate or univariate analysis of the EBP implementation practices of respondents' by site

(Magnet versus non-Magnet). This was an unexpected finding as it was *assumed* that Magnet status indicates an evaluated (credentialed) endorsement of EBP implementation activities. Magnet accreditation guidelines under the Magnet model component IV; *New Knowledge, Innovation, and Improvements* asserts that Magnet organizations engage in EBP implementation activities (ANCC, 2011b):

> Magnet organizations conscientiously integrate evidence-based practice and research into clinical and operational processes. Nurses are educated by evidence-based practice and research, enabling them to appropriately explore the safest and best practices for their patients and practice environment and to generate new knowledge (p. 29).

Some background information on both sites is also of interest. The Magnet facility had a larger percentage of ASN (57%) nurses compared with the non-Magnet facility (51%). The Magnet facility was a private hospital with a diploma (recently converted to an ASN) program that has a long standing history with the hospital, where graduates are assured a position upon graduation due to funding/grant programs. The non-Magnet hospital was a university based medical center with a higher percentage of newer (37%) BSN (51%) nurses than the Magnet hospital which isn't a large difference, but possibly a contributory variable, as the university affiliate provides an elective EBP class. However, if the influence of implementation activities of the Magnet setting is offset by the non-Magnet setting characteristics, it fails to weaken the significance of these findings. It is important to recognize that the emphasis of the Magnet credentialing process is related to organizational structures, systems, and *values* with less emphasis on unit based implementation practices (ANCC, 2011a). Values are *championed* and emphasized through the use of clinical leaders and managers and serves as a possible

explanation for why education was not found significant for EBP belief when the EBP beliefs are reported by respondents as strong.

The five model components of the new Magnet model, 1) transformational leadership, 2) structural empowerment, 3) exemplary professional practice, 4) new knowledge, innovations, and improvement, and 5) empirical quality outcomes, are defined by the original 14 forces of magnetism. The fourth Magnet model component, new knowledge, innovations, and improvements, is measured by actions related to quality improvement and *evaluated/examined* as "strong leadership, empowered professionals, and exemplary practice" (ANCC, 2011a, p. 6). Therefore, findings in the present study assert that new knowledge, innovations, and improvement addresses *system variables* versus EBP *implementation activities*. The fifth model component, empirical quality outcomes, includes commentary that recognizes this past emphasis on structure and process, with a newly intended focus on implementation outcomes. The intent of the Magnet credentialing process appears to directly evaluative activities on outcomes, assuming that outcomes reflect implementation activities. While considering structure and process as foundational to the Magnet process, the failure to examine implementation *activities*, designed to improve and push nursing to new intellectual heights, appears lacking. The outcome measures serve as a *report card* of sorts, implying effective EBP implementation activities. It is asserted that outcome measures and the implementation of EBP is not the same, as it is hard to know the outcomes of new interventions or activities if outcomes are measured by what is already known (i.e., nosocomial decubiti rates as compared to national standards), which does not reflect what the interventions are that produced the *report card number* or how the nurse/organization is pushing new and more

effective methods of care to the bedside. It is suggested that exceeding national standards might be a stronger indicator of active EBP implementation behaviors.

Support for the assertion that the implementation of EBP is a behavioral activity is found in the model that is used at Johns Hopkins. Recognizing that behavioral changes are needed to institutionalize EBP, the Johns Hopkins EBP nursing model (Newhouse, Poe, Petit, & Roco, 2006) utilizes a strategic approach that included not only the organizational and structural components, but also focuses on providing meaningful EBP leadership, setting expectations, building skills, allocating resources, *and* incorporating the model and tools into the educational program of the affiliate university.

Beliefs. Beliefs about EBP were found to be statistically significant in the overall model and in the univariate model. The respondent's beliefs about their ability to implement EBP were ranked on a scale from 1 to 5 with higher means suggestive of a positive belief that the respondent can engage in EBP. The implementation scale is also completed by ranking implementation activities on a scale from 1 to 5 with the higher means suggesting more implementation activities within the last eight weeks (See Appendix B). In the multivariate analysis, the frequency of EBP implementation activities is strongly affected by beliefs in the fact that the Poisson regression equation suggests that, for every unit (point) increase in beliefs, there is an associated increase in implementation activities of 5.4% ($X^2 = 45.261$, $df = 1$, $\beta = .054$, $p < .000$) holding all other variables constant. This means that for every unit (or point) change in beliefs there is a positive influence on implementation activities. It is important to recognize that because the range for the EBP Beliefs Scale (16-80) and the EBP Implementation Scale (17-85) is considered a wide range and results in a large X^2 of 45.261, with very different

means on the two scales, the result is a large regression coefficient of .054 (5.4%) (See Table 33: Respondents' Means of EBP Beliefs and EBP Implementation Activities). This is due to the wide range of difference in means between the two variables of beliefs

Statistics

		BELIEF	IMPLEMENT
N	Valid	421	421
	Missing	0	0
Mean		59.1995	22.7292
Std. Deviation		8.10985	6.78744

Table 33: Respondents' Means of EBP Beliefs and EBP Implementation Activities

about ability to implement ($\bar{x}$ = 59.20) and implementation activities ($\bar{x}$ = 22.73). It is interesting to note that the exploration of the correlations between beliefs and implementation also mirror a moderate to strong positive correlation (r =.460, p <.000) (See Appendix K). Therefore, the effect of the independent variable (beliefs about the ability to implement EBP) for one unit (or one point) change in the dependent variable (implementation activities) of 5.4% (.054) is strongly statistically significant (p < .000). If a score of 16 on the beliefs scale increases by one unit (one point) to 17, the effect of the change is .054 or 5.4%.

However, examination of the two scales reveals that respondents' *beliefs about their ability* to implement EBP are not congruent with their reported *implementation* of EBP. Respondents report moderately high beliefs ($\bar{x}$ = 59.20, Range 16-80) regarding their ability to implement evidence based practice, but that reported implementation activities ($\bar{x}$ = 22.73, Range 17-85) reveals few actual implementation activities. Other studies have found similar findings pointing to this lack of congruency between beliefs about the ability to implement and the actual implementation behaviors (Estabrooks, et al., 2003; Estrada, 2009; Melnyk, et al., 2004). Estrada (2009) found, (utilizing the

beliefs and implementation scaled utilized in this research) that beliefs explained 23% of EBP implementation reported by RNs with a residual 77% yet to be identified which mirrored the explained variance in this study of 21%.

Nursing Leadership. Leadership for EBP was not found to have a significant contribution in the multivariate analysis of the overall model, however, was found statistically significant in the univariate regression analysis. It is important to recognize before discussing the relationship between nursing leadership and EBP that an assumption underlies this researcher's thinking. It is believed that setting a vision and fostering positive beliefs about EBP is not the same as leading implementation activities and this assumption is supported by this research.

It has been shown that there is a moderate correlation (r = .460) between respondents' beliefs regarding the ability to implement EBP and nursing leadership. In addition, a statistically significant correlation between leadership and belief (r = .419, p <.000) and leadership and implementation (r = .305, p < .000) supports the relationships between the nurse leader, beliefs about the ability to implement EBP, *and* the ability to engage in EBP implementation activities. It could be that beliefs about the ability to implement EBP are being nurtured and encouraged by the nurse manager; however, it is apparent that the implementation of EBP remains problematic, as demonstrated by the low means. There is a significant relationship between nursing leadership and implementation, and the Poisson regression equation suggests that for every unit (point) increase in leadership there is an associated increase in implementation activities of 4.5%, (X^2 = 336.839, df = 1, β = .045, p < .000) with no other variables in the equation. This suggests that, while the nurse manager influences beliefs and

implementation and the implementation scores are low, that leadership required to facilitate implementation activities is lacking, but influential.

In an extensive literature search that examined the role of the nurse manager in facilitating EBP, it was found that only four intervention studies had been conducted between 1995 and 2005 regarding how managers influence research use, and Gifford et al. (2007) concluded that there is insufficient information about how to improve research use through the nurse manager. Wilkenson et al. (2011) in a qualitative study, suggest that nurse managers appear to be involved in EBP implementation in a passive manner and not able to explain or provide examples of implementation activities. This conclusion drawn by Wilkenson, et al. (2011) is best described from the perspective of a staff nurse:

> I was nominated by my manager to do this… I have to implement the integrated care pathways and all the nursing best practice statements, but I know nothing about either… I feel like I am floundering (p. 240).

Active management strategies that target the change behaviors needed to implement EBP by the staff nurse are not passive processes and require EBP skills knowledge (Mulhall & leMay, 1999). It is known that effective leadership skills stimulate innovative ways of thinking and work to transform followers' beliefs and aspirations through skilled communication skills, trust building, and role modeling (Marquis & Huston, 2012; Marriner Tomey, 2009; McGuire & Kennerly, 2006; McLaren, Ross, Redfern, & Christian, 2002; Mullins, Kozlowski, Schmitt, & Howell, 2008; Porter-O'Grady & Malloch, 2011). However, it is also known that while nurse managers recognize how important their role is in facilitating and supporting an evidence based practice environment, they recognize that they lack strategies to provide *practical*

supports and overcome organizational barriers (Gifford, et al., 2007). Dobson and Fitzgerald (2006) state that nurse managers have a clear lack of engagement in clinical effectiveness of EBP, but find research lacking about the nurse managers' motivations in regards to EBP behaviors.

Work environment. Work environment was not found to be statistically significant in the overall model, but like education, beliefs, and nursing leadership, was found to be statistically significant in the univariate analysis. The Poisson regression equation suggests that for every unit (point) increase in respondent's scores for work environment there is an associated increase in implementation activities of 7.4 % (X^2 = 382.991, $df = 1, \beta = .074, p < .000$) with no other variables in the equation. Correlation examination between work environment and the implementation activities of respondents is also significant ($r = .330$, $p < .000$) (See Appendix K). Yet, with all variables in the equation, the contribution of work environment is non-significant.

The significance of this relationship is one of interest in a number of studies. Stetler (2003a) emphasized the need to examine the work environment by examining the following three lessons emerging from the literature to date:

1. Not all improvements in practice can be achieved by inducing or exhorting the individual.
2. Even when EBP change occurs among individuals it is *not likely* to be sustained without organizational system support.
3. The organization can play *either* a facilitative or hindering role in EBP (p. 98).

Pettigrew, Feerlie, and McKee (1992) suggest that aspects of a work environment/culture supporting EBP are directly related to the values/beliefs regarding EBP where the

environment is characterized as either weak or strong for EBP. Multiple studies indicate that organizations that do not support EBP deter the nurse from engaging in EBP (IOM, 2010; Kenny, et al., 2010; Melnyk, Fineout-Oberholt, Giggleman, & Cruz, 2010; Porter-O'Grady & Malloch, 2011; Wilkenson, et al., 2011). Rycroft-Malone, et al. (2004b) found that context was a "potent mediator of the successful implementation of evidence into practice" (p. 915). The literature frequently cites a lack of resources as a barrier to implementation of EBP and where high organizational priorities are more likely significant for the implementation of change (Dopson, 2007a; Dopson, FitzGerald, Ferlie, Gabbay, & Locock, 2002; Kitson, Harvery, & McCormack, 1998).

Examination of the low implementation results in this research mirrors this line of thought, as it has been identified that work environment is not influential in the overall model for implementation, but in the univariate analysis is somewhat influential where low implementation scores prevail. This research suggests an environment not supportive of EBP implementation activities, regardless of site, but potentially influential.

Discussion

The results of this research show that tenure and education are not significantly associated with the respondent's *beliefs* about their abilities to implement EBP, nor with the *implementation* of EBP when examined in the univariate analysis. It is noted that 54% of the sample population reported that they had attended an EBP continuing education (CEUs) class and 51% reported that they had taken an EBP college course. In spite of what is assumed about a focused educational intervention related to EBP, education did not influence EBP implementation activities or beliefs about EBP. However, beliefs about EBP were considered moderately high, after examination of the

means of the belief scale ($\bar{x}$ = 59.20, Range 16-80). This suggests that respondents believed that they could implement EBP activities in spite of educational level, tenure, or additional CEUs/EBP college courses yet failed to report those behaviors that were reflective of EBP implementation. It appears that leadership and the work environment itself, which were found positively related to respondents' beliefs about their ability to implement EBP and found significant for implementation activities in univariate examinations, are important for instilling respondents' beliefs in their abilities regarding implementation activities. Beliefs about the ability to implement EBP was the only variable in the overall model found to influence implementation activities and understanding what influences beliefs takes on an added importance. As mentioned previously, Melynk et al. (2004) asserts that beliefs are instrumental to implementation activities. It appears that the work environment and in this study regardless of Magnet status, and nursing leadership are associated with respondents' beliefs about EBP.

This research suggests that implementation of EBP is problematic, even in a Magnet environment. Beliefs is the only variable that was shown to influence implementation in the overall Poisson regression, but it is important to recognize that in the univariate analysis, work environment and leadership were also found to influence implementation activities. Therefore, those variables that have been shown to influence implementation activities are beliefs, the work environment and leadership. Magnet status was not influential in the *implementation* of EBP but was significant for the respondent's *beliefs* that they can implement EBP. This suggests that even with high beliefs about the ability to implement EBP, implementation activities are limited.

It becomes important to recognize the rhetoric that surrounds EBP and work to educate nurse leaders in actual implementation activities and behaviors, provide work environments that support implementation and support curriculum changes that reflect these findings. Implementation activities in this research are defined primarily as the sharing of research information with colleagues, utilizing research to change practice, engaging in the collection of outcome data and changing practice based on findings, serving as a change agent and engaging in the locating, reading, analyzing and developing good clinical questions that reflect an environment that *lives and breathes* EBP.

It would be interesting to survey the students from the three out of ten large universities that have EBP implementation included in the curriculum to see if purposeful undergraduate educational strategies are influential in the implementation of EBP. This is a broad assumption that does not consider the influence of the work environment and nursing leadership in which these students may work but this research supports that education is not influential on the implementation of EBP. It does not go unrecognized that leadership was found influential and that, in some studies, leaders self-report limited abilities to engage in implementation activities or guide the staff nurse (Mulhall & leMay, 1999; Wilkenson, et al., 2011).

Limitations

A limitation of this research is that it was completed by full-time practitioners, and the results may be very different from the nurse managers or those who practice part-time. This study was conducted in only two facilities, one Magnet and one non-Magnet facility, limiting the generalizability of the results. A potential limitation is the 24%

response rate of the target population may or may not be representative of the entire population, and the subjective nature of survey results may not capture the true beliefs of the respondent.

Another potential limitation of the current study is the exact manner in which the variables were measured. For instance, although the overall test for tenure was not significant, the difference between level 3 (15-30 years as a nurse) and level 2 (5 to 15 years as a nurse) of tenure was found to be statistically significant. Had this variable been operationalized or measured differently, it is possible for statistically significant differences to have been observed.

This study failed to examine the leader's beliefs and implementation activities related to EBP or the EBP *knowledge* of the respondents (or the leaders). This information would have provided additional insight for purposes of understanding EBP implementation activities. Additionally, gender information was not collected, and in future studies, this information will be collected as it may be that gender influences beliefs and/or implementation activities.

