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## Patient Perceptions of the Caring Environment

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A Scholarly Project

Submitted to the

Faculty of Liberty University

In partial fulfillment of

The requirements for the degree

Of Doctor of Nursing Practice

By

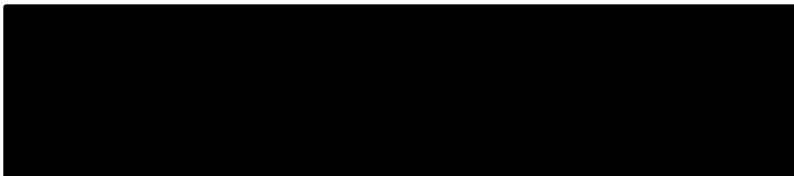
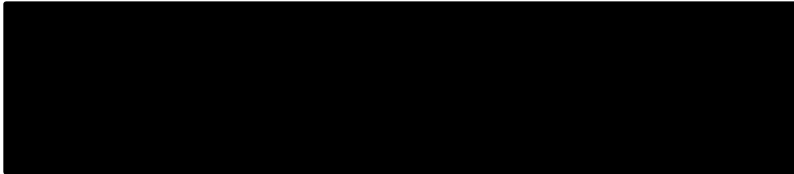
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May, 2016

Scholarly Project Committee Approval:



Liberty University

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### Abstract

As health management information system technology at the point of care increases to ensure greater efficiency, effectiveness and patient safety, the impact of such technology needed to be explored for impact on the nurse-patient dyad, and patient perception of the caring environment. This evidence-based practice pilot project based on the Iowa Model of Evidence- Based Practice to Promote Quality Care utilized quasi-experimental methodology to measure implication of mobile computer workstations at the point of care and sought to answer if an evidence-based practice change of ergonomic use surrounding technology improved patient perceptions of the caring environment. Significance of the pilot project was noted with an increased awareness of patient perceptions that may be applied to increase patient-centered care. Results indicated that ergonomic interventional use of mobile computer workstations did in fact improve patient perceptions of the caring environment.

Key words: *caring, computers, patient perception, nursing care, caring environment*

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## Patient Perceptions of the Caring Environment

Grounded in the clinical relationship of the nurse-patient dyad, and patient perceptions of a caring environment, this scholarly project sought to pilot an evidence-based practice protocol. The protocol focused on patient perception of the caring environment. The Institute of Medicine's (IOM) standard for evidence-based practice to guide policy at the point of care (Institute of Medicine, 2008) along with findings of increased safety, quality, and efficacy with mobilized computer workstations at the point of care were considered. Additionally, these standards were compared and challenged by the interpersonal caring behavior, associated with respect and authentic presencing of nurses (Papastavrou, 2012).

### **Background**

Although much is noted in the literature regarding nursing as a profession of caring, less was found on patient perceptions of that relationship of caring, and technological factors that influence it. Little was found in the literature search that combined perceptions of a caring environment, the nurse-patient dyad, and the variable use of a mobile computer workstation (MCW) at the point of care. Current literature revealed investigation and documentation of increased efficient and effective nursing care delivery as well as increased patient safety with the incorporation of mobile computer workstations. This has been both well-established and accepted with gain of immediate access to medication, supply storage, and electronic documentation, requiring fewer detours to storage rooms, and less interruption of time management. Fewer medication errors with the use of mobile electronic scanning are undeniable (Chochinov, 2011).

However, the writer noted assumptions that increased safety, efficiency, and efficacy of nurse workflow equate greater amounts of time being spent at the patient bedside. This may not be the case. Nor should it be assumed that positive gain in the areas of safety, efficiency, and efficacy by way of MCW use at the point of care has come at no cost associated with the loss in authentic human caring as perceived by the patient.

If, in the addition of technology at the point of care, a caring environment has been lost or is perceived to have been lost, the way in which the same technology can and should be used must be reevaluated. Forward progress in the ergonomic use of healthcare informatics must improve quality and safety without undermining the very nature of nursing as an interactive, interpersonal ministry of caring (Shelly & Miller, 2006). The writer concluded that a moderate amount of evidence existed that revealed a need for a pilot project for improved practice change with alternative techniques in the use of MCWs and patient perceptions of a caring environment.

### **Problem Statement**

Preservation of the nurse-patient relationship is a key to the preservation of caring (Watson, 2008). The importance of this topic is found in the importance of the patient and patient-centered care (Meehan, 2013). If in fact healthcare is to be patient-centered, the perception of the patient needed to be understood and ways to maximize the patient perception of a caring environment without compromising the increased quality and safety that technology offers needed to be found. Key to the nurse-patient dyad is the concept of a relationship of trust. If the patient does not perceive an environment of caring, trust may be inhibited and quality of care may suffer.

Timeliness of this evidence-based practice project was remarkable as the IOM requirement for evidence to support practice and improve safety ignites the need for increased informatics and supportive technology (Institute of Medicine, 2008). Lewin reminds that change is not always equated with overall improvement (1951). It is most relevant in this continual change environment of informatics technology adoption, that further study of not only care, but the caring nature of the new environment, and the patients' perceptions of that environment be accomplished to fully qualify adoptive change as sustainable improvement.

Substantiation of MCWs as healthcare informatics technology at the point of care was well documented in the literature review from the quantitative perspective. Confirmation of perceived qualitative improvement from the patient population remained incomplete (Allix and Irurita, 2004). Evidence noting a mismatch of nurse and patient perceptions of the caring environment and stymied delivery of humanistic needs in the presence of technology necessitated further research at the point of care (Papastavrou, 2012). This evidence-based practice pilot study contributed to the overall body of quantitative knowledge.

### **Purpose of the Project**

The purpose of this pilot project was to implement an evidence-based practice change surrounding MCW ergonomic use at the point of care and to evaluate for improved patient perceptions of a caring environment. Objectives of the pilot were to examine patient perceptions of a caring environment where MCWs were used at the point of care, as well as staff nurse perceptions of the intervention.

### **Clinical Question**

Development of a clinical question following the Patient-Intervention-Comparison-Outcome-Timeline (PICOT) format suggested by Mateo and Foreman (2014) revealed the clinical question central to the project: For medical surgical patients, will ergonomic use of the mobile computerized workstation improve patient perception of the caring environment? Additional clinical questions surrounding the pilot change included: 1) Is patient perception of the caring environment different per age group with ergonomic use of the MCW? 2) Is patient perception of the caring environment different per gender with ergonomic use of the MCW? 3) Is patient perception of the caring environment different per ethnicity with ergonomic use of the MCW? 4) What is the second population, nurse perception of the intervention?

### **Review of the Literature**

The literature search utilized key words: caring, computers, patient perception, nursing care, and caring environment. EBSCO host was used as a search engine to access MEDLINE complete, CINAHL plus, and Nursing Reference Center plus for full text articles. Relevant studies were identified utilizing an identical search approach. Dates for current literature ranged from 2007 to present revealing three Level IA studies based on the Johns Hopkins Nursing Evidence-based Practice Rating Scale (Newhouse, Dearholt, Poe, Pugh & White, 2005). Three Level II A and B studies were noted. Nine studies leveled III A as non-experimental studies contributed to the literature review. Five reports at Level IV A offered nationally recognized practice guidelines and

systematic review. Eleven Level V articles offered clinical expertise from individual and organizational experience.

A review of the literature focused on evidence surrounding patient perceptions of the caring environment, MCWs at the point of care, and the art of caring within the profession of nursing. This review revealed no contradictions or bias and was noted as relevant to the study and its variables. Synthesis of the literature revealed an adequate research base and exposed a gap in application of evidence at the point of care (University of Iowa Hospitals and Clinics, 2015).

The inclusion and integration of healthcare informatics by nurses at the point of care was rapidly adopted following the IOM call for increased safety and quality care based on evidence (Buckner & Gregory, 2011). Use of technology at the point of care continues to quickly evolve. Multiple articles revealed in the search were noted as greater than five years old and therefore no longer relevant in this rapid change environment (Institute of Medicine, 2008).

The aim of most studies in the review of literature focused on cost, safety, and quality of patient care. Little was found on the correlation between patient perceptions of a caring environment or aims to minimize variables that diminished that perception. Focus on the potential negative impact of technology, specifically the use of MCWs at the point of care, and patient perceptions of techniques for technology use that would preserve the environment of caring were scarce (Buckner, 2009).

Papastavrou's 2012 correlational design consisting of a convenience sample of 1148 nurses, and 1537 patients spanning six European countries, concluded a mismatch between patient and nurse perception of caring. The antithesis of the caring profession

and healthcare's technological framework was noted, as was the need to further study behaviors that would enact the art of caring amidst influx of healthcare informatics.

A study by Buckner and Gregory (2011) stated that nursing's urgent need to improve safety and quality required rapid inclusion of healthcare informatics. Bruckner remained confident that nursing must continue as an evidence-based practice profession. Notation is made that technology must support and enhance that drive. Buckner's study also reports conclusions that intentional focus is required to bring the point of care emphasis away from technology and back to the patient as the center of care. Although the dyad relationship can be enhanced through the accountability, security, and completeness acquired through technology, Buckner's study realizes the potential for the relationship to be negatively affected (2011).

Chochinov (2011) states that workflow increases with the use of mobile technology. He supports this with findings from the Spartanburg Regional Medical Center in South Carolina and their sponsored study of patient care. This study, accomplished by Battisto, Pak, Vanderwood, and Pilcher (2009), employs human factor research to address facility design and efficiency. In this observational study focusing on task error, findings were reported after structured interviews with nurses. Percentage of task location was noted. Tasks documented as taking place in the patient room consisted of 42% of overall nursing tasks. Frequency of equipment use was also measured. Computer use was recorded as the most frequent piece of equipment used; computer use was higher than gloves, intravenous pump, and medications combined. The conjecture being that much of a nurse's time is spent in the patient room, and a great amount of that time is dedicated to the use of a computer. Barton (2010) notes that the relationship of



technology and caring can be synergistic; technology can be seen as an adjunct that enhances care.

Johnson, Sadosty, Weaver, and Goyal (2008) in their study of 224 patients questioned whether provider posture of seating versus standing influenced patient perception of provider interaction. The conclusion was remarkable in that provider posture during initial interaction with patients did effect the patient perception of amount of “time spent at the bedside” (p.188). While the study was able to show ergonomic use of MCWs tied to patient perception of time spent in room, the study was limited as it did not examine patient perception of care related to ergonomic use. The study was also limited in its observation of primary care providers, excluding bedside nursing.

The Studer Group (2014) noted that there should be standardized personal nursing behaviors that demonstrate respect for and personal engagement with patients. Physical positioning of the nurse in relation to the patient, and removal of distractions that would interfere with active listening, and eye contact are suggested as best practice tactics to enhance pay for performance success in Hospital Consumer Assessment of Healthcare Providers and Systems surveys (2014).

A systematic review of multiple comparative studies by Papastavrou, Georgios, Efstathiou, and Charalambous (2011) concluded that there is a lack of congruence in perceptions of caring between nurse and patient. What is, “considered caring and intended caring is not always perceived as such by the patient. Further research (was) needed, however to generate more knowledge on the relationship between caring behaviors, patient outcomes and health or nursing costs” (p.1191).

A meta-analysis by O'Boyle, Humphrey, Pollack, Hawver, and Story (2011) analyzed the relationship between emotional intelligence and job performance. The importance of emotional intelligence (EI) in the workplace is stressed for successful interaction with individuals. Emotional intelligence was noted as required in incorporating openness and was of higher importance in areas of customer service.

McCance, Slater, and McCormack (2008) reported findings of their quasi-experimental study where results highlighted prospective tool ability to generate data points previously difficult to measure in nursing practice. Conclusions of the study noted that nurses need to be mindful of patients' perceptions of caring, utilizing the project findings as stimulus for practice change. Dissemination of this study's results encourage patient-centeredness. Information disseminated included nineteen core statements considered as caring, noted longitudinally. The study concluded a need for increased cognizance and consideration of the interaction between core concepts of caring and patient-centeredness as well as the synergy caring created within the practice of nursing. Further, the study cautioned against assumptions as to what the patient deems as important to the caring environment. Evidence advocates for nurses to recognize patient perceptions of caring and to utilize this knowledge towards practice change (2008).

Patient perception of the quality of nursing care was measured with a tool developed by Dozier, Kitzman, Ingersoll, Holmberg, and Schultz (2001). The tool created by Kitzman (2008), a 15 item Likert scale instrument, was validated, found reliable, and further utilized after language translation by Gulay, Ipek, Coban, and Kasikci (2010).

Consumerism, along with competition among acute care settings, increased the awareness of the patient as both customer, and primary information source (Dozier, Kitzman, Ingersoll, Holmberg, and Schultz, 2001). Dozier's (2001) study acknowledged different priorities and expectations between patients and nurses and aimed to measure patient perspectives surrounding their hospital stay and if they as patients perceived their needs as having been met. Assessment and implementation of a plan to meet individual needs of the patient was noted as fundamental to the practice of nursing. Results of the study noted patient perceptions linked to both value of service delivered and overall patient outcomes. This pointed to potential for improvement in provider guidelines where patient needs were not perceived as met (2001).

Maximizing the nurse effort to maintain patient-centered care in a technology rich environment was studied by Allix and Irurita (2004). In this early study, nurses were noted as stymied in their attempt to meet humanistic needs of patients in the presence of increased technology. In 2011, O'Malley documented that even though the full potential of gain in use of healthcare informatics may not be realized, clinicians are still distracted from patients in the presence of technology. Bitton, Flier, and Jha (2012) acknowledged that in the midst of overarching healthcare reform, the extent of gain with technology use is not yet fully known. While many medical institutions have embraced information technology (IT) at the point of care to increase overall efficiency and quality, the writer questioned organizational focus that highlights workload quality alone without inclusion of patient-centered care.

Patient satisfaction was noted as an outcome of individualized nursing care by Suhonen's team (Suhonen, Papastavrou, Efstathiou, Tsangari, Jarosova, Leino-kilpi,

Patriaki, Karlou, Balogh & Merlouris, 2011). In this study published by the Scandinavian Journal of Caring Sciences, association is seen in patient satisfaction where individualized care is received. Authors noted that the conclusion of the study strengthened earlier reports of positive correlation between patient-centered care, and patient satisfaction. These study outcomes, used by organizational leaders for decision and policy building, can and should promote methods of patient-centered care with expectation of increase patient satisfaction in the midst of increased technology adoption (Suhonen et al, 2011).

Patient-centered care was investigated for specifics on what patients deem important for care that is titled patient-centered and focuses on themselves as patients (Kvale & Bondevik, 2008). Authors Kvale and Bondevik (2008) remarked that individual patient values and perceptions should be recognized and credited by the care giver in order that the care being delivered to the individual patient be deemed evidence-based. Further, recommendation for patient-centered care is made to aid in gain towards quality improvement. Aiming to gain insight into the perceived importance of patients, respect, “being listened to” (p.587), believed, and valued were noted by patients as increasing their self-worth and therefore of great importance to the continuum of care.

An additional comparative study by Papastavrou et al. (2012) examined differences in perceived respect and presencing in clinical care within the nurse-patient dyad. Values and assumptions significant to caring were noted as, “authentic human presencing” (p. 370), respect and authenticity. The study recognized and concluded that present-day nursing is held in paradox between a humanistic, caring, and what may be perceived as an impersonal, highly technologic healthcare system framework. Exploring

the patients' perspective of modern day caring environment was of extreme importance. This leveling of evidence and comprehensive review of the evidence revealed an adequate and sufficient research base for a pilot of practice change (Titler et al., 2001).

### **Frameworks**

**Guiding Framework.** The Iowa Model of Evidence-Based Practice to Promote Quality Care was the guiding, overarching framework for this evidence-based practice pilot project. While the model was updated during the pilot project proposal stage, the 2014 model was kept for consistency throughout the project. With the acknowledged problem and knowledge focused triggers rooted in the national guidelines and standards requiring increased use of technology at the point of care, and financial reimbursement tied to patient perceptions and satisfaction, the Iowa Model supported the topic choice. The Iowa Model's next trigger point for decision called for examination of organizational priority of topic. Examination of the organization's strategic plan revealed a priority placement of patient-centered care and increased communication at the bedside. Stakeholder buy-in of the pilot of practice change was evidenced by a provisional letter of support from the organization's nursing administration. In accordance with the Iowa Model, a team was selected in the form of a scholarly project committee. Relevant research was analyzed and found to be sufficient and appropriate in its formation of a database to support a pilot of practice change. The primary investigator selected outcomes to be achieved, baseline data to be collected, and EBP guidelines used to implement a pilot intervention on units.

**Conceptual Framework.** Following Kobayashi, Takemura, and Kanda's (2010) use of Donabedian in their study of patient perception of nursing service quality, the conceptual framework followed Donabedian's (1988) model of structure, process, and outcome.

This conceptual framework encouraged the project leader to identify all concepts surrounding and potentially affecting the project (Moran, Burson & Conrad, 2014). The structure included the setting of acute care medical surgical units within a multihospital system as well as those involved as data collectors and sample population. Process was documented as dissemination of evidence identified within the current literature to all data collectors, followed by intervention of ergonomic use of MCWs at the point of care. Outcome data points were documented as patient perception of the caring environment with the data collection tool: Patient Perception of Hospital Experience with Nursing (PPHEN) (Dozier, Kitzman, Ingersoll, Homberg, & Schultz, 2001).

**Theoretical Framework.** Theoretical framework for the pilot project was borrowed from Watson's Philosophy and Science of Caring (2008). Further support was derived from Swanson-Kauffman's (1988) work focusing on the caring processes. In their empirically derived framework caring was described as nurturing; relating value and commitment to an individual (Swanson, 1991).