Future Research

This study was based on the staff nurse perspective regarding work environment and nursing leadership as potential barriers to the process of EBP. Further research regarding the beliefs and knowledge base of the nurse manger are needed. Transformational leadership has been identified as supportive of EBP; however the influence of this leadership style on implementation activities has not been examined. In addition, an in-depth examination of curricula across BSN programs for teaching the skill set related to EBP implementation is needed to support necessary curriculum changes for

the nurse of the future. The following foci for future research are proposed to advance the understanding of implementing EBP activities in the healthcare setting:

1. Intervention studies to test nursing leadership skills and knowledge and/or changes in work environment that may influence EBP implementation activities.
2. This same study replicated with nurse leaders only.
3. A nested design study that examines the beliefs and attitudes about EBP implementation and EBP implementation activities among respondents and their respective nurse leaders.
4. Examination of the EBP implementation activities in a larger number of Magnet and non-Magnet sites.
5. Examination of curriculum and course content related to EBP among the American Association of the College of Nurses approved programs. Correlational examination of EBP implementation activities of respective graduates and course content.

Summary

Evidence based practice is the clinical application of the best evidence to guide nursing care, education, administration, and policy. However, the implementation of basic research discoveries into daily clinical practice remains inconsistent and presents complex challenges (Aarons, 2005; Melnyk, et al., 2005; Titler, 2007; Wilkenson, et al., 2011). The clinical nurse stands at the forefront of this movement and is asked to embrace a new era for nursing and patient care which will require changes in the education of students, more relevant clinical research, and evidence based practice education (Gale & Schaffer, 2009; Hudson, Duke, Haas, & Barnell, 2008; IOM, 2011;

IOM, 2010; Rycroft-Malone, 2008b; Scott & McSherry, 2008) The individual practitioner is key to the implementation of EBP, but it is becoming more widely accepted that EBP is not an individual activity and is a complex process that remains under-researched (Cummings, et al., 2007a; Foxcroft & Cole, 2005; Rycroft-Malone, 2008a).

The Institute of Medicine (IOM, 2011) has spearheaded an ongoing assessment of the nation's quality of care that has spanned several decades with emphasis on bridging the gap between research and practice. In 2001, the IOM released a report, *Crossing the Quality Chasm*. The report fostered a vision to bridge the gap between services and what is known/evidence, and a call for a radical transformation in the delivery of services was made. The changes called for were multifaceted, but inclusive of the need "to accelerate the diffusion and pace of quality improvement efforts in the United States" (IOM, 2011, para. 28).

In a collaborative effort, the Institute of Medicine and the Robert Wood Johnson Foundation launched a two-year investigation of how the three million members of the nursing profession can play a role in realizing the goals of the 2010 Affordable Care Act. The outcome of this investigation produced a report with four key recommendations for the future of nursing (IOM, 2010). These recommendations suggest a focus on the intellectual preparation of the nurse, better information infrastructures, higher levels of education and that the nurse participate as a full partner in care. The emphasis of each of these recommendations suggests that nursing is a vital component for the implementation of EBP. The IOM recommendations seem to suggest that a large percentage of those

three million bedside nurses are expected to practice EBP as an assumed component of practice for the nurse of the future.

The United States continues to experience wide variations in quality outcomes, and health care spending is expected to consume 20% of the nation's gross national product by the year 2015 (McGlynn, et al., 2003). The emphasis on EBP has taken on increased emphasis in the last decade as a result of rising costs and alarming statistics related to the healthcare outcomes in the US (IOM, 2011; IOM, 2010). Implementing and sustaining EBP is no longer a luxury, but a necessity. It is folly to spend billions for research and "leave it to chance alone, that empirical findings will find their way to the point of care" (Titler, 2011, p. 291).

In the US, funding opportunities are generally driven by the needs identified in reports such as the IOM releases. The Agency for Healthcare Research and Quality (2011) recently issued an R18 funding opportunity entitled, *Researching Implementation and Change while Improving Quality*. The grant is a call for researchers to study the *implementation* of improvement strategies due to the increasing evidence which suggests that achieving quality improvement goals is partially attributed to implementation processes and not just to the nature of necessary changes (AHRQ, 2011).

The nurse involved in implementing evidence based nursing/practice provides care that involves investigation, intuition, and reaction which is supported and steeped in research. It is known that nursing care based on evidence improves patient outcomes, and that 30-45% of patients are not receiving care, based on the latest evidence while 20-25% of care provided is potentially harmful and consuming resources unnecessarily (Graham, et al., 2006; Heater, et al., 1988). The nurse is asked to question, locate, interpret,

evaluate and apply what is empirically known to the decision making process. The rhetoric and assumptions regarding the nurse's ability to engage in this process is massive and it is known that EBP remains difficult and challenging (Scott & McSherry, 2008).

Clearly, the time for EBP has come. Escalating costs, consumer demands and the nursing shortage beg for consistent practice based on effective and proven practice strategies. It has been shown that nurses believe that they practice evidence based nursing; however, much work is needed to help the nurse and nurse manger appreciate what EBP is and to provide the necessary support structure/work environment that encourage implementation practices.

Appendix A

EBP Beliefs Scale

Melnyk & Fineout-Overhold, Copyright, 2003

Below are 16 statements about evidence-based practice (EP). Please select the number that best describes your agreement or disagreement with each statement. There are not right or wrong answers.

Question	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. I am sure that I can I implement EBP in a time efficient way	1	2	3	4	5
2. I am sure that I can implement EBP	1	2	3	4	5
3. I believe that I can search for the best evidence to answer clinical questions in a time efficient way	1	2	3	4	5
4. I am confident about my ability to implement EBP where I work	1	2	3	4	5
5. I believe that I can overcome barriers tin implementing EBP	1	2	3	4	5
6. I am sure about how to measure the outcomes of clinical care.	1	2	3	4	5
7. I know how to implement EBP sufficiently enough to make practice changes	1	2	3	4	5
8. I am sure that I can access the best resources in order to implement EBP	1	2	3	4	5
9. I am sure that implementing EBP will improve the care that I deliver to my patients	1	2	3	4	5
10. I believe that critically appraising evidence is an important step in the EBP process	1	2	3	4	5
11. I am clear about the steps of EBP	1	2	3	4	5
12. I am sure that evidence based practice guidelines can improve clinical care	1	2	3	4	5
13. I believe that EBP results in the best clinical care for patients	1	2	3	4	5
14. I believe the care that I deliver is evidence-based	1	2	3	4	5
15. I believe that EBP is difficult (reverse scored)	1	2	3	4	5
16. I believe that EBP takes too much time (reverse scored)	1	2	3	4	5

Appendix B

EBP Implementation Scale

Melnyk & Fineout-Overhold, Copyright, 2003

Below are 18 questions about evidence-based practice (EBP). Some healthcare providers do some of these things more often than other healthcare providers. There is no certain frequency in which you should be performing these tasks. Please answer each question by selecting the number that best describes **how often each item has applied to you in the past 8 weeks.**

In the **past 8 weeks**, I have:

Question	None	1-3 times within the last week	4-6 times within the last week	7-8 times within the last week	Greater than 8 times within the last week
1. Shared the outcome data collected with colleagues	0	1-3	4-6	7-8	>8
2. Shared evidence from a study/ies in the form or a report or presentation to > 2 colleagues	0	1-3	4-6	7-8	>8
3. Shared an EBP guideline with a colleague	0	1-3	4-6	7-8	>8
4. Shared evidence from a research study with a multidisciplinary team member	0	1-3	4-6	7-8	>8
5. Used an EBP guideline or systematic review to change clinical practice where I work	0	1-3	4-6	7-8	>8
6. Changed practice based on patient outcome data	0	1-3	4-6	7-8	>8
7. Evaluated a care initiative by collecting patient outcome data	0	1-3	4-6	7-8	>8
8. Promoted the use of EBP to my colleagues	0	1-3	4-6	7-8	>8
9. Used evidence to change my clinical practice	0	1-3	4-6	7-8	>8
10. Shared evidence from a research study with a patient/family member	0	1-3	4-6	7-8	>8
11. Read and critically appraised a clinical research study	0	1-3	4-6	7-8	>8
12. Informally discussed evidence from a research study with a colleague	0	1-3	4-6	7-8	>8
13. Critically appraised evidence from a research study	0	1-3	4-6	7-8	>8
14. Generated a PICO question about my clinical practice	0	1-3	4-6	7-8	>8
15. Collected data on a patient problem	0	1-3	4-6	7-8	>8
16. Accessed the National Guidelines Clearinghouse	0	1-3	4-6	7-8	>8
17. Accessed the Cochrane database of systematic reviews	0	1-3	4-6	7-8	>8

Appendix C

Evidence Based Practice Nurse Leadership

Pryse, Copyright 2012

Following are 10 statements about evidence-based practice (EBP) in your clinical setting. Please select the option that best describes your agreement or disagreement with each statement. There are no right or wrong answers.					
Question	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. My manager is able to communicate how EBP is important for improving patient outcomes on my unit.	1	2	3	4	5
2. My manager encourages me to examine evidence to guide clinical decision-making.	1	2	3	4	5
3. My manager has a vision for EBP on my unit.	1	2	3	4	5
4. My manager can explain EBP in terms that are easy to understand.	1	2	3	4	5
5. My manager helps me resolve conflicts between nursing research and clinical practice.	1	2	3	4	5
6. My manager supports my efforts to change practice in response to new knowledge/evidence.	1	2	3	4	5
7. My manager is able to influence others to engage in EBP.	1	2	3	4	5
8. My manager facilitates my use of resources for EBP (e.g., data bases, experts, literature).	1	2	3	4	5
9. My manager facilitates practice change based on relevant nursing research.	1	2	3	4	5
10. My manager provides time for me to engage in EBP.	1	2	3	4	5

Appendix D

Evidence Based Practice Work Environment Scale

Pryse, Copyright 2012

Following are 8 statements about evidence-based practice (EBP) in your clinical setting. Please select the option that best describes your agreement or disagreement with each statement. There are no right or wrong answers.

Question	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. Experts in EBP are available in my work setting.	1	2	3	4	5
2. In my organization I have access to databases that have full length nursing research articles.	1	2	3	4	5
3. I believe my organization values evidence based nursing practice.	1	2	3	4	5
4. The nurses on my unit discuss research relevant to our clinical practice.	1	2	3	4	5
5. The physicians I work with support EBP changes based on nursing research.	1	2	3	4	5
6. The nurses on my unit base their practice on the best evidence.	1	2	3	4	5
7. My manager makes sure that I have access to relevant research on my unit.	1	2	3	4	5
8. My organization pays for me to attend educational offerings about EBP.	1	2	3	4	5

Appendix E: Letter to Experts

Yvette M. Pryse

Indiana University Doctoral Student

Dear….

I am writing this letter to ask if you would lend your expertise to assess the content validity of a tool I am developing for my dissertation work. My study will examine the impact of the staff nurses' beliefs about evidence-based practice (EBP) and their perceptions of nursing leadership and organizational culture to support EBP. I will be using two established tools to measure the staff nurses beliefs about EBP and the implementation of evidence based practices by nurses (Melnyk, et al., 2008). I found no tools that effectively addressed an EBP culture or the attributes of a nursing leader in regards to EBP.

I have attached a tool designed to assist you in evaluating the representativeness and relevance of the items that target nursing leadership and organizational culture. I have provided the conceptual definitions that will be utilized in this study to guide your analysis of the content validity of the tool.

I understand that this is a busy time for you. As an expert in the field I would very much appreciate your willingness to evaluate this instrument. Please complete the attached form and return your evaluation to me, either by email or I can pick up in person. Please feel free to complete this tool according to your preferences, online or pencil and paper. You may call me to pick up the evaluation or email it back to me.

Thank you in advance for your time and consideration of this request. I believe that your expertise will enrich my work and I am hopeful that you will offer me your time and talents for this project.

Sincerely,

Yvette Pryse

Appendix F: 1st CVI Expert Tool

CONTENT VALIDITY EVALUATION FORM

1 = the item is **not** representative/relevant of leadership for EBP
2 = the item is **somewhat** representative/relevant of leadership for EBP
3= the item is **quite** representative/relevant of leadership for EBP
4 = the item is **very** representative/relevant of leadership for EBP

Conceptual Definition of Leadership for EBP: A multidimensional process of influence to enable staff nurses to use research evidence in clinical practice, and includes behaviors and activities of mangers that exert direct and indirect influence on individuals, their environment and organizational infrastructures.		
	REPRESENTATIVE	**RELEVANT**
Attribute #1 **Leadership for EBP (15 items)**		
1. My manager provides time for me to engage in EBP	1 2 3 4	1 2 3 4
Comments/Suggestions:		

<u>Conceptual Definition of Leadership for EBP:</u> A multidimensional process of influence to enable staff nurses to use research evidence in clinical practice, and includes behaviors and activities of mangers that exert direct and indirect influence on individuals, their environment and organizational infrastructures.		
	REPRESENTATIVE	**RELEVANT**
2. My manager supports my authority to change practice in response to new knowledge/evidence	1 2 3 4	1 2 3 4
Comments/Suggestions:		
3. My manager serves as a resource person for EBP on the unit	1 2 3 4	1 2 3 4
Comments/Suggestions:		
4. My manager makes sure that I have access to databases that allow me to find research articles	1 2 3 4	1 2 3 4
Comments/Suggestions:		
5. My manager supports practice change based on relevant nursing research	1 2 3 4	1 2 3 4

<u>Conceptual Definition of Leadership for EBP:</u> A multidimensional process of influence to enable staff nurses to use research evidence in clinical practice, and includes behaviors and activities of mangers that exert direct and indirect influence on individuals, their environment and organizational infrastructures.		
	REPRESENTATIVE	**RELEVANT**
Comments/Suggestions:		
6. My manager helps me understand research reports	1 2 3 4	1 2 3 4
Comments/Suggestions:		
7. My manager helps me clarify conflicts between nursing research and clinical practice	1 2 3 4	1 2 3 4
Comments/Suggestions:		
8. My manager values evidence based practice	1 2 3 4	1 2 3 4

Conceptual Definition of Leadership for EBP: **A multidimensional process of influence to enable staff nurses to use research evidence in clinical practice, and includes behaviors and activities of mangers that exert direct and indirect influence on individuals, their environment and organizational infrastructures.**		
	REPRESENTATIVE	**RELEVANT**
Comments/Suggestions:		
9. My manager has a vision for EBP on my unit	1 2 3 4	1 2 3 4
Comments/Suggestions:		
10. My manager is able to articulate how EBP is important for my unit and patients	1 2 3 4	1 2 3 4
Comments/Suggestions:		
11. My manager resolves any EBP conflicts among unit nurses and physicians	1 2 3 4	1 2 3 4
Comments/Suggestions:		