Watson noted a continuum of growth in the art of caring that moves from a carative approach to one of caritas. Meehan (2012) offered definition for caritas in Latin translation of Greek word 'agape'. Caritas was noted as enabling of service to humanity through relationships (Meehan, 2012). As a nursing value, Watson (2008) revealed caritas as a consciousness approach that evolves over time.

Carative factors as core principles to Watson's (2008) theory included: practice of equanimity; a genuine presencing that cultivates deep belief (Wagner, 2010), refinement of self-wholeness that includes body, mind, and spirit, the art of 'being' in the environment of caring and the allowance or openness to miracles (Wagner, 2010).

Core concepts of the Jean Watson Theory of Human Caring included relational caring, transpersonal caring, caring moments, ways of knowing, reflective meditative approach, inclusiveness, and caring that changes self. Caring was noted as having initiated from a base of moral or ethical value, transpersonal caring relationship as a moral commitment to enhance another's dignity, respect that honors the needs of another, a caring consciousness that connects the nurse to another person, heart centered healing and purposeful, authentic presencing (Wagner, 2010). These carative factors internalized, developed, and initiated as virtue were noted as caritas.

Caring moment was defined by Watson in terms that reveal intentional, personal interactions individualized for a meaningful, genuine human experience (Wagner, 2010). This descriptive offered by Watson's theory formed the basis of understanding towards the nurse-patient dyad and was the foundational underpinning for thoughtful analysis of meaningful, authentic, and intentional caring as perceived by the patient when technology in the form of MCWs comes between the patient and the nurse.

The ten factors identified as carative factors by Watson (2008) correlated to caritas competencies as subcategories of each of the ten factors. Competencies were identified as conscious acts of caring. In their relation to the caring environment, these acts of caring amidst the nurse-patient dyad were noted by the project as potentially influenced by MCWs as technology at the point of care. Analysis therefore sought to offer further understanding as to whether or not a difference in patient perception of the caring environment exists where MCW ergonomics are used at the point of care. Does technology interrupt the, "human to human transaction" as perceived by the patient?

Interrupted by technology, does the patient perceive a decrease in the environment of caring (2008)?

### **Methodology**

This evidence-based practice project piloted an implementation of an interventional ergonomic technique for nurse use with MCW surrounding adult patients admitted to acute medical surgical units and pursued to answer if such ergonomic use improved patient perception of a caring environment. The project plan included implementation of ergonomic use of MCW at the point of care. The two ergonomic positions of use were defined as: (1) intervention of sitting at the patient bedside with MCW not physically coming between the nurse and the patient, (2) control of standing with MCW physically between nurse and patient. Measurable outcome of primary population sample was identified as patient perception of the caring environment. The secondary population of nurses implementing the ergonomic techniques with MCW use provided data as to the perceptions of intervention through end of the pilot survey.

The target population consisted of all adult medical surgical patients in acute care settings currently receiving care by providers who use the MCWs at the point of care. Inclusion criteria were: patients admitted or transferred to each of the two medical surgical units, 18 years of age or older, alert and oriented with ability for informed consent. Exclusion criteria were: patients with diminished autonomy, pregnant, or unable to give informed consent, or on air borne precaution use of negative pressure rooms (United States Department of Health and Human Services, 1979). Sample sites included two medical surgical units in two hospitals among a four hospital system. The hospital system's research council supported use of both medical surgical



units as sample sites and submitted supportive documentation to the hospital system's Institutional Review Board (IRB) as well as the Institutional Review Board of Record. Protection of human subjects was noted in accordance with the Collaborative Institutional Training Initiative (2015).

All nursing staff and unit managers of medical surgical units participating in the pilot project were advised of key principles associated with CITI prior to the start date to provide them with a basic understanding of the protection of participants. Understanding of vulnerable population groups and the required respect, beneficence, and justice for each patient were introduced and reinforced (USHHS, 1979). No compensation was made to participants, data collectors, or project leader. Risk to participants was noted as no greater than assumed in everyday life.

### **Setting**

Two medical surgical units within two separate hospitals as part of a four hospital system served as the setting for the evidence-based practice pilot. Populations within these two hospitals differed little geographically and socioeconomically. The hospital system's organizational strategic plan focused on the value of patient-centered care with standards of behavior that included communicating with clarity and creating connection (Centra, 2015). A provisional letter of support from the organization is included in Appendix G.

## Tools

The primary population sample of medical surgical patients was measured for outcome of patient perception of the caring environment. An anonymous survey was given and filled out by the patient, sealed in an envelope, and deposited in a locked box on the unit at time of discharge. Variables of the pilot study concentrated on the nurse-patient dyad with patient perception of a caring environment. The Patient Perception of Hospital Experience with Nursing (PPHEN) instrument development acknowledged that,

Although degree of satisfaction commonly is assumed to be linear, aspects of care that contribute to satisfaction may differ from those that generate dissatisfaction because of expectations...Patients and nurses have different priorities and expectations about care...We assumed that patients can determine whether their needs are met and can do this without reference to a prior set of expectations and values. In theory, perceptions about the degree to which needs are met should not be affected by demographic, personal, and situational variables because they do not require consideration of expectations (Dozier, Kitzman, Ingersoll, Holmberg, & Schultz, 2001, p. 507).

Instrument development further recognized that standardization in measuring patient perceptions of nursing within the hospital environment would allow patients as customers to assess their care experience and in so doing, contribute to provider information for marked areas needing improvement (2001).

With a focus on nursing as opposed to physician specific verbiage, and with the dependent variable noted as patient perceptions of needs met through care of nursing, the

survey tool for the proposed project instrumentation was the Patient Perception of Hospital Experience with Nursing (PPHEN). The tool is a 15 question Likert scale. Permission was obtained from its developer, Dr. Harriet Kitzman, University of Rochester, Rochester, New York (Kitzman, 2015). Permission is noted in memo format in Appendix E.

Appropriateness of the tool was remarkable with all 15 items of the survey directly associated with care provided by the nurse. Items four and 15 specify wording to include phrasing such as, “the nurses gave me their undivided attention while caring for me” and “the nurses actions made me feel cared for” (Dozier, Kitzman, Ingersoll, Holmberg, & Schultz, 2001, p.512). Content of the survey was applicable and consistent with the project aim and focus. Internal consistency when items reduced from 125 to eventual 15 item instrument, “the PPHEN was found to be [one]-dimensional, reliable “=.94...and have evidence of construct validity” (Lynn, McMillen & Sidani, 2007, p.161) based on Cronbach’s alpha. Readability and interpretability were confirmed (2001). According to Lynn, McMillen, and Sidani, limitations to the PPHEN instrument include lack of a large patient basis for generalization and its one dimensional nature. Increased use of the tool with subsequent studies will improve generalization. The single dimensional analysis of the caring environment was appropriate for this project (2007).

The survey asked the degree to which patients agree with statements surrounding nursing care. Survey answer choices utilized a Likert scale ranging from 1-6 where 1= agree; 2= somewhat agree; 3= undecided; 4= somewhat disagree; 5= strongly disagree; 6= not applicable. Three demographic questions, separate from the PPHEN, including age, gender, and ethnicity were included in the survey. A waiver of signed informed

consent was granted from the IRB of record. With full IRB approval from the university as IRB of record and the IRB representing the healthcare system, the participants were provided with an information sheet, consistent with parent organization Institutional Review Board template, containing all elements of consent form, signature line deferred. Information sheet is provided in Appendix B (Dozier, Kitzman, Ingersoll, Holmberg, & Schultz, 2001).

The instrument was printed on color coded paper to distinguish sample groups. Blue surveys were given to even numbered rooms as an active control group and orange to odd numbered rooms participating in the intervention. Surveys with an information sheet were given as part of the discharge packet. The nurses were instructed to have patient complete the survey anonymously at discharge. Surveys were sealed and given to discharge staff when exiting the hospital unit. The discharge staff placed all surveys in a locked drop box at the unit nursing station. All surveys were collected by the project leader by the end of the data collection time period.

The secondary population sample of nurses implementing interventional ergonomic use of MCW completed simple surveys to measure their perception of the intervention. These surveys were completed anonymously and submitted to the project leader at the staff meeting post intervention and patient data collection period. Information Sheet and Simple Survey for Nurses are included in Appendix C and Appendix D.

### **Intervention**

The two ergonomic positions of use were defined as: (1) sitting at the patient bedside with MCW not physically coming between the nurse and the patient, (2) standing

with MCW physically between nurse and patient. Position one was noted as intervention. Position two was noted as control. Training of staff participants on methodology included randomized assignment of patient to room, ergonomic position one and two, and survey collection as well as key aspects of CITI (2015) training. Training occurred at staff meetings. Reminders were included in daily unit huddles and in charge nurse rounding of staff. Point of care reminders were attached to MCWs and report sheets. Both odd and even numbered door frames displayed color coded cards as reminders on each participating unit.

A nonprobability sample of all medical surgical patients admitted or transferred to the study units during the set time frame who met inclusion criteria were allowed for sampling. Introduction of bias within the sample was noted with limited patient demographic diversity, effect size, coefficient, and confidence interval. Homogeneity was noted with both study sites under the same parent organization. Collection of demographic data revealed the extent of variation in sample where age, gender, and ethnicity were noted. Patients admitted to odd numbered rooms were assigned the intervention group. Patients in rooms with even numbers were the active control group.

### **Feasibility Analysis**

Well defined scope allowed for feasibility of this evidence-based practice pilot project. Study completion, analysis, and interpretation time frame were noted and listed in table format in Appendix J. Resources needed included office space with desk and computer technology, phone, copy machine, statistical software, two drop boxes with locks, and file cabinet with lock. All items were noted as previously obtained and remained in use by the project leader throughout the duration of the project.

Personnel needed beyond the primary investigator included patients as primary population sample and nursing staff as data collectors and implementers of the intervention. Nurses were noted as a secondary population sample. Statistician was needed for assurance of accuracy in data entry, analysis, and interpretation. Technology required for the project included MCW at the point of care, personal computer of primary investigator, and statistical software. The budget for project was noted as budget neutral, including time investment of the primary investigator and monies for survey copies and envelopes.

The implementation of the evidence-based practice project was determined to be budget neutral. The pilot intervention that increased patient perception of the caring environment may also increase patient satisfaction on organization score card, increasing reimbursement, and positively affecting overall, organization budget (CMS, 2015).

## **Evaluation, Analysis and Dissemination**

### **Design**

The project was designed as an evidence-based practice project. The project followed the Iowa Model flowchart (University of Iowa Hospitals and Clinics, 2015). Design was consistent with a pilot project and therefore utilized an unknown number of potential participants during a set thirty day time frame.

### **Methodology**

Focusing on the phenomenon associated with the nurse-patient dyad and the caring environment, this evidence-based practice project followed a quasi-experimental methodology for data collection and analysis where outcome of interest concentrated on

patient perception of the caring environment and the change MCW ergonomic use had on such patient perceptions. Objectives of the study were to examine patient perceptions of the caring environment where the use of MCWs was modified at the point of care to determine if differences existed in patient perception of the caring environment.

### **Sampling**

The primary population sample consisted of medical surgical patients. The secondary population sample was comprised of registered nurses. Both the primary and secondary samples were obtained from two medical surgical units. These units were from two separate hospitals within a multihospital system: primary sample N=122, secondary sample N=20.

### **Instrumentation**

Institutional Review Board of Record and the multihospital system Institutional Review Board approved the PPHEN tool with permission from Dr. Kitzman. The tool was used for data collection from the primary sample. A simple survey of three questions was used for the secondary sample of nurses as data collectors (Kitzman, 2015).

### **Data Collection**

Data points were collected using an anonymous survey instrument. The tools were numerically and color coded for analysis, secured with storage in locked file cabinet and password coded during electronic data entry. Access to files was limited to the project team consisting of project leader, statistician, and faculty advisor. Data points were not used for any other purpose than the pilot study. Data points will not be archived or publicly accessible. All data remain secured with password protected computer and password protected files until end of the three year retention period as required by federal

regulations (IRB, 2015). After the three year period expires, all hard copy data points will be shredded. All digital files will be deleted.

### Statistical Analysis

Pilot of this evidence-based practice project utilized the sample size available on two hospital units during a 30 day time period. Any missing data on PPHEN survey were cause for a participant to be excluded. Omitted demographics including age, gender, and ethnicity did not result in omission of PPHEN data from study (2012).

#### Primary Sample.

With a total combined 380 patients discharged from the two units during the 30 day data collection period, 32 % participated by handing in a survey with initial sample size N=122. Table One reveals that 46.7 % of patients surveyed were from hospital one and totaled fifty six patients. Hospital two contributed 52.5 % of patients surveyed and totaled sixty three patients. One survey was noted with missing PPHEN data, another was missing all data, and another with all variables noted as not applicable. Another survey was empty for control or intervention, turned in on white paper. Both the survey with all empty PPHEN and missing PPHEN data points were omitted.

Table 1 Sample by Hospital

		Hospital			Cumulative
		Frequency	Percent	Valid Percent	Percent
Valid	Hospital one	56	46.7	47.1	47.1
	Hospital two	63	52.5	52.9	100.0
	Total	119	99.2	100.0	
Missing	System	1	.8		
	Total	120	100.0		



The independent variable was defined as ergonomic use of MCW at the point of care. The two positions of use were defined as: (1) sitting at the patient bedside with MCW not physically positioned between the nurse and the patient, (2) standing with MCW physically between nurse and patient. These independent variables utilized nominal, dichotomous level measurement. Position one was noted as intervention. Position two as active control (Mateo & Foreman, 2013).

This random group assignment to the control group or intervention group is noted below in Table Two revealing 47.5 % of sample as control and 51.7 % as intervention.

Table 2 Sample by Group Assignment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Control Group	57	47.5	47.9	47.9
	Intervention Group	62	51.7	52.1	100.0
	Total	119	99.2	100.0	
Missing	System	1	.8		
Total		120	100.0		

Total number of sample is seen in Table Three with 120 valid participants, N=120 signifying omission of two surveys for missing PPHEN data. The number of valid participants in the control group equaled 57 and number of valid participants in the intervention group equaled 62. These combined equal one less than reported N due to one survey group assignment unknown.

Table 3 Sample Process Summary

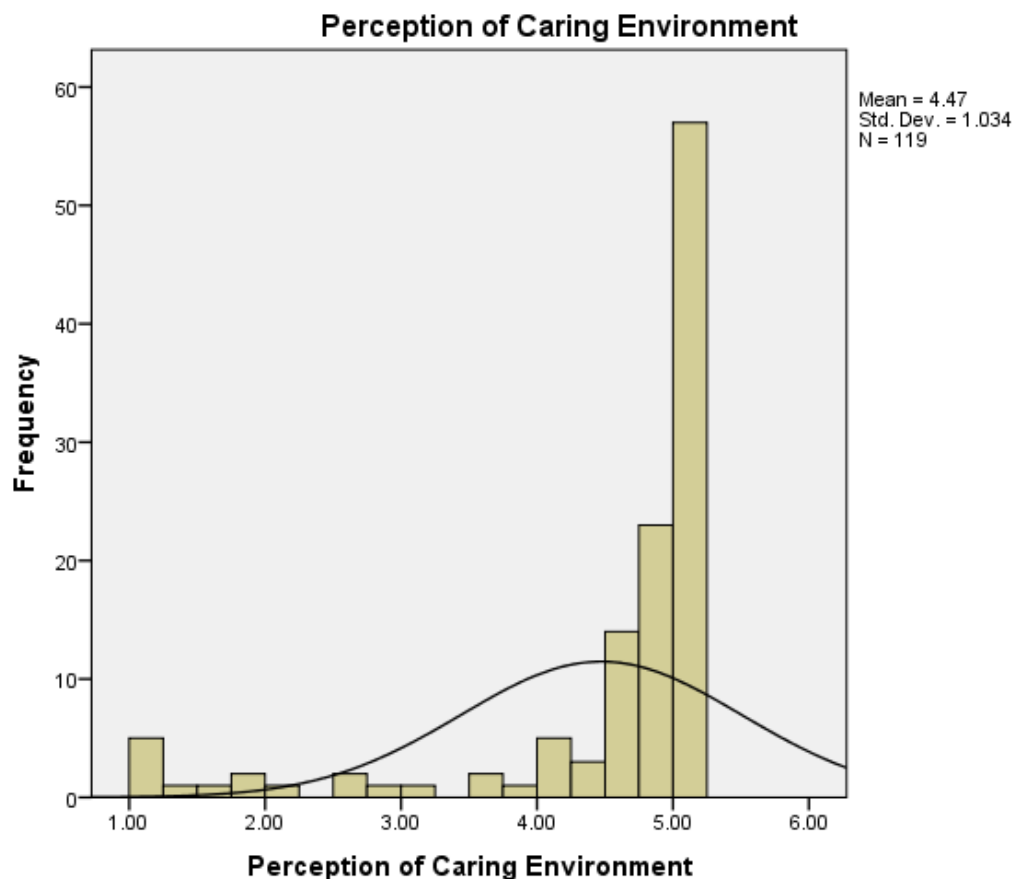
	Group_Assign ment	Cases					
		Valid		Missing		Total	
		N	Perce nt	N	Perce nt	N	Perce nt
Perception of Caring Environment	Control Group	56	98.2%	1	1.8%	57	100.0 %
	Intervention Group	62	100.0 %	0	0.0%	62	100.0 %

Statistical Package for the Social Sciences (SPSS, IBM, 2012) was used to analyze data and evaluate difference between groups. A statistician assisted with input, analysis, and reporting of all data. Generalization of the test results was limited as the normality of the scores combined revealed a positive skew questioning the normality assumption.

Although scores would decrease in normality with greater number of test participants, Figure One histogram denotes remarkable question to the assumption of normality.

However, the assumption of homogeneity of variance was assessed by the Levene test,  $F = .427, p = .515$ ;  $p$  being  $>.05$  allowed equal variation to be assumed. The normality assumption was tenable. Therefore the standard  $t$  test results were reported.