<u>Conceptual Definition of Leadership for EBP:</u> A multidimensional process of influence to enable staff nurses to use research evidence in clinical practice, and includes behaviors and activities of mangers that exert direct and indirect influence on individuals, their environment and organizational infrastructures.		
	REPRESENTATIVE	**RELEVANT**
12. My manager monitors the latest research that may have an impact on patient care	1 2 3 4	1 2 3 4
Comments/Suggestions:		
13. My manager stimulates me to examine evidence to guide clinical decision making	1 2 3 4	1 2 3 4
Comments/Suggestions:		
14. My manager is able to facilitate practice change among physicians that is based on nursing research	1 2 3 4	1 2 3 4
Comments/Suggestions:		

Conceptual Definition of Leadership for EBP: **A multidimensional process of influence to enable staff nurses to use research evidence in clinical practice, and includes behaviors and activities of mangers that exert direct and indirect influence on individuals, their environment and organizational infrastructures.**		
	REPRESENTATIVE	**RELEVANT**
15. My manager is able to influence others to engage in EBP	1 2 3 4	1 2 3 4
Comments/Suggestions:		

THIS SECTION ADDRESSES THE SECOND ATTRIBUTE OF IINTEREST:

ORGANIZATIONAL CULTURE FOR EBP

1 = the item is **not** representative/relevant of an EBP culture
2 = the item is **somewhat** representative/relevant of an EBP culture
3= the item is **quite** representative/relevant of an EBP culture
4 = the item is **very** representative/relevant of an EBP culture

Conceptual Definition of an EBP culture: A system of shared meaning among employees based on common characteristics and collective values that support or hinder the staff nurses ability to implement EBP.		
ATTRIBUTES AND ITEMS	**REPRESENTATIVE**	**RELEVANT**
Attribute #2 **Supportive EBP Culture (7 items)**		
16. The physicians I work with support practice changes based on nursing research	1 2 3 4	1 2 3 4

Conceptual Definition of an EBP culture: A system of shared meaning among employees based on common characteristics and collective values that support or hinder the staff nurses ability to implement EBP.		
ATTRIBUTES AND ITEMS	**REPRESENTATIVE**	**RELEVANT**
Comments/Suggestions:		
17. Literature that is relevant to my clinical practice is readily available on my unit	1 2 3 4	1 2 3 4
Comments/Suggestions:		
18. My organization supports my attendance at educational offerings about evidence based practice	1 2 3 4	1 2 3 4
Comments/Suggestions:		
19. Experts in nursing research are available in my work setting	1 2 3 4	1 2 3 4
Comments/Suggestions:		
20. My colleagues are supportive of evidence based practice	1 2 3 4	1 2 3 4
Comments/Suggestions:		
21. I believe my organization values EBP	1 2 3 4	1 2 3 4

Conceptual Definition of an EBP culture: A system of shared meaning among employees based on common characteristics and collective values that support or hinder the staff nurses ability to implement EBP.		
ATTRIBUTES AND ITEMS	**REPRESENTATIVE**	**RELEVANT**
Comments/Suggestions:		
22. The nurses on my unit discuss research relevant to our clinical practice	1 2 3 4	1 2 3 4
Comments/Suggestions		

Appendix G: 1st CVI Expert Analysis Data

Results from Initial CVI analysis

Question **This is the compilation of the grid(those that completed it)**	Representative				Relevant			
	l	2	3	4	l	2	3	4
1. My manager provides time for me to engage in EBP				lll			l	lll
2. My manager supports my authority to change practice in response to new knowledge/evidence	l	l		l			l	ll
3. My manager serves as a resource person for EBP on the unit		l	l	l		l	l	ll
4. My manager makes sure that I have access to databases that allow me to find research articles		l		ll			l	lll
5. My manager supports practice change based on relevant nursing research				lll				llll
6. My manager helps me understand research reports	l	l		l	l	l	l	ll
7. My manager helps me clarify conflicts between nursing research and clinical practice	l			ll	l		l	ll
8. My manager values evidence based practice				lll			l	lll
9. My manager has a vision for EBP on my unit				lll				llll
10. My manager is able to articulate how EBP is important for my unit and patients				lll			l	lll
11. My manager resolves any EBP conflicts among unit nurses and physicians		l		ll		l	l	ll
12. My manager monitors the latest research that may have an impact on patient care	l	l		l	l	l	l	l
13. My manager stimulates me to examine evidence to guide clinical decision making			l	ll			ll	l
14. My manager is able to facilitate practice change among physicians that is based on nursing research	l			ll	l			lll

Question **This is the compilation of the grid(those that completed it)**	Representative				Relevant			
	1	2	3	4	1	2	3	4
15. My manager is able to influence others to engage in EBP				lll				llll
Culture								
16. The physicians I work with support practice changes based on nursing research		l		ll			ll	ll
17. Literature that is relevant to my clinical practice is readily available on my unit. This is the only that Susan Kennerly rated.	**I**		l	ll	**I**			llll
18. My organization supports my attendance at educational offerings about evidence based practice Clarify the meaning				lll			l	lll
19. Experts in nursing research are available in my work setting				lll			l	lll
20. My colleagues are supportive of evidence based practice				lll			l	lll
21. I believe my organization values EBP				lll			l	lll
22. The nurses on my unit discuss research relevant to our clinical practice				lll			l	lll

Color Key: KW, JD, CC,, RD, SK

Comments: **This is a compilation of comments (color coded)**

Question	Comments
1. My manager provides time for me to engage in EBP Makes time available within work hours, paid time?	• Staff might feel that all of they do is based on evidence
2. My manager supports my authority (efforts) to change practice in response to new knowledge/evidence Authority: It is based on the assumption that it exists, some phrase that goes directly to your	• My manager provides a process for me change…. • Authority denotes power, which is only one part of the change process. The term "effort" is a more comprehensive focus • *I am concerned about this one from two standpoints.*

intent for this item is needed.	○ *I would want the clinician to initiate a process of organizational change rather than having everyone practicing differently based on what they read last night (yes, we certainly have seen physicians do that)* ○ *I would want this process of organizational change be based on a BODY of evidence (research utilization versus EBP)* ○ *I feel confident that you would agree with the above 2 points but the item does not communicate this.*
3. My manager serves as a resource person for EBP on the unit	• My manager is a resource to me in funding… integrating… evaluating… evidence for my nursing practice • A manager who supports EBP may not have expertise in its implementation, but she/he would know who an EBP resource person would be • *I would not necessarily think so but rather than she could direct them to an appropriate resource person. The Clinical Nurse Specialist would be the most appropriate EBP resource person if available. I don't expect managers to be clinical experts. They can't be since most do not do any clinical work and they have their own body of expertise. I would expect them to be experts on evidence-based management.*
4. My manager makes sure that I have access to databases that allow me to find research articles Does it matter where these resources are? Within the clinical unit?	• … articles on evidence based practice • Words like "make sure" bother me. Maybe "facilitates my use of databases" • *Again, confusion about RU versus EBP. I would advocate for the use of systematic reviews, clinical practice guidelines, etc.- rather than research articles.*
5. My manager supports practice change based on relevant nursing research Need a term with more definitive action focus	• How? • *Again, best evidence rather than research.*

6. My manager helps me understand research reports Interpret is a better word. "Understand" is a conceptual foundation of knowledge, where I think your intent is on information analysis	• … understand evidence that is reported in the literature • A manager can enable staff nurses to do EBP without in depth research expertise. Again, what about knowing someone to help with this? • *I would not expect that she would have that expertise or inclination. She should be able to refer the nurse to an appropriate resource person (such as the Clinical Nurse Specialist)*
7. My manager helps me clarify conflicts(?) between nursing research and clinical practice ? distinguish between nursing research findings and actual clinical practice	• *I would not expect her(him) to have that expertise. I don't expect nurse managers to be clinical experts.*
8. My manager values evidence based practice	• This is a very important item, it sets the tone for the unit re EBP
9. My manager has a vision for EBP on my unit Seems limiting, since requires no action to display the vision. Change to "articulates or puts into action a vision".	•
10. My manager is able to articulate how EBP is important for improving my unit and patients	•
11. My manager resolves any EBP conflicts (?) among unit nurses and physicians . Unit, staff, and patients? You will get uninterpretable results from this item, since it is rare for a manager to be clear on all 3.	• *Again, without clinical expertise it would be difficult for an individual to resolve conflicts related to clinical practice. I would expect the CNS to do this.*
12. My manager monitors the latest research that may have an impact on patient care	• How? • Are you trying to get at role modeling? If not, perhaps "ensure the latest research is available that may…." • I have rarely seen this in practice

	• *I expect the CNS to do this. I think many of these items are being identified as the responsibility of the wrong nurse leader. The manager is not necessary a clinical expert.*
13. My manager stimulates (encourages) me to examine evidence to guide clinical decision making	•
14. My manager is able to facilitate practice change among physicians that is based on nursing research (evidence)	• *I would suggest that if nursing research (BEST NURSING EVIDENCE) is related to independent nursing functions and there is adequate nursing autonomy, why would physician practice need to change? I would suggest that the nurse leader clarify that autonomy for the physician if the question arose.* • *This one really bothers me.*
15. My manager is able to influence others (other disciplines?) to engage in EBP	•
16. The physicians I work with support **EBP** practice changes based (using) on nursing research	• This changes the meaning somewhat, so it may or may not be an appropriate change • *Best evidence rather than nursing research*
17. Access to Literature that is relevant to my clinical practice is readily available on my unit This is not consistent with your definition of culture	• What about online access to literature? A subject could assume this refers to hard copies of materials
18. My organization supports my attendance at educational offerings about evidence based practice	• Supports in name or in dollars?
19. Experts in nursing research are available in my work setting	• *EBP rather than nursing research*
20. My colleagues are supportive of evidence based practice	• My colleagues practice EBP?
21. I believe my organization values EBP nursing practice	•
22. The nurses on my unit discuss	•

research (evidence) relevant to our clinical practice	

Comment about leadership attributes: Yvette: the issue that I am having with several of these items is that it is quite possible to lead your team toward EBP because you value the contribution that it makes toward patient outcomes but not necessary be THE EBP expert or resource person. The role that you are describing in many of these items, in my opinion, is actually the Clinical Nurse Specialist who would have a MSN and be educated related to application of evidence to practice. The nurse manager would not necessary have a MSN and, even if they do have the MSN in nursing administration, the focus is not on application of evidence to PRACTICE.

Comment about Culture attribute: Yvette: I have significant agreement with these questions about culture because culture is established by the team rather than just the manager.

Comment about the conceptual definition of leadership for EBP: Focus of definition is unclear. Are you concerned about the leader or about the staff nurses ability to influence?

Need to make a decision whether these items are about the system or an assessment of shared values. As is, I don't think the items are consistent with the definition and don't capture "culture". I think your items may be more reflective of organizational climate than culture.

Yvette, see my comments throughout the tool. You will see that I had difficulty with the rep/relevant piece. Here are the key concepts represented in items re: leadership:

- **Time**
- **Authority**
- **Resource person**
- **Access**
- **Practice change**
- **Valuing EBP**
- **Conflict resolution**
- **Motivation**
- **Influence**

The leadership items seem to me to be "scattered" in focus. I'm not sure what you will learn from your data and how to translate the findings. I assume you have a theoretical leadership framework tied to your conceptual definition and hope that offers you assistance.

Regarding the culture items, see my notes…. You might pull an "old" org culture tool and modify it's focus for EBP.

Appendix H: 2nd CVI Expert Tool

CONTENT VALIDITY EVALUATION FORM: 2nd Analysis

EVIDENCE BASED PRACTICE (EBP) LEADERSHIP AND WORK ENVIRONMENT INSTRUMENT

To evaluate the content validity of this instrument, please rank each item in the questionnaire based on how representative and relevant it is to its attribute.

Relevant: In your opinion, is the question an **important** component of the attribute?

1 = the item is **not** relevant of EBP leadership/work environment
2 = the item is **somewhat** relevant of EBP leadership/work environment
3= the item is **quite** relevant of EBP leadership/work environment
4 = the item is **very** relevant of EBP leadership/work environment

Please complete electronically by highlighting or underlining the number that reflects your response. Thank you.

Nurse Leadership for EBP

Conceptual Definition: A multidimensional process that enables staff nurses to use evidence in clinical practice and includes the behaviors and activities of nurse leaders that exert direct and indirect influence on individuals, their environments and organizational infrastructures to change practice.

Question	Relevant	Please highlight or underline which attribute is REPRESENTED by the question	Comments
1. My manager is able to communicate how EBP is important for improving patient outcomes on my unit.	1 2 3 4	Communication Empowerment Influence	

Nurse Leadership for EBP **Conceptual Definition: A multidimensional process that enables staff nurses to use evidence in clinical practice and includes the behaviors and activities of nurse leaders that exert direct and indirect influence on individuals, their environments and organizational infrastructures to change practice.**			
Question	**Relevant**	**Please highlight or underline which attribute is REPRESENTED by the question**	**Comments**
2. My manager encourages me to examine evidence to guide clinical decision-making.	1 2 3 4	Communication Empowerment Influence	
3. My manager has a vision for EBP on my unit.	1 2 3 4	Communication Empowerment Influence	
4. My manager can explain EBP in terms that are easy to understand.	1 2 3 4	Communication Empowerment Influence	
5. Experts in EBP are available in my work setting.	1 2 3 4	Communication Empowerment Influence	
6. My manager helps me resolve conflicts between nursing research and clinical practice.	1 2 3 4	Communication Empowerment Influence	
7. My manager supports my efforts to change practice in response to new knowledge/evidence.	1 2 3 4	Communication Empowerment Influence	

Nurse Leadership for EBP **Conceptual Definition: A multidimensional process that enables staff nurses to use evidence in clinical practice and includes the behaviors and activities of nurse leaders that exert direct and indirect influence on individuals, their environments and organizational infrastructures to change practice.**			
Question	**Relevant**	**Please highlight or underline which attribute is REPRESENTED by the question**	**Comments**
8. My manager is able to influence others to engage in EBP.	1 2 3 4	Communication Empowerment Influence	
9. My manager facilitates my use of resources for EBP (e.g., data bases, experts, literature).	1 2 3 4	Communication Empowerment Influence	
10. My manager facilitates practice change based on relevant nursing research.	1 2 3 4	Communication Empowerment Influence	
11. My manager provides time for me to engage in EBP.	1 2 3 4	Communication Empowerment Influence	

Work Environment for EBP **Conceptual Definition: Those characteristics perceived directly or indirectly by employees, that affects the staff nurses ability to engage in EBP.**			
Question	**Relevant**	**Please highlight or underline which attribute is REPRESENTED by the question**	**Comments**
12. In my organization I have access to databases that have full length nursing research articles.	1 2 3 4	Support Resources	
13. I believe my organization values evidence based nursing practice.	1 2 3 4	Support Resources	
14. The nurses on my unit discuss research relevant to our clinical practice.	1 2 3 4	Support Resources	
15. The physicians I work with support EBP changes based on nursing research.	1 2 3 4	Support Resources	
16. The nurses on my unit base their practice on the best evidence.	1 2 3 4	Support Resources	
17. My manager makes sure that I have access to relevant research on my unit.	1 2 3 4	Support Resources	
18. My organization pays for me to attend educational offerings about EBP.	1 2 3 4	Support Resources	

Appendix I: 2nd Content Validity Analysis

	NURSE LEADERSHIP FOR EBP								D SS G JF LD JD JD JB
	Relevance					Representativeness			
	1	**2**	**3**	**4**	***x***	Communication	Empowerment	Influence	Comments
1. My manager is able to communicate how EBP is important for improving patient outcomes on my unit.				111 111 1		11111111		1	
2. My manager encourages me to examine evidence to guide clinical decision-making.				111 111 1			1111111	11	
3. My manager has a vision for EBP on my unit.			11	111 11		11		1111111	
4. My manager can explain EBP in terms that are easy to understand.			11	111 11		11111111		1	

5. Experts in EBP are available in my work setting.	1		1	111 11			111	11111	Would this be other than the nurse manager? If so, I don't know how this relates to leadership. Perhaps this should be an item for the second scale? I think it would represent **resources**. This item may be better written as: I have access to experts in EBP in my work setting.
6. My manager helps me resolve conflicts between nursing research and clinical practice.			111 111	1		1	1111	111	No response by one person on Representative Joe Burrage
7. My manager supports my efforts to change practice in response to new knowledge/evidence				111 111 1			111111111		

8. My manager is able to influence others to engage in EBP.			11	111 11				111111111	
9. My manager facilitates my use of resources for EBP (e.g., data bases, experts, literature).			1	111 111			111111	111	I think it is important for the manager to make staff aware of the resources available by communicating them, not necessarily to facilitate the use of them that is something the CNS can help with.
10. My manager facilitates practice change based on relevant nursing research.		1	1	111 11			11	1111111	
11. My manager provides time for me to engage in EBP.			1	111 111			11111111	1	

	WORK ENVIRONMENT FOR EBP							
						Support	**Resources**	
12. In my organization I have access to databases that have full length nursing research articles.			1	111 111		1	11111111	
13. I believe my organization values evidence based nursing practice.			1	111 111		111111111		
14. The nurses on my unit discuss research relevant to our clinical practice.			111 1	111		11111111	1	
15. The physicians I work with support EBP changes based on nursing research.		11	111	11		111111111		This is probably relevant in many unit settings, but I tend to believe (and hope) that physicians do not dictate or influence nursing practice and therefore, are not relevant to the work environment related to nursing EBP.

								If this happens please call me, I want to see
16. The nurses on my unit base their practice on the best evidence.			11	111 11		111111	111	
17. My manager makes sure that I have access to relevant research on my unit.		1	11	111 1		11	1111111	I think this statement could go either way for representativeness.
18. My organization pays for me to attend educational offerings about EBP.			1	111 111		11111	1111	This could go either way

Appendix J: Nurse Managers data Collection Tool
Demographic Information of Your Unit
For
Yvette Pryse RN, PhDc
Research Study:

"Using Evidence Based Practice: The Relationship Between Work Environment, Nursing Leadership and Nurses at the Bedside"

Manager's Name and Email address	
Unit (if you are responsible for more than one unit, please complete an additional sheet/there is one on the back of this sheet)	
Patient Population on the unit (ie., neuro, hem/oc, surgical, specialty unit)	
Number of Registered Nurses that work at a .5 FTE or more and on the unit for at least 6 months	
Shift hours ie., 7-3, 3-11, …	
When is the best time to visit your unit and distribute survey information/internet link	
Do you have a list of RN email addresses for your unit?	
Do you hold unit meetings that this researcher could attend as an agenda item?	
When is the next unit meeting that this researcher could attend?	

Appendix K: Correlation Tables

Correlations

		BELIEF	LEADER	WORK	IMPLEMENT
BELIEF	Pearson Correlation	1	.419**	.475**	.460**
	Sig. (2-tailed)		.000	.000	.000
	N	421	421	421	421
LEADER	Pearson Correlation	.419**	1	.694**	.305**
	Sig. (2-tailed)	.000		.000	.000
	N	421	421	421	421
WORK	Pearson Correlation	.475**	.694**	1	.330**
	Sig. (2-tailed)	.000	.000		.000
	N	421	421	421	421
IMPLEMENT	Pearson Correlation	.460**	.305**	.330**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	421	421	421	421

**. Correlation is significant at the 0.01 level (2-tailed).

The non-parametric tests (Spearman Rho and Kendall's tau) were run for comparison purposes as the dependent variable violated the normality assumptions.

Correlations

			BELIEF	LEADER	WORK	IMPLEMENT
Kendall's tau_b	BELIEF	Correlation Coefficient	1.000	.306**	.323**	.378**
		Sig. (2-tailed)	.	.000	.000	.000
		N	421	421	421	421
	LEADER	Correlation Coefficient	.306**	1.000	.514**	.253**
		Sig. (2-tailed)	.000	.	.000	.000
		N	421	421	421	421
	WORK	Correlation Coefficient	.323**	.514**	1.000	.283**
		Sig. (2-tailed)	.000	.000	.	.000
		N	421	421	421	421
	IMPLEMENT	Correlation Coefficient	.378**	.253**	.283**	1.000
		Sig. (2-tailed)	.000	.000	.000	.
		N	421	421	421	421
Spearman's rho	BELIEF	Correlation Coefficient	1.000	.419**	.438**	.514**
		Sig. (2-tailed)	.	.000	.000	.000
		N	421	421	421	421
	LEADER	Correlation Coefficient	.419**	1.000	.661**	.346**
		Sig. (2-tailed)	.000	.	.000	.000
		N	421	421	421	421
	WORK	Correlation Coefficient	.438**	.661**	1.000	.381**
		Sig. (2-tailed)	.000	.000	.	.000
		N	421	421	421	421
	IMPLEMENT	Correlation Coefficient	.514**	.346**	.381**	1.000
		Sig. (2-tailed)	.000	.000	.000	.
		N	421	421	421	421

**Correlation is significant at the 0.01 level (2-tailed).

APPENDIX L: Magnet versus Non-Magnet Beliefs Means

Belief Scale Item	1 I am sure that I can I implement EBP in a time efficient way	2 I am sure that I can implement EBP	3 I believe that I can search for the best evidence to answer clinical questions in a time efficient way	4 I am confident about my ability to implement EBP where I work	5 I believe that I can overcome barriers to implementing EBP.	6 I am sure about how to measure the outcomes of clinical care.	7 I know how to implement EBP sufficiently enough to make practice changes.	8 I am sure that I can access the best resources in order to implement EBP.
	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean
Magnet n=207	3.72	3.97	3.63	3.84	3.76	3.38	3.45	3.54
Non-Magnet n=215	3.53	3.72	3.59	3.61	3.49	3.43	3.33	3.47
Total n=422	3.63	3.84	3.61	3.72	3.62	3.41	3.39	3.50

Belief Scale Item	9 I am sure that implementing EBP will improve the care that I deliver to my patients.	10 I believe that critically appraising evidence is an important step in the EBP process.	11 I am clear about the steps of EBP.	12 I am sure that evidence based practice guidelines can improve clinical care.	13 I believe that EBP results in the best clinical care for patients	14 I believe the care that I deliver is evidence-based.	15 I believe that EBP is difficult (reverse scored adjustment made)	16 I believe that EBP takes too much time (reverse scored adjustment made)
	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean
Magnet n=207	4.18	4.16	3.27	4.23	4.23	3.94	3.37	3.62
Non-Magnet n=215	4.05	4.07	3.28	4.11	4.00	3.65	3.23	3.42
Total n=422	4.12	4.12	3.27	4.17	4.11	3.79	3.30	3.52

Magnet versus Non-Magnet Beliefs Means: Five-point scale ranging from one, (strongly disagree) to five, (strongly agree).

APPENDIX M: Beliefs Scale Frequency Results

Belief Scale Frequency Results

Question	Strongly Disagree *n*(%)	Disagree *n*(%)	Neutral *n*(%)	Agree *n*(%)	Strongly Agree *n*(%)
2. I am sure that I can I implement EBP in a time efficient way	5(1.2)	32(7.6)	138(32.7)	188(44.5)	59(14)
3. I am sure that I can implement EBP	5(1.2)	20(4.7)	90(21.3)	228(54)	79(18.7)
4. I believe that I can search for the best evidence to answer clinical questions in a time efficient way	5(1.2)	56(13.3)	89(21.1)	220(52.1)	52(12.3)
5. I am confident about my ability to implement EBP where I work	7(1.7)	35(8.3)	91(21.6)	225(53.3)	64(15.2)
6. I believe that I can overcome barriers to implementing EBP	6(1.4)	39(9.2)	101(23.9)	238(56.4)	38(9.0)
7. I am sure about how to measure the outcomes of clinical care.	3(.7)	75(17.8)	119(28.2)	197(46.7)	28(6.6)
8. I know how to implement EBP sufficiently enough to make practice changes	3(.7)	71(16.8)	135(32.0)	185(43.8)	28(6.6)
9. I am sure that I can access the best resources in order to implement EBP	2(.5)	60(14.2)	117(27.7)	211(50.0)	32(7.6)
10. I am sure that implementing EBP will improve the care that I deliver to my patients	4(.9)	4(.9)	51(12.1)	243(57.6)	120(28.4)
11. I believe that critically appraising evidence is an important step in the EBP process	3(.7)	4(.9)	52(12.3)	244(57.8)	119(28.2)
12. I am clear about the steps of EBP	8(1.9)	89(21.1)	137(32.5)	155(36.7)	33(7.8)
13. I am sure that evidence based practice guidelines can improve clinical care	3(.7)	3(.7)	51(12.1)	227(53.8)	138(32.7)
14. I believe that EBP results in the best clinical care for patients	2(.5)	7(1.7)	60(14.2)	225(53.3)	128(30.3)
15. I believe the care that I deliver is evidence-based	5(1.2)	16(3.8)	92(21.8)	258(61.1)	51(12.1)
16. I believe that EBP is difficult (reverse scored)	21(5.0)	170(40.3)	150(35.5)	75(17.8)	6(1.4)
17. I believe that EBP takes too much time (reverse scored)	35(8.3)	199(47.2)	144(34.1)	37(8.8)	7(1.7)

Belief Scale Frequency Results, *N* = 422

APPENDIX N: Implementation Scale Frequency Results

Table 35: Implementation Scale Frequency Results

Question	None *n*(%)	1-3 times within the last week *n*(%)	4-6 times within the last week *n*(%)	7-8 times within the last week *n*(%)	Greater than 8 times within the last week *n*(%)
1. Shared the outcome data collected with colleagues	296(70.1)	101(23.9)	16(3.8)	3(.7)	6(1.4)
2. Shared evidence from a study/ies in the form of a report or presentation to > 2 colleagues	336(79.6)	75(17.8)	8(1.9)	1(.2)	2(.5)
3. Shared an EBP guideline with a colleague	286(67.8)	121(28.7)	11(2.6)	2(.5)	2(.5)
4. Shared evidence from a research study with a multidisciplinary team member	311(73.7)	101(23.9)	5(1.2)	2(.5)	3(.7)
5. Used an EBP guideline or systematic review to change clinical practice where I work	304(72.0)	101(23.9)	8(1.9)	4(.9)	5(1.2)
6. Changed practice based on patient outcome data	286(67.8)	118(28.0)	11(2.6)	3(.7)	4(.9)
7. Evaluated a care initiative by collecting patient outcome data	311(73.7)	90(21.3)	13(3.1)	3(.7)	5(1.2)
8. Promoted the use of EBP to my colleagues	258(61.1)	139(32.9)	19(4.5)	3(.7)	3(.7)
9. Used evidence to change my clinical practice	251(59.5)	155(36.7)	10(2.4)	3(.7)	3(.7)
10. Shared evidence from a research study with a patient/family member	275(65.2)	128(30.3)	15(3.6)	1(.2)	3(.7)
11. Read and critically appraised a clinical research study	273(64.7)	127(30.1)	16(3.8)	2(.5)	4(.9)
12. Informally discussed evidence from a research study with a colleague	241(57.1)	162(38.4)	15(3.6)	1(.2)	3(.7)
13. Critically appraised evidence from a research study	310(73.5)	98(23.2)	11(2.6)	1(.2)	2(.5)
14. Generated a PICO question about my clinical practice	370(87.7)	52(12.3)	0(0)	0(0)	0(0)
15. Collected data on a patient problem	280(66.4)	105(24.9)	22(5.2)	7(1.7)	8(1.9)
16. Accessed the National Guidelines Clearinghouse	403(95.5)	16(3.8)	2(.5)	1(.2)	0(0)

Table 35: Implementation Scale Frequency Results, *N* = 422

References

Aarons, G. A. (2005). Measuring provider attitudes toward evidence based practice: consideration of organizational context and individual differences. *Child and Adolescent Psychiatric Clinics of North American, 14*, 255-271.

Aarons, G. A. (2006). Transformational and transactional leadership: Association with attitudes toward evidence-based practice. *Psychiatric Services, 57*(8), 1162-1169.

Aarons, G. A., & Sawitzky, A. C. (2006). Organizational culture and climate and mental health provider attitudes toward evidence-based practice. *Psychological Services, 3*(1), 61-72.

Ackley, B., Ladwig, G., Swan, B., & Tucker, S. (2008). *Evidence-Based Nursing Care Guidelines: Medical-Surgical Interventions*. St. Louis: Mosby.

Adamsen, L., Larsen, K., Bjerregaard, L., & Madsen, J. K. (2003). Danish research-active clinical nurses overcome barriers in research utilization. *Scandinavian Journal of Caring Sciences, 17*(1), 57-95.

Adewale, A. J., Hayduk, L., Estabrooks, C. A., Cummings, G. G., Midodzi, W. K., & Derksen, L. (2007). Understanding Hierarchical Linear Models: Applications in Nursing Research. . *56*(4), S40-S46.

AHRQ. (2000). Translating Research into practice ll (TRIP ll) information conference. *http://www.ahrq.gov/fund/tripconf.htm, Retrieved June 23, 2005*.

AHRQ. (2011). Researching Implementation and change while improving quality (R18). *Retrieved from http://grants.nih.gov/grants/guide/pa-files/PAR-08-136.html*.

Aita, M., Richer, M., & Heon, M. (2007). Illuminating the processes of knowledge transfer in nursing. *Worldviews on Evidence-Based Nursing, 4*(3), 146-155.

Ajzen, I. (2001). Nature and operation of attitudes. *Annual Reviews Psychology, 52*, 27-58.

ANA. (2001). Code of ethics for nurses with interpretive statements. *Washington, DC:*.

ANA. (2003). Nursing's social policy statement. *Washington, DC:*.

ANA. (2010). *Nursing's Scope and Standards of Practice* (2nd ed.). MaryLand: American Nurses Association.

ANCC. (2011a). Announcing a new model for ANCC's Magnet recognition program-2008. *retrieved from http://www.nursecredentialing.org/MagnetModel.aspx*.

ANCC, A. N. C. C. (2011b). *The Magnet Model Components and Sources of Evidence. Magnet Recognition Program 2nd ed*. Silver Spring: MD: Author.