Figure One Perception of Caring Environment



An independent samples *t* test was performed to assess whether mean Perception of Caring Environment differed significantly between intervention and control groups. The mean perception of caring environment for the intervention group ( $M = 4.5083$ ,  $SD = .98618$ ) was .075850 higher than the mean perception of caring environment for the control group ( $M = 4.4325$ ,  $SD = 1.101792$ ). This is noted in Table Four and revealed that while the intervention group rated their perception of the caring environment higher than the control group, the mean difference in Perception of Caring Environment was not statistically significant,  $t(116) = -.395$ ,  $p = .694$ , two-tailed, where  $p > 0.05$  (Howell, 2011).

The effect size, difference between two population means, as indexed by  $\eta^2$ , was 0.001343236; this is a very small effect, suggesting a very small extent of difference in the means with only .13% of variance in the patient perception of the caring environment explained by ergonomic use of the MCW. The small effect size diminishes the power of the pilot study, where optimal power is noted at .08. The 95% confidence interval for the difference between sample means had a lower bound of -.456539 and an upper bound of .30484. This confidence interval established an estimation of the true population parameter based on the sample, noting a negative and positive parameter that is 95% likely to include the true population mean. These descriptive aspects supported exploration to reveal influence and impact of variables on levels of caring environment perceived by the patient (Mateo & Foreman, 2014).

Table 4 Group Statistics

	Group Assignment	N	Mean	Std. Deviation	Std. Error Mean
Perception of Caring Environment	Control Group	56	4.4325	1.10179	.14723
	Intervention Group	62	4.5083	.98618	.12525

With a sample size greater than 30, outliers were detected with interquartile ranges as noted with Turkey fences. Where extreme values were noted, typical values and variability were noted with median and interquartile range (Sullivan, 2012).

Regression analysis determined if differences in patient perception of caring environment existed among specific patient population groups of age, gender, or ethnicity (Howell, 2011). These test statistics were chosen, as two comparison groups exist and sample was chosen with unknowns of population. Omission of demographic data was

not cause for omission of survey. Therefore, N for each variable related to demographic variable is noted, expressing the number of participants choosing to report that particular demographic as representative of self. Sample reported for demographics may be less than the total sample.

In order to examine the effect of the demographic variables to the perception of caring environment, three separate multiple regressions were conducted with dummy coded variables. Three separate regressions were accomplished as this better demonstrates each level of the distinct demographic variables.

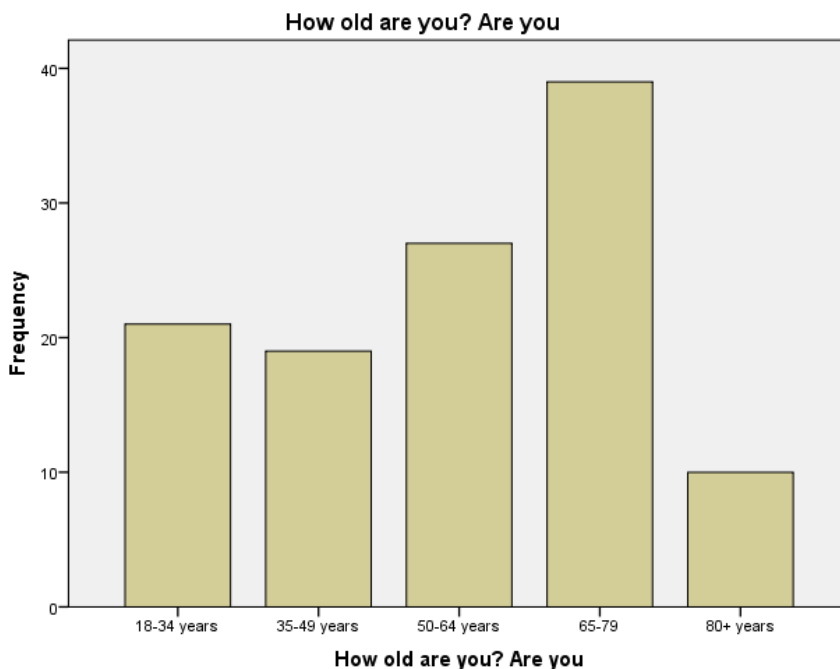
The variable of age is noted in Table Five. A total of 116 participants revealed their age. 33.6% of the sample was between the ages of 65 and 79, 23.3% were between 50 and 64 years old, 18.1% of the participants were between 18 and 34 years, 16.4% of participants were between 35 and 49 years old and the smallest percentage of the sample, 8.6% were 80 years old or older.

Table 5 Age of Patient Participants

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-34 years	21	17.5	18.1	18.1
	35-49 years	19	15.8	16.4	34.5
	50-64 years	27	22.5	23.3	57.8
	65-79	39	32.5	33.6	91.4
	80+ years	10	8.3	8.6	100.0
	Total	116	96.7	100.0	
Missing	System	4	3.3		
	Total	120	100.0		

The bar graph seen in Figure Two allows visualization of the sample by age and further denotes the age group most represented being that of the 65-79 year old age group. The least represented age group, those 80 years and older.

Figure 2 Bar Graph Age of Participants



The overall regression equation with Age as predictor, noted in Table Six, did not significantly predict Perception of Caring Environment;  $R = .201$ ,  $R^2 = .040$ , adjusted  $R^2 = .005$ ,  $F(4, 110) = 1.157$ ,  $p = .334$ , as  $p$  value is  $>.05$ . The following regression equation was generated:

Perception of Caring Environment =  $4.611 - .273$  (Age 18-34) +  $.118$  (Age 35-49) -  $.340$  (Age 50-64) +  $.062$  (Age 65-79) with the constant term, 4.611, representing the mean Perception of Caring Environment of the group Age 80+.

The  $b$  coefficients reveal that if a patient is age 80+, he/she is more likely to score 4.611 on Perception of Caring Environment. Each predictor term represents the  $b$

coefficients for their respective age groups compared to those 80+. If a patient is between ages 18-34 ( $p = .453$ ), or between ages 50-64 ( $p = .336$ ), he/she is more likely to report a slightly lower score on Perception of Caring Environment when compared to the group Age 80+. The correlations were not statistically significant.

If a patient is between ages 35-49 ( $p = .749$ ), or 65-79 ( $p = .854$ ) he/she is more likely to report a slightly higher score on Perception of Caring Environment when compared to the group Age 80+. The correlations here were also not statistically significant. The predictors for Age only account for 4% of variance of Perception of Caring Environment, which indicated a small effect size.

Table 6 Regression for Age Demographic

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.132	4	1.033	1.157	.334 <sup>b</sup>
	Residual	98.228	110	.893		
	Total	102.360	114			

a. Dependent Variable: Perception of Caring Environment

b. Predictors: (Constant), Age\_65\_79, Age\_35\_49, Age\_18\_34, Age\_50\_64

Gender was reported by only 117 participants. Table Seven revealed 56.4 % of participants as female, with 43.6 % as male. This slightly higher female population was further depicted in the bar graph noted in Figure Three.

Table 7 Gender Frequency

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	51	42.5	43.6	43.6
	Female	66	55.0	56.4	100.0
	Total	117	97.5	100.0	
Missing	System	3	2.5		
Total		120	100.0		

Figure 3 Bar Graph of Gender



The constant term, 4.428, was represented in Table Eight as the mean Perception of Caring Environment of the group Female. Perception of Caring Environment = 4.428 + .152 (Male). Although a patient who is male is more likely to report a slightly higher perception of the caring environment, the overall regression equation with Male as a predictor did not significantly predict Perception of Caring Environment;  $R = .076$ ,  $R^2 =$



.006, adjusted  $R^2 = -.003$ ,  $F(1, 114) = .657$ ,  $p = .419$ . Gender only accounted for .6% of variance of Perception of Caring Environment. This was a small effect size.

Table 8 Gender Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	4.428	.124		35.694	.000			
	Male	.152	.187	.076	.810	.419	.076	.076	.076

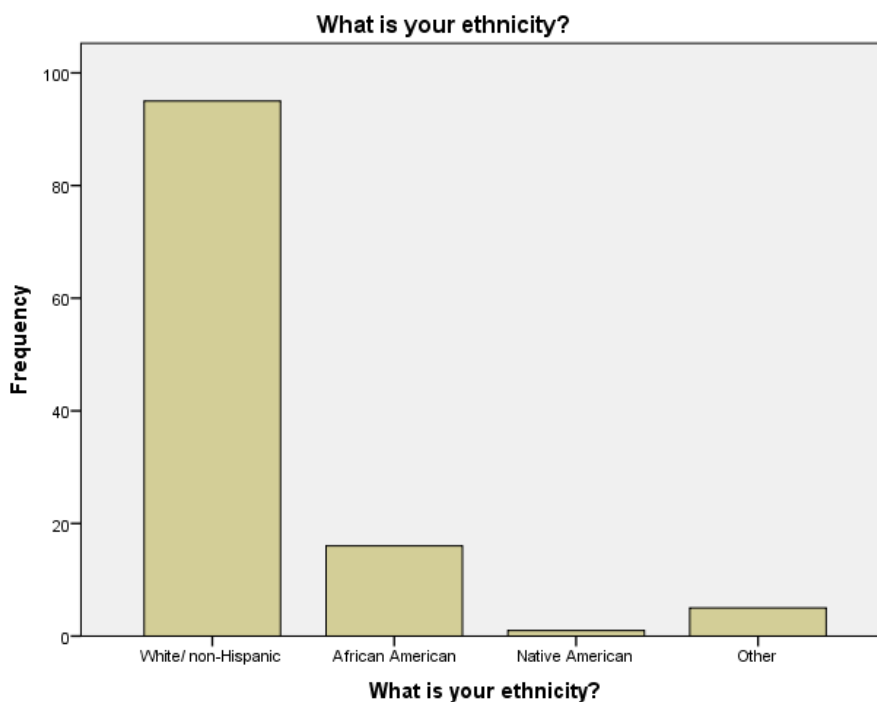
a. Dependent Variable: Perception of Caring Environment

Ethnicity was the third demographic data point analyzed. Table Nine revealed descriptive statistics of 117 participants who reported their ethnicity. An overall 81.2 % conveyed ethnicity of White/non-Hispanic, 13.7 percent reported as African American, 0.9 % stated ethnicity as Native American, and 4.3 reported as *Other*. It is remarkable that there was no term or category represented for Asian and Pacific Islanders due to the fact that no one reported that option. With no report in that category, SPSS automatically excluded that particular category. Frequencies for ethnicity were recognized as skewed and further display by the bar graph seen in Figure Four.

Table 9 Ethnicity Frequency

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	White/ non-Hispanic	95	79.2	81.2	81.2
	African American	16	13.3	13.7	94.9
	Native American	1	.8	.9	95.7
	Other	5	4.2	4.3	100.0
	Total	117	97.5	100.0	
Missing	System	3	2.5		
Total		120	100.0		

Figure 4 Bar Graph of Ethnicity



If a patient identified as *Other*, he/she was more likely to score 4.923 on Perception of Caring Environment. This is seen as the constant of Table Ten. Therefore, the constant term, 4.923, represented the mean Perception of Caring Environment of the group *Other*. Each predictor term represented the b coefficients for their respective ethnicity.

Table 10 Ethnicity Coefficients

		Coefficients <sup>a</sup>							
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	4.923	.450		10.939	.000			
	White	-.451	.462	-.178	-.977	.331	-.046	-.092	-.092
	African_American	-.464	.516	-.161	-.899	.371	-.014	-.085	-.084
	Native_American	.077	1.102	.007	.070	.944	.047	.007	.007

a. Dependent Variable: Perception of Caring Environment

The overall regression equation with Ethnicity groups as predictors did not significantly predict Perception of Caring Environment;  $R = .104$ ,  $R^2 = .011$ , adjusted  $R^2 = -.016$ ,  $F(3, 112) = .408$ ,  $p = .747$ , Perception of Caring Environment =  $4.923 - .451$  (White/non-Hispanic) -  $.464$  (African American) +  $.077$  (Native American).

Interpretations of each b coefficient exposed that if a patient identified as a White/non-Hispanic, he/she was more likely to report a slightly lower score on Perception of Caring Environment when compared to the group *Other*. However, the decrease was not statistically significant,  $p = .331$ . If a patient identified as an African American, he/she was more likely to report a slightly lower score on Perception of Caring Environment when compared to the group *Other* but again, the decrease was not statistically significant,  $p = .371$ . On the other hand, if a patient identified as a Native American, he/she was more likely to report a slightly higher score on Perception of Caring Environment when compared to the group *Other*. This increase was not statistically significant,  $p = .944$ . Ethnicity only accounted for 1.1% of variance of Perception of Caring Environment. This was noted as a small effect size.

### **Secondary Sample.**

Staff nurses were surveyed as secondary population data collectors. All twenty nurses attending the staff meetings post data collection period received a survey, and all nurses anonymously returned the survey. Table Eleven depicted the descriptive statistics for this sample where 50 % were noted from each participating hospital unit.

Table 11 Nurses as Secondary Sample

		Hospital			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Hospital one	10	50.0	50.0	50.0
	Hospital two	10	50.0	50.0	100.0
	Total	20	100.0	100.0	

Simple survey to nurses post data collection period sought to understand the second sample perception of the intervention. Missing data from nurse survey did not equate omission of survey from sample. Each question was analyzed for frequency alone. Question one results were noted in Table Twelve revealing that 65 % of the twenty nurses agreed that movement of the MCW to never physically come between the nurse and the patient alone increased communication between the dyad.

Table 12 Nurse Survey Question One

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	13	65.0	65.0	65.0
	Somewhat agree	2	10.0	10.0	75.0
	Undecided	3	15.0	15.0	90.0
	Strongly disagree	2	10.0	10.0	100.0
	Total	20	100.0	100.0	

Question two outcomes revealed in Table Thirteen show that 65% of nurses surveyed agreed that ergonomic positioning to lower themselves to eye level while not allowing the MCW physically between the nurse and the patient allowed for better connection among the dyad.

Table 13 Nurse Survey Question Two

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Agree	13	65.0	65.0	65.0
Somewhat agree	4	20.0	20.0	85.0
Undecided	2	10.0	10.0	95.0
Strongly disagree	1	5.0	5.0	100.0
Total	20	100.0	100.0	

Question three of the nurse survey asked if altered ergonomic use of the MCW allowed for increase in patient-centered care. These results, depicted in Table Fourteen, report 22.2 % of the nurses remained undecided, while 61.1 % agree that altered ergonomic use of the MCW allowed for increased patient-centered care.

Table 14 Nurse Survey Question Three

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Agree	11	55.0	61.1	61.1
Somewhat agree	2	10.0	11.1	72.2
Undecided	4	20.0	22.2	94.4
Somewhat disagree	1	5.0	5.6	100.0
Total	18	90.0	100.0	
Missing System	2	10.0		
Total	20	100.0		

The Consolidated Framework for Implementation Research (CFIR) is the evaluation methodology for this pilot project. With consideration for setting, delivery, organizational as well as individual interface, this tool was chosen for its sensitivity to setting history, resources, and implementation of intervention (Damschroder, 2009). The CFIR evaluation method promoted, “understanding [of] potential influences on implementation [and] comprises common constructs from published implementation theories” (Brownson, Colditz & Proctor, 2012, p. 336). Evaluation included five domains including, “intervention, inner and outer settings, and individuals involved, and the process by which implementation is accomplished” (2012, p. 336). Evaluation was ongoing throughout the project with integrated evaluation activities extending from pre-dissemination and implementation through post implementation dissemination of findings (2012).

### **Significance and Implications**

Outcomes of this project evaluated individual actions of healthcare professionals surrounding ergonomic use of MCWs that can be used to drive practice improvements (Moran, Burson & Conrad, 2014). At the local level, increased understanding of patient perceptions of the caring environment (Papastavrou, Efstathiou & Charalambous, 2011) where mobile computer workstations are used at the point of care and increased knowledge of the difference between ergonomic use of a mobile computer workstation and patient perception of the caring environment were obtained.

Medical surgical units where the project was piloted may utilize the project data to promote a practice change of interventional ergonomic use of MCWs at the point of care. Organizational implications based on the pilot project occurring on two units, may

include pilot of practice change to all medical surgical units for statistical significance. Although limitations were noted with sample size, effect size and inability to remove variables associated with nurse personality, the outcomes have the potential for local, organizational impact. Patient perceptions of the caring environment, now increasingly understood, have the potential to positively affect patient satisfaction score card outcomes.

Increased understanding of gender, ethnicity, and age demographics on perception of the caring environment where MCWs are utilized offers increased opportunity for patient-centeredness in target population segments. This pilot study's documented data showed that MCW use where the nurse does not allow the MCW to come between nurse and patient and where the nurse sits at the patient bedside does in fact increase patient perception of the caring environment. Implemented at the point of care at little to no cost to the nurse, patient, or organization this information can be used to increase patient-centered care. Increased patient satisfaction will positively influence organizational reimbursement (CMS, 2015). Replication of the pilot project to all medical surgical units within the healthcare system is suggested as more study is needed with greater sample size to increase effect of information gained.

Improvement in patient perception of the caring environment was seen with altered ergonomic use of the MCW. In addition, 61.1 % of nurses surveyed agreed that these actions purposefully implemented towards the preservation of perceived caring within the nurse-patient dyad allowed for increased patient-centered care. Documented, local, organizational impact associated with the IOM (2008) call for continued increase in the use of technology at the point of care may support further technology adoption along

with policy for ergonomic use of such technology at the point of care; technology that not only increases safety, efficacy, and quality but does so with documented allowance for increase in the preservation of holistic nursing among the nurse-patient dyad where caring is perceived.



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Watson, J. (2008). *Nursing: The philosophy and science of caring* (Rev. ed.). Boulder, CO: Springer.