Andersson, N., Jylli, L., Kajermo, K. N., & Klang, B. (2007). Nurses in paediatric care - self-reported professional self and perceived research utilization. *Scandinavian Journal of Caring Sciences, 21*(4), 426-433.

Angus, J., Hodnett, E., & O'Brien-Pallas, L. (2003). Implementing evidence-based nursing practice: A tale of two intrapartum nursing units. *Nursing Inquiry, 10*(4), 218-228.

Asselin, M. E. (2001). Knowledge utilization among experienced staff nurses. *Journal for Nurses in Staff Development, 17*(3), 115-122.

Austin, M., & Claassen, J. (2008). Impact of organizational culture: Implicatons for introducing evidence-based practice. *Journal of Evidence-Based Social Work, 5*(1-2), 321-359.

Avorn, J. (2010). Transforming trial results into practice change. *Archieves of Internal Medicine, 170*(10), 858-560.

Bahtsevani, C., Khalaf, A., & Willman, A. (2005). Evaluating Psychiatric Nurses' Awareness of Evidence-Based Nursing Publications. [Good way to look at my focus,,, pre and post questionaire to new knowledge in Magnet verson non-magnet]. *Worldviews on Evidence-Based Nursing, 2*(4), 196-207.

Balas, E. A., & Boren, S. A. (2000). *Managing Clinical Knowledge for Healthcare Improvements*. Germany: Schattauer Publishing Company.

Bali, R., & Bloor, C. (1999). MISCO: a conceptual model for MIS implementation in SMEs. *Information Research, 4*(4), Retrieved July 22, 2009 from http://informationr.net/ir/2004-2004/paper2061.html.

Bass, B. (1990). *Bass & Stogdill's Handbook of Leadership: Theory, Research and Managerial Applications*. New York: Free Press Collier Macmillan.

Beyea, S. C., & Nicoll, L. H. (1997). Barriers to and facilitators of research utilization in perioperative nursing practice. *AORN, 65*, 830-831.

Bondas, T. (2006). Paths to nursing leadership. *Journal of Nursing Management, 14*(5), 332-339.

Bonner, A., & Sando, J. (2008). Examining the knowledge, attitude and use of research by nurses. *Journal of Nursing Management, 16*, 334-343.

Bostrom, J., & Newton-Suter, W. (1993). Research Utilization: Making the link to practice. *Journal of Nursing Staff Development, 9*(1), 28-34.

Brown, C., Ecoff, L., Kim, S., Wickline, M. A., Rose, B., Klimple, K., et al. (2010). Multi-institutional study of barriers to research utilisation and evidence-based practice among hospital nurses. *Journal of Clinical Nursing, 19*, 1944-1951.

Brown, C., Wickline, M., Ecoff, L., & Glaser, D. (2009). Nursing practice, knowledge, attitudes and perceived barriers to evidence-based practice at an academic medical center. *Journal of Advanced Nursing, 65*(2), 371-381.

Bucknall, T. (2007). A gaze through the lens of decision theory toward knowledge translation science.[comment]. *Nursing Research, 56*(4 Suppl), S60-66.

Burns, N., & Grove, S. (1993). *The Practice of Nursing Research; Conduct, Critique and Utilization* (2nd ed.). Philadelphia: W. B. Saunders Co.

Cadmus, E., VanWynene, E., Chamberlain, B., Steingall, P., Kilgallen, M., Holly, C., et al. (2008). Nurses' skill level and access to evidence-based practice. *The Journal of Nursing Administration, 38*(11), 494-503.

Carroll, D. L., Greenwood, R., K.E., L., Sullivan, J. K., Ready, C. H., & Fitzmaurice, J. B. (1997). Barriers and facilitators to the utilization of nursing research. . *Clinical Nurse Specialist, 11*(5), 207-211.

Chang, S., & Lin, C. (2007). Exploring organizational culture for information security management. *Industrial Management and Data, 107*(3), 438-458.

Cooke, R., & Rousseau, D. (1988). Behavioral norms and expectations: a quantitative approach to the assessment of organizational culture. *Group and Organization Studies, 13*, 245-273.

Coyle, L. A., & Sokop, A. G. (1990). Innovation adoption behavior among nurses. *Nursing Research, 39*(3), 176-180.

Craig, J., & Smyth, R. (2007). *The Evidence-Based Practice Manual for Nurses 2nd ed, .* Edinburgh: Churchill Livingstone; Elsevier.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*(6), 297-334.

Crow, G. (2006). Diffusion of innovation: the leaders role in creating the organizational context for evidenced based practice. *Nursing Administration Quarterly, 30* (3), 236-242.

Cullum, N. (2002). *Nurses use of research information in clinical decision making: A descriptive and analytical study.* Retrieved from http://www.dh.gov.uk/PolicyAndGuidance/ResearchAndDevelopment/ResearchAndDevelopmentAZ/PromotingImplementationResearchFindings/PromotingImplementationResearchFindingsArticle/fs/en?CONTENT_ID=4001837&chk=2FGF1k.

Cummings, G., Estabrooks, C., Midodzi, W., Wallin, L., & Hayduk, L. (2007a). Influence of organizational characteristics and context on research utilization. *Nursing Research, 56*(4S), S24-39.

Cummings, G., Estabrooks, C., Midodzi, W., Wallin, L., & Hayduk, L. (2007b). Influence of Organizational Characteristics and Context on Research Utilization. . *Nursing Research, 56*(4).

Cytel. (2011). StatXact®9 The Most Popular Exact Statistics Analysis Software *Retrieved from http://www.cytel.com/software/StatXact.aspx*.

Deal, T., & Kennedy, A. (1982). *Corporate Culture: The Rites and Rituals of Corporate Life*. New York, NY.

Denison, D. (1996). What is the difference between organizational culture and organizational climate? A native's point of view on a decade of paradigm wars. . *Academy of Management Review, 21*(3), 619-654.

DiCenso, A., Guyatt, G., & Ciliska, D. (2005). *Evidence-Based Nursing; A Guide to Clinical Practice*. St. Louis: Esevier; Mosby.

Dillman, D. A. (2007). *Mail and Internet Surveys: The Tailored Design Method* (2nd ed.). Hoboken, New Jersey: John Wiley & Sons, Inc.

Dobson, S. (2007). A view from organizational studies. *Nursing Research, 56*(4S), S72-S77.

Dopson, S. (2007a). A view from organizational studies. *Nursing Research, 56*(4S), S72-S77.

Dopson, S. (2007b). A View From Organizational Studies. *Nursing Research, 56*(4), S72-77.

Dopson, S., & Fitzgerald, L. (2006). The role of the middle manager in the implementation of evidence-based health care. *Journal of Nursing Management, 14*(1), 43-51.

Dopson, S., FitzGerald, L., Ferlie, E., Gabbay, J., & Locock, L. (2002). No magic targets! Changing clinical practice to become more evidence based.[see comment]. *Health Care Management Review, 27*(3), 35-47.

Dufault, M. A. (2001). A program of research evaluating the effects of collaborative research utilization model. *Online Journal of Knowledge Synthesis for Nursing, 16*(3), 7p.

Duffy, M. E. (2005). Translation research: Its relationship to evidence-based practice. *Clinical Nurse Specialist, 19*(2), 60-62.

Eccles, M., Grimshaw, J., Walker, A., Johnston, M., & Pitts, N. (2004). Changing the behavior of healthcare professionals: the use of theory in promoting the uptake of research findings. *Journal of Clinical Epidemiology, 58*, 107-112.

Estabrooks, C. (2004). Where do we stand on the measurement of research utilization? *The 4th annual knowledge utilization colloquia*(July 19), 1-16.

Estabrooks, C. (2007). Prologue: A Program of Research in Knowledge Translation. *Nursing Research, 56*(4), S4-S6.

Estabrooks, C., Floyd, J. A., Scott-Findlay, S., O'Leary, K. A., & Gushta, M. (2003). Individual determinants of research utilization: A systematic review. *Journal of Advanced Nursing, 43*(5), 506-520.

Estabrooks, C., Midodzi, W. K., Cummings, G. G., & Wallin, L. (2007a). Predicting Research Use in Nursing Organizations: A Multilevel Analysis. *Nursing Research, 56*(4), S7-S23

Estabrooks, C., Rutakumwa, W., O'Leary, K. A., Profetto-McGRath, J., Milner, M., Levers, M., et al. (2005). Sources of practice knowlege among nurses. *Qualitative Health Research, 15*(4), 460-476.

Estabrooks, C. A. (1999). Modeling the individual determinants of research utilization. *Western Journal of Nursing Research, 2*(6), 758-772.

Estabrooks, C. A., Kenny, D. J., Adewale, A. J., Cummings, G. G., & Mallidou, A. A. (2007). A comparison of research utilization among nurses working in Canadian civilian and United States Army healthcare settings. *Research in Nursing & Health 30*(3), 282-296.

Estabrooks, C. A., Midodzi, W. K., Cummings, G. G., & Wallin, L. (2007b). Predicting research use in nursing organizations: a multilevel analysis. *Nursing Research, 56*(4S), S7-23

Estrada, N. (2009). Exploring Perceptions of a Learning Organization by RNs and Relationship to EBP Beliefs and Implementation in the Acute Care Setting. *Worldviews on Evidence Based Nursing, 6*(4), 200-209.

Fineout-Overholt, E., & Johnston, L. (2006). Teaching EBP: Implementation of evidence: Moving from evidence to action. *Worldviews on Evidence-Based Nursing, 4th Quarter*, 194-200.

Fink, A. (1995). *How to Measure Survery Reliabiltiy and Validity* (Vol. 7th). Thousand Oaks, Ca.

Fink, R., Thompson, C. J., & Bonnes, D. (2005). Overcoming barriers and promoting the use of research in practice. *JONA, 35*(3), 121-129.

Fishbein, M., & Middlestadt, S. (1995). Non-cognitive effects on attitude formation and change: fact or artifact? *Journal of Consumer Psychology, 4*, 181-202.

Foxcroft, D. R., & Cole, N. (2005). Organisational infrastructures to promote evidence based nursing practice. *Cochrane Database of Systematic Reviews 2000, 3*(Art. No.: CD002212. DOI: 10.1002/14651858.CD002212).

French, B. (2005). Contextual Factors Influencing Research Use in Nursing. *Worldviews on Evidence-Based Nursing, 2*(4), 172-183.

French, B., Thomas, L., Baker, P., Burton, B., Pennington, L., & Roddam, H. (2009). What can management theories offer evidence-based practice? A comparative analysis of measurement tools for organisational context. *Implementation Science: www.implementationscience.com/content/4/1/28, 4*(28).

Funk, S. G., Champagne, M. T., & Wiese, R. A. (1991). Barriers to using research findings in practice: The clinician's perspective. [Short description of the Barrier scale]. *Applied Nursing Research, 4*, 90-95.

Funk, S. G., Champagne, M. T., Wiese, R. A., & Tornquist, E. M. (1991). BARRIERS: The barriers to research utilization scale. *Applied Nursing Research, 4*(1), 39-45.

Gale, V., & Schaffer, M. (2009). Organizational Readiness for Evidence-Based Practice. *JONA, 39* (2), 91-97.

Garson, G. (2009). Multiple Regression. *Retrieved September 144, 2009 http://faculty.chass.ncsu.edu/garson/PA765/regress.htm#outlier2*.

Gerrish, K., Ashworth, P., Lacey, A., Bailey, J., Cooke, J., Kendall, S., et al. (2006). Factors influencing the development of evidence-based practice: A research tool. *Journal of Advanced Nursing, 57*(3), 328-338.

Gerrish, K., & Clayton, J. (2004). Promoting evidence-based practice: an organizational approach. *Journal of Nursing Management, 12*(2), 123.

Gershon, R., Stone, P. W., Bakken, S., & Larson, E. L. (2004). Measurement of organizational culture and climate in healthcare. *Journal of Nursing Administration, 34*(1), 33-40.

Gifford, W., Davies, B., Edwards, N., & Griffin, P. (2004). Sustaining Knowledge Transfer Through Leadership. *Worldviews on Evidence-Based Nursing, 1*(4), 226-226.

Gifford, W., Davies, B., Edwards, N., Griffin, P., & Lybanon, V. (2007). Managerial leadership for nurses' use of research evidence: an integrative review of the literature. *Worldviews on Evidence-Based Nursing, 4*(3), 126-145

Golden, K. (1992). The individual and organizational culture: Strategies for action in highly ordered contexts. *Journal of Management Studies, 29*(1), 1-21.

Goode, C. J., & Titler, M. (1996). Moving research-based practice throughout the health care system. *MEDSURG Nursing, 5*(5), 380-383.

Goodfellow, L. M. (2004). Can a journal club bridge the gap between research and practice? *Nurse Educator, 29*(3), 107-110.

Graham, I. (2007). Whither Knowledge Translation. *Nursing Research, 56*(4S), S86-S88.

Graham, I., Logan, J., Harrison, M., Straus, S. E., Tetroe, J., Caswell, W., et al. (2006). Lost in knowledge translation: time for a map? *Journal of Continuing Education in the Health Professions, 26*(1), 13-24.

Graham, I., & Tetroe, J. (2007). Whither Knowledge Translation: An International Research Agenda. . *Nursing Research, 56*(4), S86-88.

Greenhalgh, T., Robert, G., Bate, P., Macfarlane, F., & Kyriakidou, O. (2004). *Diffusion of Innovations in Health Service Organisations: A systematic literature review*. Malden, Massachusetts: Blackwell Publishing Ltd.

Heater, V., Becker, A., & Olson, R. (1988). Nursing interventions and patient outcomes: a meta-analysis of studies. *Nursing Research, 37*(5), 303-307.

Henderson, A., Winch, S., Holzhauser, K., & De Vries, S. (2006). The motivation of health professionals to explore research evidence in their practice: an intervention study. *Journal of Clinical Nursing, 15*(12), 1559-1564.

Horgan, G. W., & Rouault, J. (2000). Introduction to randomisation tests. *Retrieved from http://www.bioss.ac.uk/smart/unix/mrandt/slides/frames.htm*.

Horsley, J., Crane, J., Crabtree, M., & Wood, D. (1983). *Using Research to Improve Practice: A Guide*. Orlando: Grune & Stratton.

Hudson, K., Duke, G., Haas, B., & Barnell, G. (2008). Navigating the evidence-based practice maze. *Journal of Nursing Management, 16*(4), 409-416.

Hutchinson, A. M., & Johnston, L. (2004). Bridging the divide: a survey of nurses' opinions regarding barriers to, and facilitators of, research utilization in the practice setting. *Journal of Clinical Nursing, 13*(3), 304-315

Hutchinson, A. M., & Johnston, L. (2006). Beyond the BARRIERS Scale: commonly reported barriers to research use. *Journal of Nursing Administration, 36*(4), 189-199.

Ingersoll, G. L., Kirsch, J., Merk, S., & Lightfoot, J. (2000). Relationship of organizational culture and readiness for change to employee commitment to the organization. *Journal of Nursing Administration, 30*(1), 11-20.