## Appendix A

Permission for use: Iowa Model of Evidence-based Practice to Promote Quality Care

**From:** [REDACTED]

**Sent:** Tuesday, December 10, 2013 12:48 PM

**To:** [REDACTED] Nursing) [REDACTED]

**Subject:** Permission to Use and/or Reproduce The Iowa Model

You have permission, as requested today, to review/use *The Iowa Model of Evidence-Based Practice to Promote Quality Care (Titler et al., 2001)*. Copyright of the Iowa Model of Evidence-Based Practice to Promote Quality Care will be retained by The University of Iowa Hospitals and Clinics.

Permission is not granted for placing the Iowa Model on the internet (world-wide web).

**From:** [REDACTED] - [University of Iowa Hospitals and Clinics](#)  
**To:** [Miller, Kathryn M \(School of Nursing Admin\)](#)  
**Subject:** Permission to Use and/or Reproduce The Iowa Model (1998)  
**Date:** Tuesday, June 07, 2016 10:23:30 AM

You have permission, as requested today, to review/use the 1998 *Iowa Model of Evidence-Based Practice to Promote Quality Care (Titler et al., 2001)*. Copyright of *The Iowa Model of Evidence-Based Practice to Promote Quality Care* will be retained by The University of Iowa Hospitals and Clinics. Click the link below to open the model.

**Permission is not granted for placing the Iowa Model on the internet.**

[The Iowa Model- 1998](#)

- *Used/Reprinted with permission from the University of Iowa Hospitals and Clinics. Copyright 1998. For permission to use or reproduce the model, please contact the University of Iowa Hospitals and Clinics at (319)384-9098.*

If you have questions, please contact [REDACTED]

## Appendix B

The Liberty University Institutional Review Board  
Has approved this document for use from 2/1/16 to -----  
Protocol # 2395.020116

### **Research Study Information Sheet** **Kathryn Miller MSN, RN, CNE, CHSE is conducting this** **project as a Doctor of Nursing Practice program requirement**

You are invited to be in a research study of patient perceptions on the caring environment. You were selected as a possible participant because you were admitted to one of the multiple hospitals chosen as sites for the study. I ask that you read this form and ask any questions you may have before agreeing to be in the study. The purpose of this study is to further understand patient perceptions of the caring environment within a hospital. If you agree to be in this study, I would ask you to complete the attached 15 question survey, seal it in the provided envelope, and return it to the volunteer as you are discharged from the hospital. Answering the questions should take about five minutes.

The information is anonymous. Your name will not be on the questionnaire. We will not be able to track the information back to you. Risks associated with participating in the study are no more than the participant would encounter in everyday life. Participants will not receive direct benefits, but there may be a benefit to society.

You will receive no payment or compensation for taking part in this study. The records of this study will be kept private. In any sort of report I might publish, I will not include any information that will make it possible to identify a subject. Research records will be stored securely and only the researcher will have access to the records. Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relationship with this hospital system or Liberty University. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting your care or caring relationships within the hospital system.

You may ask any questions you have now. If you have questions later, you are encouraged to contact the researcher at [REDACTED]. If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), you are encouraged to contact the Institutional Review Board,  
[REDACTED]

## Appendix C

The Liberty University Institutional Review Board  
has approved this document for use from 2/1/16 to -----  
Protocol # 2395.020116

### **Research Study Information Sheet** **Kathryn Miller MSN, RN, CNE, CHSE is conducting this** **project as a Doctor of Nursing Practice program requirement**

You are invited to be in a research study of patient perceptions on the caring environment. You were selected as a possible participant because you are a registered nurse on a medical surgical unit where mobile computer workstations are used at the point of care in one of the multiple hospitals chosen as sites for the study. I ask that you read this form and ask any questions you may have before agreeing to be in the study. The purpose of this study is to further understand patient perceptions of the caring environment within a hospital. If you agree to be in this study, I would ask you to complete the attached 3 question anonymous survey, seal it in the provided envelope, and return the envelope to the locked box in the nursing station at the end of this staff meeting. Answering the questions should take about five minutes.

The information is anonymous. Your name will not be on the questionnaire. We will not be able to track the information back to you. Risks associated with participating in the study are no more than the participant would encounter in everyday life. Participants will not receive direct benefits, but there may be a benefit to society.

You will receive no payment or compensation for taking part in this study. The records of this study will be kept private. In any sort of report I might publish, I will not include any information that will make it possible to identify a subject. Research records will be stored securely and only the researcher will have access to the records. Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relationship with this hospital system or Liberty University. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting your care or caring relationships within the hospital system.

You may ask any questions you have now. If you have questions later, you are encouraged to contact the researcher at [REDACTED]. If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), you are encouraged to contact the Institutional Review Board, [REDACTED]

[REDACTED]



## Appendix D

### Simple Survey for Staff Nurses

To what degree do you agree with these statements?

1=Agree; 2=Somewhat agree; 3=Undecided; 4=Somewhat disagree; 5= Strongly disagree

1. Moving the mobile computer workstation to never physically come between myself and my patient increased communication with my patient.

1 2 3 4 5

2. Sitting at eye level to communicate with my patient without the mobile computer workstation physically between myself and my patient allowed me to better connect with my patient.

1 2 3 4 5

3. Alternating ergonomic use of the mobile computer workstation allowed for increase in patient-centered care.

1 2 3 4 5

**Appendix E****Permission for use memo: Patient Perception of Hospital Experience with Nursing****From:** [REDACTED]**Sent:** Tuesday, August 18, 2015 10:03 AM**To:** Miller, Kathryn M (School of Nursing Admin)**Subject:** Re: request permission for use PPHEN tool

Thank you for asking. Please feel free to utilize. It has worked out well for many projects and I think will serve you well. [REDACTED]

---

**From:** [REDACTED]**Sent:** Monday, August 17, 2015 10:16 PM**To:** [REDACTED]**Subject:** request permission for use\_PPHEN tool

[REDACTED] I am writing as a Doctor of Nursing Practice (DNP) student at Liberty University to request permission for the use of your Patient Perception of Hospital Experience with Nursing (PPHEN) tool for use in my DNP evidence-based practice dissemination and implementation research.

I look forward to hearing from you and further discussing the use of your tool.

**Kathryn Miller MSN, RN, CNE, CHSE**

[REDACTED]

## Appendix F

### COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM) COURSEWORK REQUIREMENTS REPORT\*

\* NOTE: Scores on this Requirements Report reflect quiz completions at the time all requirements for the course were met. See list below for details. See separate Transcript Report for more recent quiz scores, including those on optional (supplemental) course elements.

- Name:
- Email:
- Institution Affiliation:
- Institution Unit:
- Phone:



- Curriculum Group: Human subject - Basic
- Course Learner Group: Nursing
- Itgs: Stage 1 - Basic Course
- Description: This course is appropriate for students doing class projects that qualify as 'No More Than Minimal Risk' human subjects research.

- Report ID: 14193258
- Completion Date: 08/18/2015
- Expiration Date: 08/17/2015
- Minimum Passing: 80
- Reported Score\*: 95

REQUIRED AND ELECTIVE MODULES ONLY	DATE COMPLETED	SCORE
Data Management (RCR-Basic) (ID: 16600)	12/05/14	5/5 (100%)
Unanticipated Problems and Reporting Requirements in Social and Behavioral Research (ID: 14828)	09/30/14	3/3 (100%)
Liberty University (ID: 15111)	09/30/14	No Quiz
Belmont Report and CITI Course Introduction (ID: 1127)	09/30/14	3/3 (100%)
History and Ethical Principles - SBE (ID: 490)	09/30/14	5/5 (100%)
Defining Research with Human Subjects - SBE (ID: 491)	12/05/14	5/5 (100%)
The Federal Regulations - SBE (ID: 502)	12/05/14	5/5 (100%)
Assessing Risk - SBE (ID: 503)	12/05/14	5/5 (100%)
Informed Consent - SBE (ID: 504)	12/05/14	5/5 (100%)
Privacy and Confidentiality - SBE (ID: 505)	12/05/14	5/5 (100%)
Records-Based Research (ID: 5)	08/18/15	3/3 (100%)
Populations in Research Requiring Additional Considerations and/or Protections (ID: 16690)	08/18/15	4/5 (80%)
Vulnerable Subjects - Research Involving Prisoners (ID: 8)	08/18/15	4/4 (100%)
Vulnerable Subjects - Research Involving Children (ID: 9)	08/18/15	3/3 (100%)
Vulnerable Subjects - Research Involving Pregnant Women, Human Fetuses, and Neonates (ID: 10)	08/18/15	3/3 (100%)
Research and HIPAA Privacy Protections (ID: 14)	08/18/15	4/5 (80%)
Vulnerable Subjects - Research Involving Workers/Employees (ID: 483)	08/18/15	4/4 (100%)
Conflicts of Interest in Research Involving Human Subjects (ID: 488)	08/18/15	3/5 (60%)

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid independent learner.