IOM. (2011). Crossing the quality chasm: The IOM health care qualtiy initiative. *Retrieved from http://www.iom.edu/Global/News%20Announcements/Crossing-the-Quality-Chasm-The-IOM-Health-Care-Quality-Initiative.aspx.*

IOM, I. o. M. (2010). *The Future of Nursing: Leading Change, Advancing Health* Washington, DC: National Academies Press

Jacobson, A. F. (2000). Research utilization in nursing: the power of one. *Orthopaedic Nursing, 19*(6), 61-65.

Jennings, B., & Loan, L. (2001). Misconceptions among nurses about evidence-based practice. *Journal of Nursing Scholarship, 33*(2), 121-127.

Jones, J. (2000). Performance improvement through clinical research utilization: the linkage model. *Journal of Nursing Care Quality, 15*(1), 49-54.

Kajermo, K. N., Nordstrom, G., Krusebrant, A., & Lutzen, K. (2001). Nurses' experiences of research utilization within the framework of an educational programme. *Journal of Clinical Nursing, 10*(5), 671-681.

Kajermo, K. N., Unden, M., Gardulf, A., Eriksson, L., Orton, M., Arnetz, B., et al. (2008). Predictors of nurses' perceptions of barrierrs to research utilization. *Journal of Nursing Management, 16*, 305-314.

Kanter, R. (1993). *Men and women of the corporation* (Vol. 2nd). New York: Basic Books.

Karkos, B., & Peters, K. (2006). A Magnet community hospital: fewer barriers to nursing research utilization. *Journal of Nursing Administration, 36*(7/8), 377-382.

Kenny, D., Richard, M., Ceniceros, X., & Blaize, K. (2010). Collaborating Across Services to Advance Evidence-Based Nursing Practice. *Nursing Research, 59*(1S), S11-S21.

Kimberly, J., & Cook, J. (2008). Organizational measurement and the implementation of innovations in mental health services. *Administration and Policy in Mental Health, 35*(1-2), 11-20.

Kirchhoff, K. T. (2004). State of the Science of Translational Research: From Demonstration Projects to Intervention Testing. *Worldviews on Evidence-Based Nursing, 1*(s1), S6-S12.

Kitson, A. (2007). What Influences the Use of Research in Clinical Practice? . *Nursing Research, 56*(4), Supplement 1:S1-S3.

Kitson, A., Harvery, G., & McCormack, B. (1998). Enabling the implementaton of evidence based practice: a conceptual framework. *Quality and Safety in Health Care, 7*, 149-158.

Koehn, M., & Lehman, K. (2008). Nurses' perceptions of evidence-based nursing practice. *Journal of Advanced Nursing, 62*(2), 209-215.

Koontz, H., & O'Donnell, C. (1964). *Principles of Management: An analysis of Managerial Functions*. New York: McGraw-Hill.

Krueger, J., Nelson, S., & Wolanin, M. (1978). *Nursing Development, Collaboation and Utilization.* Germantown, Maryland.

Kuuppelomaki, M., & Tuomi, J. (2003). Finnish nurses' views on their research activities. *Journal of Clinical Nursing, 12*(4), 589-600

LaPierre, E., Ritchey, K., & Newhouse, R. (2004). Barriers to research use in the PACU. *Journal of PeriAnesthesia Nursing, 19*(2), 78-83.

Larson, E. (1989). Using the CURN poject to teach researchutilizaiton in a baccalaureate program. *Western Journal of Nrusing Research, 11*(5), 593-599.

Laschinger, H., Sabiston, J., & Kutszcher, L. (1997). Empowerment and staff nurse decision involvement in nursing work environments: Testing Kanter's theory of structural power in organizations. *Research in Nursing and Health, 20*(4), 341-352.

Laschinger, H., Spence, K., Finegan, J., Shamian, J., & Casier, S. (2000). Organizational Trust and Empowerment in Restructured Healthcare Settings: Effects on Staff Nurse Commitment. *Journal of Nursing Administration, 30*(9), 413-425.

Lee, T.-T. (2004). Nurses' adoption of technology: Application of Rogers' innovation-diffusion model. *Applied Nursing Research, 17*(4), 231.

Leiter, M. P., Day, A. L., Harvie, P., & Shaughnessy, K. (2007). Personal and organizational knowledge transfer: Implications for worklife engagement. *Human Relations, 60*(2), 283.

Livsey, K. (2009). Structural Empowerment and Professional Nursing Practice Behaviors of Baccalaureate Nursing Students in Clinical Learning Environments. *International Journal of Nursing Education Scholarship, 6*(1-19).

Logan, J., & Grahm, I. (1998). Toward a comprehensive interdisciplinary model of health care research use. *Science Communication, 20*(2), 227-246.

Long, S. J. (1997). *Regression models for categorical and limited dependent variables*. Thousand Oaks, CA: Sage Publications.

Lukas, C., Holmes, S. K., Cohen, A. B., Restuccia, J., Cramer, I. E., Shwartz, M., et al. (2007). Transformational change in health care systems: An organizational model. *Health Care Management Review, 32*(4), 309-320.

Lynn, M. (1986). Determination and Quantification of Content Validity. *Nursing Research, 35*(6), 382-386.

MacDavitt, K., Chou, S., & Stone, P. (2007). Organizational climate and health care outcomes. *Joint Commission Journal on Quality & Patient Safety, 33*(11), 45-56.

Marchionni, C., & Ritchie, J. (2008). Organizational factors that support the implementation of a nursing best practice guideline. *Journal of Nursing Management, 16*(3), 266-274.

Mark, D., Latimir, R., & Hardy, M. (2010). Stars aligned for evidence based practice. *Nursing Research, 59*(1S), 48-57.

Marquis, B., & Huston, C. (2007). *Leadership Roles and Management Functions in Nursing*. Philadelphia: Lippincott; Williams & Wilkins.

Marquis, B., & Huston, C. (2012). *Leadership Roles and Management Functions in Nursing* (7th ed.). Philadelphia: Lippincott; Williams & Wilkins.

Marriner Tomey, A. (2009). Nursing leadership and managment effects work environments. *Journal of Nursing Management, 17*, 15-25.

McCaughan, D., Thompson, C., Cullum, N., Sheldon, T. A., & Thompson, D. R. (2002). Acute care nurses' perceptions of barriers to using research information in clinical decision-making. *Journal of Advanced Nursing, 39*(1), 46-60.

McCormack, B., Kitson, A., Harvey, G., Rycroft-Malone, J., Titchen, A., & Seers, K. (2002). Getting evidence into practice: the meaning of 'context'. *Journal of Advanced Nursing, 38*(1), 94-104.

McCormack, B., McCarthy, G., Wright, J., Slater, P., & Coffey, A. (2009). Development and testing of the context assessment index. *Worldviews on Evidence-Based Nursing, 6*(1), 27-35.

McCullagh, P., & Nelder, J. A. (1989). *Generalized Linear Models* (2 ed.). Boca Raton, FL: CRC Press LCC.

McGlynn, E., Asch, S., Adams, J., Keesey, J., Hicks, J., DeCristofara, A., et al. (2003). The quality of health care delivered to adults in the United States. *New England Journal of Medicine, 348*(26), 2635-2645.

McGuire, E., & Kennerly, S. (2006). Nurse managers as transformational and transactional leaders. *Nursing Economics, 24*, 4.

McLaren, S., Ross, F., Redfern, S., & Christian, S. (2002). Leading opinion and managing change in complex organisations: Findings from the South Thames Evidence-based Practice project. *NT Research, 7*(6), 444-458.

McSherry, R., Artley, A., & Holloran, J. (2006). Research awareness: An important factor for evidence-based practice? *Worldviews on Evidence-Based Nursing, 3*(3), 103-115.

Meijers, J. M., Janssen, M. A., Cummings, G. G., Wallin, L., Estabrooks, C. A., & Ruud, Y. G. (2006). Assessing the relationships between contextual factors and research utilization in nursing; systematic literature review. *Journal of Advanced Nursing, 55*(5), 622-635.

Melnyk, B. (2004). Sparking a change to evidence-based practice in health care organizations. *Worldviews on Evidence-Based Nursing, 2nd quarter*, 83-84.

Melnyk, B. (2005). Advancing Evidence-Based Practice in Clinical and Academic Settings. *Worldviews on Evidence-Based Nursing, 2*(3), 161-165.

Melnyk, B., & Fineout-Overholt, E. (2005). *Evidence-based Practice in Nursing and Healthcare*. New York: Lippincott Williams and Wilkins.

Melnyk, B., Fineout-Overholt, E., Fischbeck Feinstein, N., Li, H., Small, L., Wilcox, L., et al. (2004). Nurses' Perceived Knowledge, Beliefs, Skills, and Needs Regarding Evidence-Based Practice: Implications for Accelerating the Paradigm Shift. *Worldviews on Evidence-Based Nursing, 1*(3), 185-193.

Melnyk, B., Fineout-Overholt, E., & Mays, M. (2008). The evidence-based practice beliefs and implementation scales: Psychometric properties of two new instruments. *Worldviews on Evidence-Based Nursing, 5*(4), 208-216.

Melnyk, B., Fineout-Overholt, E., Stetler, C., & Allan, J. (2005). Outcomes and Implementation Strategies From the First U.S. Evidence-Based Practice Leadership Summit. *Worldviews on Evidence-Based Nursing, 2*(3), 113-121.

Melnyk, B. M., Fineout-Oberholt, E., Giggleman, M., & Cruz, R. (2010). Correlates among cognitive beliefs, EBP implementation, organizational culture, cohesion and job satisfaction in evidence-based practice mentors from a community hopsital system. *Nursing Outlook, 58,* 301-308.

Micevski, V., Sarkissian, S., Byrne, J., & Smirnis, J. (2004). Identification of Barriers and Facilitators to Utilizing Research in Nursing Practice. *Worldviews on Evidence-Based Nursing, 1*(4), 229-229.

Montano, D., & Kasprzyk, D. (2002). *Health behavior and health education: Theory, research and practice* (Vol. 3rd ed). San Francisco: Jossey-Bass.

Morrill, C. (2008). Culture and Organiation Theory. *The Annals of the American Academy of Politcal and Social Sceince, 619*(1), 15-40.

Mulhall, A., & leMay, A. (1999). *Nursing Research. Dissemination and Implementation*. Edinburgh: Churchill Livingstone.

Mullins, M., Kozlowski, S., Schmitt, N., & Howell, A. (2008). The role of the idea champion in innovation: The case of the Internet in mid-1990s. *Computers in Human Behavior, 24*, 451-467.

NEONI. (2006). Northeast Ohio Nursing Workforce Facts: Nursing Supply and Demand. *Retrieved from http://ohiocenterfornursing.org/PDFS/nursingworkforce/NEONI_NurseSupplyanddDemand.pdf*.

Newhouse, R. (2007). Creating infrastructure supportive of evidence-based nursing practice: Leadership strategies. *Worldviews on Evidence-Based Nursing, 4*(1), 21-29.

Newhouse, R., Dearholt, S., Poe, S., Pugh, L., & White, K. (2005). Evidence-based practice: A practical approach to implementation. *Journal of Nursing Administration, 35*(1), 35-40.

Newhouse, R. P., Poe, S., Petit, J. C., & Roco, L. (2006). The slippery slope: differentiating between quality improvement and research. *The Journal of Nursing Administration, 36*(4), 211-219.

Newman, M., Papadopoulos, I., & Sigsworth, J. (1998). Barriers to evidence-based practice. *Intensive & Critical Care Nursing, 14*(5), 231-238.

NIH, G. (2002). *Translating research into practice*.

Olade, R. A. (2003). Attitudes and factors affecting research utilization. *Nursing Forum, 38*(4), 5-15.

Olade, R. A. (2004a). Evidence-based practice and research utilization activities among rural nurses. *Journal of Nursing Scholarship, 36*(3), 220-225.

Olade, R. A. (2004b). Strategic collaborative model for evidence-based nursing practice. *Worldviews on Evidence-Based Nursing, 1*(1), 60-68.

ONA. (2011). What are some of the statistics regarding Ohio's Nurses and the national nursing shortage? . *Retrieved from: http://www.ohnurses.org/AM/Template.cfm?Section=Common_Questions1&TEMPLATE=/CM/ContentDisplay.cfm&CONTENTID=1433*.

Osborn, J., & Water, E. (2002). Four assumptions of multiple regression that researchers should always test. *Practical Assessment, Research and Evaluation, 8*(2), Retrieved September 14, 2009 from http://pareonline.net/getvn.asp?v=2008&n=2002

Pagano, M., & Gauvreau, K. (2000). *Principles of Biostatistics*. Pacific Grove, CA.

Parahoo, K. (2000). Barriers to, and facilitators of, research utilization among nurses in Northern Ireland. *Journal of Advanced Nursing, 31*(1), 89-98.

Parahoo, K., & McCaughan, E. M. (2001). Research utilization among medical and surgical nurses: a comparison of their self reports and perceptions of barriers and facilitators. *Journal of Nursing Management, 9*(1), 21-30.

Paramonczyk, A. (2005). Barriers to implementing research in clinical practice. *Canadian Nurse, 101*(3), 12-15.

Patrick, A., & Laschinger, H. (2006). The effect of structural empowerment and perceived organizational support on middle level nurse managers' role satisfaction. *Journal of Nursing Management, 14*(1), 13-22.

Pettigrew, A. M., Ferlie, E., & McKee, L. (1992). *Shaping Strategic Change*. London: Sage.

Ploeg, J., Davies, B., Edwards, N., Gifford, W., & Miller, P. (2007). Factors influencing best-practice guideline implementation: lessons learned from administrators, nursing staff, and project leaders. *Worldviews on Evidence-Based Nursing, 4*(4), 210-219.

Pohlmann, J., & Leitner, D. (2003). A comparison of ordinary least squares and logistic regression. *Ohio Journal of Science, 103*(5), 118-125.

Polit, D., Beck, C., & Owen, S. (2007). Is the CVI an acceptable indicator of content validity? Appraisal and recommendations. *Research in Nursing and Health, 30*, 459-467.

Porter-O'Grady, T. (2003). *A Different Age for Leadership, Part 1: New Context, New Content.* (Vol. 33): Journal of Nursing Administration

Porter-O'Grady, T., & Malloch, K. (2011). *Quantum Leadership: Advancing Innovation, Trasnfroming Health Care* (3rd ed.). Sudbury, MA: Jones & Bartlett.

Pravikoff, D. S., Tanner, A. B., & Pierce, S. T. (2005). Readiness of U.S. Nurses for evidence-based practice. *AJN, 105*(9), 40-51.

Pryse, Y. (2008). Translation Science: A Case Study of the Process of Implementation. *Unpublished.*

Pryse, Y. (2009). EBP Work Environment Scale and Nursing Leadership Scales. *unpublished*.

Rappolt, S., Pearce, K., MeEwen, S., & Polatajko, H. (2005). Exploring organizational characteristics associated with practice changes following a mentored online educational module. *The Journal of Continuing Education in the Health Professions, 25,* 116-124.

Rizzuto, C., Bostrom, J., Suter, W. N., & Chenitz, W. C. (1994). Predictors of nurses' involvement in research activities. *Western Journal of Nursing Research, 16*(2), 193-204.

Rogers, E. M. (2003). *Diffusion of innovations* (5th ed. ed.). New York: Free Press.

Rolfe, G., Segrott, J., & Jordan, S. (2008). Tensions and contradictions in nurses' perspectives of evidence-based practice. *Journal of Nursing Management, 16*, 440-451.

Rosenheck, R. A. (2001). Organizational process: a missing link between research and practice. *Psychiatric Services, 52*(12), 1607-1612.

Rosenthal, M. B. (2007). Nonpayment for performance? Medicare's new reimbursement rule. *The New England Journal of Medicine, 357*, 1573-1575.

Rosswurm, M. A., & Larrabee, J. H. (1999). A model for change to evidence-based practice. *Image, 31*(4), 317-322.

Royle, J., Blythe, J., Ciliska, D., & Ing, D. (2000). The organizational environment and evidence-based nursing. *Canadian Journal of Nursing Leadership, 13*(1), 31-37.

Rycroft-Malone, J. (2004). Learning from Experience: U.K. Perspectives on Translation Research. *Worldviews on Evidence-Based Nursing, 1*(4), 235-235.

Rycroft-Malone, J. (2007a). Theory and Knowledge Translation. *Nursing Research, 56*(4S), S78-S85.

Rycroft-Malone, J. (2007b). Theory and Knowledge Translation: Setting Some Coordinates. . *Nursing Research, 56*(4), S78-85.

Rycroft-Malone, J. (2008a). Evidenced informed practice: From individual to context. *Journal of Nursing Management, 16*, 404-408.

Rycroft-Malone, J. (2008b). Leadership and the use of evidence in practice. *Worldviews on Evidence-Based Nursing, 5*(1), 1-2.

Rycroft-Malone, J., Harvey, G., Seers, K., Kitson, A., McCormack, B., & Titchen, A. (2004a). An exploration of the factors that influence the implementation of evidence into practice. *Journal of Clinical Nursing, 13*(8), 913-924.

Rycroft-Malone, J., Harvey, G., Seers, K., Kitson, A., McCormack, B., & Titchen, A. (2004b). An exploration of the factors that influence the implementation of evidence into practice. *Journal of Clinical Nursing, 13*, 913-924.

Rycroft-Malone, J., Kitson, A., Harvey, G., McCormack, B., Seers, K., Titchen, A., et al. (2002). Ingredients for change; revisiting a conceptual framework. [Concept analysis of research utilization]. *Qual Saf Health Care, 11*, 174-180.

Sackett, D. L., Rosenberg, W. M. C., Gray, J. A. M., Haynes, R. B., & Richardson, W. S. (1996). Evidence based medicine: what it is and what it isn't: It's about integrating individual clinical expertise and the best external evidence. *BMJ, 312*, 71-72.

Sackett, D. L., Straus, S. E., Richardson, W. S., Rosenberg, W. M. C., & Haynes, R. B. (2000). *Evidence-Based Medicine; How to Practice and Teach EBM 2nd ed.* Edinburgh: Churchill Livingston.

Schein, E. (1992). *Organizational Culture and Leadership* (2nd ed.): Jossey-Bass, San Francisco, CA

Schreiber, J., Stern, P., Marchetti, G., & Provident, I. (2009). Strategies to Promote Evidence-Based Practice in Pediatric Physical Therapy: A Formative Evaluation Pilot Project. *Physical Therapy, 89*(9), 918-933.

Schwartz, G., & Russek, L. (1997). The challenge of one medicine: Theories of health and eight "World Hypotheses". *The Journal of Mind-Body Health, 13*(3), 7-24.

Scott-Findlay, S., & Golden-Biddle, K. (2005). Understanding how organizational culture shapes research use. *Journal of Nursing Administration, 35*(7/8), 359-365.

Scott, K., & McSherry, R. (2008). Evidence-based nursing: Clarifying the concepts for nurses in practice. *Journal of Clinical Nursing, 18*, 1085-1095.

Scott, S., Estabrooks, C., Allen, M., & Pollock, C. (2008). A context of uncertainty: How context shapes nurses' research utilization behaviors. *Qualitative Health Research, 18*(3), 347-357.

Shrout, P. E., & Fleiss, J. L. (1979). Interclass correlations: Uses in assessing rater reliability. *Psychological Bulletin, 2*, 430-439.

Simmonds, T. (2005). Best-pratice protocols: Implementing a reapid response system of care. *Nursing Management, 36*(7), 41-42,58-59.

Sladek, R., Phillips, P., & Malcolm, J. (2006). Implementation science: a role for parallel dual processing models of reasoning? *Implementation Science: www.implementationscience.com/content/1/1/12 accessed Sept. 22, 2007, 1*(12).

Stetler, C. (2001). Updating the Stetler Model of research utilization to facilitate evidence-based practice. *Nursing Outlook, 49*(6), 272.

Stetler, C., & Caramanica, L. (2007). Evaluation of an evidence-based practice initiative: outcomes, strengths and limitations of a retrospective, conceptually based approach. *Worldviews on Evidence-Based Nursing, 4*(4), 187-199.

Stetler, C., Legro, M. W., Rycroft-Malone, J., Bowman, C., Curran, G., Guihan, M., et al. (2006). Role of external facilitation in implementation of research findings: A qualitative evaluation of facilitation experiences in the Veterans Health Administration. *Implementation Science: http://www.implementationscience.com/content/1/1/23 retrieved August 30, 2008*.

Stetler, C. B. (2003a). Role of the organization in translating research into evidence-based practice. *Outcomes Management, 7*(3), 97-103.

Stetler, C. B. (2003b). Role of the organization in translating research into evidence-based practice. *Outcomes Management, 7*(3), 97-105.

Stewart, J., McNulty, R., Griffin, M., & Fitzpatrick, J. (2010). Psychological empowerment and structural empowerment among nurse practitioners. *Journal of the American Academy of Nurse Practitioners, 22*(1), 27-35.

Straus, S. E., Richardson, W. S., Glasziou, P., & Haynes, R. B. (2005). *Evidence Based Medicine* (3rd ed.). London: Churchill Livingston.

Strickland, R., & O'Leary-Kelley, C. (2009). Clinical Nurse Educators' Perceptions of Research Utilization Barriers and Facilitators to Change. *Journal for Nurses in Staff Development, 25*(4), 164-171.

Thompson, C., Cullum, N., McCaughan, D., Sheldon, T., & Raynor, P. (2004). Nurses, information use, and clinical decision making-the real world potential for evidenc-based decisions in nursing. [example of Q methodology]. *Evidence-Based Nursing, 7*(3), 68-72.

Thompson, C., McCaughan, C., Cullum, N., Sheldon, T. A., Mulhall, A., & Thompson, D. (2001). The accessibility of research-based knolwedge fo rnurses in the United Kingdom acute acre settings. *Journal of Advanced Nursing, 36*(1), 11-22.

Thompson, C., McCaughan, D., Cullum, N., Sheldon, T. A., & Raynor, P. (2005). Barriers to evidence-based practice in primary care nursing, why viewing decision making as context is helpful. *Journal of Advanced Nursing, 52*(4), 432-444.

Thompson, D. R., Chau, J. P. C., & Lopez, V. (2006). Barriers to, and facilitators of, research utilization: a survey of Hong Kong registered nurses. *International Journal of Evidence-Based Healthcare, 42*(2), 77-82.

Thomsen, S., Dallender, J., Soares, J., Nolan, P., & Arnetz, B. (1998). Predictors of a healthy workplace for Swedish and English psychiatrists. *The British Journal of Psychiatry, 173*, 80-84.

Titler, M. (2004a). Methods in translation science. *Worldviews on Evidence-Based Nursing, 37*(13), 38-48.

Titler, M. (2004b). Overview of the U.S. Invitational Conference "Advancing Quality Care Through Translation Research". *Worldviews on Evidence-Based Nursing, 1*(s1), S1-S5.

Titler, M. (2004c). Translating Research into Practice: A United States Perspective. *Worldviews on Evidence-Based Nursing, 1*(4), 236-236.

Titler, M. (2007). Translating research into practice. *American Journal of Nursing, 107*(6, supplement).

Titler, M., Everett, L. Q., & Adams, S. (2007). Implications for Implementation Science. *Nursing Research, 56*(4 S1), S53-59.

Titler, M., Kleiber, C., Steelman, V. J., Rakel, B. A., Budreau, G., Everett, L. Q., et al. (2001). The Iowa model of evidence-based practice to promote quality care. *Critical Care Nursing Clinics of North America, 3*(4), 497-509.

Tolson, D., Booth, J., & Lowndes, A. (2008). Achieving evidence-based nursing practice: impact of the Caledonian Development Model. *Journal of Nursing Management, 16*, 682-691.

Toma, A., Bensimon, C., Dainty, K., Rubenfeld, G., Morrison, L., & Brooks, S. (2010). Perceived barriers to therapeutic hypothermia for patients resuscitated from cardiac arrest: A qualitative study of emergencydepartment and critical care workers. *Critical Care Medicine, 38*(2), 504-509.

Tripp-Reimer, T., & Doebbeling, B. (2004). Qualitative Perspectives in Translational Research. *Worldviews on Evidence-Based Nursing, 1*(s1), S65-S72.

Turkel, M. C., Reidinger, G., Ferket, K., & Reno, K. (2005). An essential component of the magnet journey fostering an environment for evidence-based practice and nursing research. *Nursing Administration Quarterly, 29*, 254-262.

VanDeusen Ludas, C., Holmes, S. K., Cohen, A. B., Restuccia, J., Cramer, I. E., Shwartz, M., et al. (2007). Transformational change in health care systems: An organizational model. *Health Care Management Review, 32*(4), 309-320.

VanDeusen Lukas, C., Holmes, S. K., Cohen, A. B., Restuccia, J., Cramer, I. E., Shwartz, M., et al. (2007). Transformational change in health care systems: An organizational model. *Health Care Management Review, 32*(4), 309-320.

Veeramah, V. (2008). Exploring strategies for promoting the use of research findings in practice. *British Journal of Nursing, 17*(7), 466-471.

Ven, V. (1995). A study to identify the attitudes and needs of qualified staff concerning the use of research findings in clinical practice within mental health care settings. *Journal of Advanced Nursing, 22*, 855-861.

Verbeke, W., Volgering, M., & Hessels, M. (1998). Exploring the conceptual expasion within the field of organizational behaviour: Organizational climate and organizational culture. *Journal of Management Studies, 35*(3), 303-329.

Walker, L., & Avant, K. (2005). *Strategies for Theory Construction in Nursing* (4th ed.). New Jersey: Pearson: Prentice Hall.

Wallin, L., Bostrom, A., Wikblad, K., & Ewald, U. (2003). Sustainability in changing clinical practice promotes evidence-based nursing care. *Journal of Advanced Nursing, 45*(5), 509-518.

Wallin, L., Ewald, U., Wikblad, K., Scott-Findlay, S., & Arnetz, B. B. (2006). Understanding work contextual factors: a short-cut to evidence-based practice? *Worldviews on Evidence-Based Nursing, 3*(4), 153-164.

Waltz, F. W., Strickland, O. L., & Lenz, E. R. (2005). *Measurement in Nursing and Health Research* (3rd ed.). Ney York: Springer Publishing Company.

Wilkenson, J. E., Nutley, S. M., & Davies, H. T. O. (2011). An exploration of the roles of nurse managers in evidence-based practice implementation. *Worldviews on Evidence Based Nursing, 8*(4), 236-246.

Williams, C. A. (2004). Preparing the Next Generation of Scientists in Translation Research. *Worldviews on Evidence-Based Nursing, 1*(s1), S73-S77.

Wynd, C., Schmidt, B., & Atkins-Schaefer, M. (2003). Two quantitative approaches for estimating content validity. *Western Journal of Nursing Research, 25*(5), 508-515.

Xiaoshi, L. (2008). Evidence-based practice in nursing: what is it and what is the impact of leadership and management practices on implementation? *Nursing Journal, 12*, 6-12.

Yano, E. (2008). The role of organizational research in implementing evidence-based practice: QUERI series. *Implementaton Science: http://www.implementationscience.com/content/3/1/29, 3*(29).

Yava, A., Tosun, N., Cicek, H., Yavan, T., Terakye, G., & Hatipoglu, S. (2009). Nurses' perceptions of the barriers to and the facilitators of research utilization in Turkey. *Applied Nursing Research, 22*(3), 166-175.

Curriculum Vitae

Yvette M. Pryse

PROFESSIONAL REGISTRATION

Type	State/Organization	Dates
Registered Professional Nurse	Indiana	1981-2013
Registered Professional Nurse	Ohio	1989-2013
Registered Professional Nurse	Kentucky	2001-2013

EDUCATION

	Institution and Location	Degree	Date
Diploma	Bishop Clarkson School of Nursing Omaha, Nebraska	Nursing Diploma	1981
Undergraduate	College of Mount St. Joseph Cincinnati, OH	Bachelor of Science in Nursing	1990
Graduate	Ball State University, College of Nursing Muncie, Indiana	Master of Science	1999
Graduate	Indiana University, College of Nursing Indianapolis, Indiana	Doctor of Philosophy	2012

WORK EXPERIENCE

Position	Institution	Location	Dates
Assistant Professor of Clinical Nursing	University of Cincinnati	Cincinnati , OH	2010-present
Visiting Assistant Professor of Clinical Nursing	University of Cincinnati	Cincinnati , OH	2007-2010
Assistant Professor	The Christ College of Nursing and Health Sciences	Cincinnati, OH	2001-2007
Project Director	Dearborn County Prosecutors Office	Lawrenceburg, IN	1996-2001
Faculty	Ivy Tech State College	Madison, IN	1993-1996

Position	Institution	Location	Dates
Charge Nurse	Bethesda Oak Hospital	Cincinnati, OH	1993
Nursing Supervisor	University of Cincinnati, Medical Associates, Dept. of Surgery	Cincinnati, OH	1993
Part-time Faculty	Ivy Tech State College	Lawrenceburg, IN	1990-1992
Director of Nursing	Drake Center University of Cincinnati	Cincinnati, OH	1992
Director of Education	Drake Center University of Cincinnati	Cincinnati, OH	1990-1991
Director of Education	Dearborn County Hospital	Lawrenceburg, IN	1986-1990
ICU/CCU Staff Nurse Relief Charge	Dearborn County Hospital	Lawrenceburg, IN	1983-1986
ICU/ER Staff Nurse Relief House Supervisor	Mary Margaret Community Hospital	Batesville, IN	1982-1983
Telemetry/ICU Staff Nurse	Dukes Memorial Hospital	Peru, IN	1981-1982

AWARDS/HONORS

Indiana Coalition against Sexual Assault, Outstanding Victim Advocate of the Year 1997

Nominated for the President's Award for Teaching Excellence: IVY Tech State College 1995

HONORARY ORGANIZATIONS

Sigma Theta Tau International 2005 – present

Beta Rho 2000 – present

Beta Iota: Vice President 2007 – 2008

PROFESSIONAL ORGANIZATIONS

Midwest Nursing Research Society	2005 – present
Research Facilitation in Clinical Settings Section Member	2006 – present
Evidence Based Practice Section Member	2010 – present
National League for Nursing	2001 – present
Indiana Association of Drug Court Professionals: President	1998
Critical Care Nurse Association Member	1989 –1990

RESEARCH GRANTS –FUNDED

Granting Agency	Title of Project	Amount	Dates
U.S. Department of Justice: Office of Justice Programs	Juvenile Drug Court Program Planning Grant	$38,000	1997
U.S. Department of Justice: Office of Justice Programs	Juvenile Drug Court Program	$350,000.00	1997-2001
Citizens Against Substance Abuse	Juvenile Drug Court	$5,000.00	1998
Citizens Against Substance Abuse	Juvenile Drug Court	$5,000.00	1999
Citizens Against Substance Abuse	Juvenile Drug Court	$5,000.00	2000
NIOSH Grant	Using Evidence Based Practice: The Relationship Between Work Environment, Nursing Leadership and Nurses at the Bedside.	$6,000.00	2010-2012

UNPUBLISHED MANUSCRIPTS

Pryse, Y. M. (2009) Qualitative Study: A study of the Process of Translation. Manuscript in preparation.

Pryse, Y.M. (2010) Scale Development: Nurse Leadership and Work Environment Impact on Evidence Based Practice. Manuscript in preparation.

Pryse, Y.M. (2011) Using Evidence Based Practice: The Relationship Between Work Environment, Nursing Leadership and Nurses at the Bedside. Manuscript in preparation.

MAJOR PAPERS/PRESENTATIONS

National

Pryse, Y.M. (1998) National Association of Drug Court Professionals Seminar New Orleans, Podium speaker

Pryse, Y.M. (2009) NIOSH Nurse Leadership and Work Environment Impact on Evidence Based Practice. Pilot Research Project Symposium. Poster Presentation, Cincinnati, OH.

Pryse, Y.M. (2011). Using Evidence Based Practice: The Relationship Between Work Environment, Nursing Leadership and Nurses at the Bedside. NIOSH Annual Consortium Podium Speaker.

Local

Pryse, Y.M. (2009) Evidence Based Practice: The Iowa Model. Nurses Day Speaker at the University of Cincinnati.

Pryse, Y.M. (2012) Why Return and Get Your BSN? The Christ Hospital Staff Development Council. 2012 Nurses Day Speaker

PROFESSIONAL SERVICE

Committee/Organization	Year	Location
Curriculum Committee	2011-2012	University of Cincinnati
Faculty Appeals Committee: Chair	2010-2012	University of Cincinnati
Admissions Committee	2010-2012	University of Cincinnati
BSN Committee	2007-2012	University of Cincinnati
RN-BSN Committee	2010-2012	University of Cincinnati
Program Coordinator Meetings	2008-2012	University of Cincinnati
Magnet Research Council	2005-2006	The Christ Hospital
Research Review Committee	2005-2006	The Christ Hospital
Faculty Development: Secretary	2003-2006	The Christ Hospital
Admissions Committee	2003-2006	The Christ Hospital
Technology Committee: Ad Hoc Member	2005-2006	The Christ Hospital
Student Advisor: Enrollment, Success, and Mentor	2001-2006	The Christ Hospital

COMMUNITY SERVICE

Organization	Year
President, Indiana Drug Court Association	1998-2001
Drug Court Mentor	1997-2001
Congress of State Representatives to the National Association of Drug Court Professionals	1997-1999
CoAdvisor / Author of the Indiana Association of Drug Court Professionals Bill introduced in the Indiana House of Representatives: Bill Passed	1998
Dearborn County Department of Family and Children, Budget Advisory Board	1999

Organization	**Year**
The Health Foundation of Greater Cincinnati, Substance Abuse Advisory Board	1999
Co-Chair, Greater Cincinnati Staff Education Directors	1990
National Nursing Staff Development Organization	1990
Alternative School Task Force: Hughes Center, Cincinnati, OH	1989
Healthworks Coordinator: Dearborn County	1988-1989

TEXTBOOKS REVIEWED

Varcarois, E.M. (1998). Foundations of Psychiatric Mental Health Nursing 3rd ed. W. B. Saunders Co: Philadelphia, Penn.

Grohar-Murray, M. E., & Langan, J. C. (2010) Nursing Leadership and Management in Nursing. Prentice Hall: Upper Saddle River, N. J.

CONTINUING EDUCATION

Title of Program	Sponsoring Organization	Date	Location	CEUs
Train the Trainer: Classroom Training Technique Seminar	Xavier University	1987	Xavier University	10.2
Train the Trainer: Planning, Designing and Evaluating Effective Training Seminar	Xavier University	1987	Xavier University	10.2
Advanced Pediatric Physical Assessment	American Healthcare Institute	1994	Columbus, OH	7.5
Gorksi II, Chemical Dependency and Criminal Behavior	Indiana Law Enforcement Training Board	1996	Indianapolis, IN	6.0 ILEA
Domestic Violence/Victimless Prosecution Training	Marion Mayor's Commission	1997	Marion, IN	3.45 ILEA
Ms Access 2000	IVY Tech State College	2000	IVY Tech State College	-
Advanced PowerPoint	Public Agency Training Council; National Criminal Justice	2000	Indianapolis, IN	-

Title of Program	Sponsoring Organization	Date	Location	CEUs
EKG Certification	Nursing Matters:RN	2001	On-Line Module	10.0
Osteoporosis: A Concern for Long-Term Survivors of Breast Cancer	Sigma Theta Tau	2001	On-Line Module	2.5
Infection Control	Nursing Matters:RN	2001	On-Line Module	4.0
Perils, Promise, and Preference: Honoring Advance Care Directives	Sigma Theta Tau	2001	On-Line Module	2.0
OSHA Bloodborne Pathogens	Nursing Matters:RN	2001	On-Line Module	4.0
Ventricular Fibrillation Management	Nursing Matters:RN	2001	On-Line Module	2.0
HIV and the Healthcare Provider	Louisville Education and Development	2002	On-Line Module	2.0
Changing Times, Changing Trends: Transition to ADN: Part II	Health Alliance	2002	Cincinnati, OH	7.5
Shirley M. Toepfert, RN, Memorial Nursing Seminar	Health Alliance	2002	Cincinnati, OH	7.1
Healthy Adaptation to Grief and Loss	The Christ Hospital Social Work Department	2002	Cincinnati, OH	2.0
Domestic violence: A Healthcare Professionals Perspective	Louisville Education and Development	2002	On-Line Module	3.0
Developing a Valid and Reliable Systematic Program Evaluation Plan	Health Alliance	2003	Cincinnati, OH	6.8
A Basic Guide to the Ohio Nurse Practice Act	CME Resource	2003	On-Line Module	1.0
Alcohol, Alcohol Abuse and Alcohol Dependence	CME Resource	2003	On-Line Module	10.0

Title of Program	Sponsoring Organization	Date	Location	CEUs
Persons Requiring Permanent Pacemakers	CME Resource	2003	On-Line Module	15.0
Disaster Preparedness and Response for Nurses	Sigma Theta Tau	2004	On-Line Module	2.0
Netwroking for Career Advancement	Nursing Spectrum	2004	On-Line Module	1.2
Bladder Management after Spinal Cord Injury	RNCeus Interactive, LLC	2004	On-Line Module	3.0
A Wake-Up Call for Nursing Faculty: Energize Your Students and Yourself!	Firelands Regional Medical Center	2004	Sandusky, OH	4.8
Medscape Personal Professor: Smallpox	Postgraduate Institute for Medicine	2004	On-Line Module	1.2
Faculty Development Workshop: Strategies to Revitalize Teaching	Health Alliance	2004	Cincinnati, OH	6.8
Preventing Herpes in the Pregnant Woman and the Neonate	Medical Education Collaborative	2004	On-Line Module	1.2
Understanding Renal Function Tests	RNCeus Interactive, LLC	2004	On-Line Module	3.0
Managing Diabetes complications	Wild Iris Medical Education	2004	On-Line Module	1.5
Shifting Paradigms: Diploma vs. Collegiate Nursing Education	Health Alliance	2005	Cincinnati, OH	6.8
Overview of the Ohio Nurse Practice Act	Health Alliance	2005	Cincinnati, OH	1.4
Faculty Development Workshop	Health Alliance	2005	Cincinnati, OH	7.6
Magnet Hospital Recognition Program Workshop	Health Alliance	2005	Cincinnati, OH	4.2

Title of Program	Sponsoring Organization	Date	Location	CEUs
Using Accreditation Guidelines and Assessment Strategies to Make a Difference in Teaching and Learning	Health Alliance	2006	Cincinnati, OH	6.7
Getting Started with Online Learning	Health Alliance	2007	Cincinnati, OH	5.8
Critical Thinking and Test Writing Workshop	University of Cincinnati	2007	University of Cincinnati	5.4
Ohio Nurse Practice Act	CME	2007	On-Line Module	1.0
IMAGE	Sigma Theta Tau	2008	University of Cincinnati	1.0
Reaching the Millennials: Teaching Strategies for the next Generation	University of Cincinnati	2008	University of Cincinnati	1.5
Sigma Theta Tau International leadership Academy	Sigma Theta Tau	2008	Indianapolis, IN	7.5
Health Education: Learning, Literacy, & Aging	University of Cincinnati	2008	University of Cincinnati	1.5
Theoretically Driven Interventions Focused on Motivating Older Adults to Engage in Functional and Physical Activity	NIOSH	2011	University of Cincinnati	5.0
Qualitative Evidence of clinical Practice	University of Cincinnati	2009	University of Cincinnati	1.5
Implementing the 2008 Baccalaureate Essentials	University of Cincinnati	2009	University of Cincinnati	2.8
Ohio Nurse Practice Act	National Center for Continuing Education	2009	On-Line Module	1.0

Title of Program	Sponsoring Organization	Date	Location	CEUs
2009 Pilot Research Project Symposium	NIOSH	2009	University of Cincinnati	5.4
Scholarly Teaching: A Few Really Interesting Studies	SoTL	2009	University of Cincinnati	1.5
Ohio Nurse Practice Act	CME	2010	On-Line Module	1.0
Policy, Health Care Reform and Nursing – Oh My!!!	Sigma Theta Tau	2010	Cincinnati, OH	1.0
Rubrics: Guide Your Students and Streamlined Your Life	University of Cincinnati	2010	Cincinnati, OH	1.5
Kids These Days: Using Theory to Explain the Ever Evolving Student	University of Cincinnati	2010	Cincinnati, OH	1.5
Ohio Law and Rules Series: On the Scope of Nursing Practice	Primetime Health Associates	2011	On-Line Module	1.0
MNRS Annual Research Conference	MNRS	2011	Indianapolis, IN	9.0
Facilitating Health Behavior Change: Using Self-Determination Theory to Guide Research and Clinical Scholarship	University of Cincinnati	2011	Cincinnati, OH	1.5
Use of Evidence without Experience, Evaluation or Ethics: The Dark Side of Evidence Based Practice	Sigma Theta Tau	2011	Cincinnati, OH	1.0
Continuing Education: Teaching Large Classes	SoTL	2011	Cincinnati, OH	1.5
Promoting Informed Decision-Making for Genetic Testing	Cincinnati Children's Medical Center	2011	On-Line Module	5.8

Title of Program	Sponsoring Organization	Date	Location	CEUs
Pediatric Abusive Head Trauma	Elite Continuing Education	2011	On-Line Module	7.0
2011 Pilot Research Project Symposium	NIOSH	2011	University of Cincinnati	5.0

FORMAL TEACHING EXPERIENC

Course Title	Credit Hours	Year	Level	Institution
29NURS407	Senior Capstone	2012	UG	University of Cincinnati
29NURS205	Pharmacology for Nurses	2011-2012	UG	University of Cincinnati
29NURS463	Introduction to Genetics for Professional Practice	2011-2012	UG	University of Cincinnati
29NURS301	Introduction to Genetics	2011	RB	University of Cincinnati
29NURS700	Nursing Assessment	2011	AC	University of Cincinnati
29NURS817	Organizational Management of Health Care Systems	2011	DL	University of Cincinnati
29NURS844	Leadership in Healthcare Organizations	2011	DL	University of Cincinnati
29NURS712	Leadership and Management in Professional Practice	2010-2012	AC	University of Cincinnati
29NURS 411	Professional Nurse Leader as Manager	2007-2012	UG	University of Cincinnati
29NURS 403	Contemporary Nurse Leader	2007-2012	UG	University of Cincinnati
29NURS485	Evidence Based Practice for Clinical Decision Making	2008-2011	UG RB	University of Cincinnati
29NURS201	Foundations I	2009-2010	UG	University of Cincinnati
29NURS303	Care of Adults	2010	UG	University of Cincinnati

Course Title	Credit Hours	Year	Level	Institution
29NURS101	Success in College and Nursing	2008	UG	University of Cincinnati
NUR 300	Transition to Nursing Practice	2007	UG	The Christ College of Nursing and Health Sciences
NUR 201	Nursing Management of Client Needs III: Complex Medical for the Adult	2001-2007	UG	The Christ College of Nursing and Health Sciences
NUR 200	Nursing Management of Client Needs II: Newborn/Postpartum	2001-2007	UG	The Christ College of Nursing and Health Sciences
NRSG 126	Mental Health Nursing	1993-1996	UG	IVY Tech State College
NRSG 127	Mental Health Nursing Clinical	1993-1996	UG	IVY Tech State College
NRSG 200	Complex Medical Surgical Nursing for the ASN	1993-1996	UG	IVY Tech State College
NRSG 201	Complex Medical Surgical Nursing Clinical	1993-1996	UG	IVY Tech State College
NRSG 206	Nursing Care of Childbearing and Childrearing Families	1993-1996	UG	IVY Tech State College
MEA215	Medical Terminology	1990-1992		IVY Tech State College
CINS 101	Microsoft Word for Beginners	1992		IVY Tech State College

UG Undergraduate AC:Accelerated RB:RN to BSN GR:Graduate DL:Distance- Learning

MENTORED RESEARCH PROJECTS

Master's Student Thesis Advisor (Northern Kentucky University) 2012
"Factors that influence the ASN to return to School for the BSN"

Master's Student Thesis Advisor (Northern Kentucky University)
"Test blueprinting: Effects on NCLEX Success" 2005

RESEARCH

Title	Year
Thesis: The Impact of the Critical Care Experience as Recalled by the Spouse: A Qualitative Study: Thesis	1999
SoTL: Critical Thinking in the Novice Clinical Educator	2009
A Qualitative study of the Process of Translation	2008
Scale Development: Nurse Leadership and Work Environment Impact on Evidence Based Practice.	2010
Using Evidence Based Practice: The Relationship Between Work Environment, Nursing Leadership and Nurses at the Bedside. : Dissertation	2011-2012