**Appendix G**

**Provisional Letter of Support**

Institutional Review Board

Liberty University

September 24, 2015

[REDACTED]

Institutional Review Board,

I am writing this in support of Kathryn Miller, DNP student, to conduct a research project on the [REDACTED] [REDACTED] Ms. Miller's study will examine medical surgical patients admitted to units where mobile computerized workstations are used. The question asked is "will ergonomic use of the mobile computerized workstation at the bedside during assessment charting compared to current use of mobile computer workstation during assessment charting improve patient perception of the caring environment?"

As the [REDACTED] I support provisional support for this study to be conducted here.

Please let me know if you have any questions.

Regards,

[REDACTED]

[REDACTED]

## Appendix H

### Liberty University Institutional Review Board Exemption

# LIBERTY UNIVERSITY

## INSTITUTIONAL REVIEW BOARD

February 1, 2016

Kathryn Miller MSN, RN, CNE, CHSE  
IRB Exemption 2395.020116: Patient Perception of the Caring Environment

Dear Kathryn,

The Liberty University Institutional Review Board has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study to be exempt from further IRB review. This means you may begin your research with the data safeguarding methods mentioned in your approved application, and no further IRB oversight is required.

Your study falls under exemption category 46.101(b)(2), which identifies specific situations in which human participants research is exempt from the policy set forth in 45 CFR 46:101(b):

- (2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless:
- (i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and
  - (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

Please note that this exemption only applies to your current research application, and any changes to your protocol must be reported to the Liberty IRB for verification of continued exemption status. You may report these changes by submitting a change in protocol form or a new application to the IRB and referencing the above IRB Exemption number.

If you have any questions about this exemption or need assistance in determining whether possible changes to your protocol would change your exemption status, please email us at [REDACTED]

Sincerely,

[REDACTED]

**LIBERTY**  
UNIVERSITY,  
*Liberty University | Training Champions for Christ since 1971*

## Appendix I

[REDACTED] Institutional Review Board Approval

[REDACTED] Institutional Review Board  
EXEMPT RESEARCH CHECKLIST  
 Version 3, 21APR2015

[REDACTED] CHIRB 0311e  
 IRB of Record Liberty University  
 Date: 2.4.2016

**EXEMPT**  
 Date: 2-9-16

Facility: [REDACTED]

Principal Investigator: Kathryn Miller MSN, RN, CNE, CHSE

Email address: [REDACTED]

Phone number: [REDACTED]

Title of Research Project/Study Title: PATIENT PERCEPTION OF THE CARING ENVIRONMENT

Attach documents related to the study.

Checklist Statements	True	Not True
<b>Category 1 – For Educational Settings</b>		
1. The research will only be conducted in established or commonly-accepted educational settings including but not limited to schools and colleges. (May include other sites where educational activities regularly occur.)	<u>N/A</u>	
2. The research will involve only normal educational practices, such as (i) research on regular and special education instructional strategies, or (ii) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.	<u>N/A</u>	
3. The research will not involve individuals as participants who are known to be prisoners.	<u>N/A</u>	
4. The research is not subject to FDA regulations.	<u>N/A</u>	
<b>Category 2 – For Educational Tests, Surveys, Interviews, Public Behavior Observation:</b>		
5. The research will involve only the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior.	<u>True</u>	
<i>Address statement 6 only if the research will involve children as participants. If children will NOT participate, check N/A and continue with statement 7.</i>	<u>N/A</u>	
6. The procedures will be limited to the use of educational tests (cognitive, diagnostic, aptitude, achievement) or observation of public behavior where the investigator will NOT participate in the activities being observed.		
7. The information obtained from educational tests, survey procedures, interview procedures or observation of public behavior will be recorded in such a manner that human subjects CANNOT be identified, directly or through identifiers linked to the subjects. <i>“True” to either statement 7 or 8 will qualify for exemption provided that statements 9 and 10 are true.</i>	<u>True</u>	
8. Any disclosure of the human subjects’ responses outside the research could NOT reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects’ financial standing, employability, or reputation.	<u>True</u>	
9. The research will <u>not</u> involve individuals as participants who are known to be prisoners.	<u>True</u>	
10. The research is not subject to FDA regulations.	<u>True</u>	

<b>Category 3 – For Educational Tests, Surveys, Interviews, Public Behavior Observation of Public Officials:</b>		
11. The research will involve only the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior AND the human subjects are elected or appointed public officials or candidates for public office. (Applies to senior officials such as mayor or school superintendent rather than a police officer or teacher.) <i>"True" to either statement 11 or 12 will qualify for exemption provided that statements 13 and 14 are true.</i>	N/A	
12. The research will involve only the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior AND federal statute(s) require without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter.	N/A	
13. The research will <u>not</u> involve individuals as participants who are known to be prisoners.	N/A	
14. The research is not subject to FDA regulations.		
<b>Category 4 – For Existing Data, Documents and Specimens:</b>		
15. The research will involve only the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens. ("Existing" means existing before the research is proposed to the IRB to determine whether the research is exempt. All materials to be reviewed currently exist at the time of this exemption request.)	N/A	
16. The sources of the existing data, documents, records or specimens are publicly available <b>OR</b> the information will be recorded by the investigator in such a manner that participants cannot be readily identified either directly or through identifiers (such as a code) linked to them.	N/A	
17. The research will <u>not</u> involve individuals as participants who are known to be prisoners.	N/A	
18. The research is not subject to FDA regulations.	N/A	
<b>Category 5 – For Public Benefit or Service Programs (Federal):</b>		
19. The project is a research or demonstration project conducted by or subject to the approval of a (federal) Department or Agency head and which is designed to study, evaluate, or otherwise examine: (i) public benefit or service programs; (ii) procedures for obtaining benefits or services under those programs; (iii) possible changes in or alternatives to those programs or procedures; or (iv) possible changes in methods or levels of payment for benefits or services under those public benefit or service programs.	N/A	
20. The research will <u>not</u> involve individuals as participants who are known to be prisoners.	N/A	
21. The research is not subject to FDA regulations.	N/A	
22. The program under study delivers a public benefit (e.g., financial or medical benefits as provided under the Social Security Act) or service (e.g., social, supportive, or nutrition services as provided under the Older Americans Act).	N/A	
23. The research or demonstration project will be conducted pursuant to specific federal statutory authority.	N/A	
24. There is no statutory requirement that the project be reviewed by an IRB.	N/A	
25. The project does not involve significant physical invasions or intrusions upon the privacy of participants.	N/A	
26. The exemption has authorization or concurrence by the funding agency.	N/A	
<b>Category 6 – For Taste and Food Quality and Consumer Acceptance Studies:</b>		
27. The research involved only a taste and food quality evaluations or a food consumer acceptance study in which (i) wholesome foods without additives will be consumed <b>OR</b> (ii) food will be consumed that contains a food ingredient, agricultural chemical or environmental contaminant that is at or below the level found to be safe by the Food and Drug Administration or is approved by the	N/A	

Environmental Protection Agency or the Food Safety and Inspection Service of the U.S. Department of Agriculture.		
28. The research will <u>not</u> involve individuals as participants who are known to be prisoners.	N/A	
<b>Emergency Use of an Unapproved Test Article (i.e., a drug, device or biologic that is not FDA-Approved)</b>		
The activity involves emergency use of an investigational drug, device or biologic. Such an activity is not exempt from IRB review. However, this emergency use may occur prior to IRB review and approval (see Category A and B in the Emergency Use Policy for details.) Note that such an emergency use must be reported to the IRB within five business days.	N/A	
The activity does not meet with DHHS definition of "research."	N/A	
<b>Criteria that must be met for the research to be determined to be consistent with IRB ethical standards</b>		
The research holds out no more than minimal risk to subjects.	True	
Selection of subjects is equitable.	True	
If there is recording of identifiable information, there are adequate provisions to maintain the confidentiality of the data.	True	
If there are interactions with subjects:  There will be a consent process (and maybe some type of documentation) that will disclose such information as: <ul style="list-style-type: none"> <li>• That the activities involve research.</li> <li>• The procedures to be performed.</li> <li>• That participation is voluntary.</li> <li>• Name and contact information for the investigator.</li> </ul>	True	
There are adequate provisions to maintain the privacy interests of subjects.	True	

Signature of Principal Investigator: \_\_\_\_\_ [Redacted]

Typing my name on the line above constitutes an electronic signature.

Printed Name \_\_\_\_\_ [Redacted]

Date 2.4.2016

**FOR THE IRB REVIEWER ONLY:**

Is the activity exempt? YES  NO  [ ]

Does the research meet the standards of ethical conduct? YES  NO [ ]

Which exemption category or categories apply to the activity? Category 2

Approved by IRB (date): \_\_\_\_\_

Signature of IRB Reviewer: \_\_\_\_\_ [Redacted]

Typing my name on

Printed Name \_\_\_\_\_ [Redacted]

[Redacted]



**Appendix J**

**Work Plan Template**

<b>Action Steps</b> <i>What Will Be Done?</i>	<b>Responsibilities</b>	<b>Timeline</b> <i>By When?</i> <i>(Day/Month)</i>	<b>Resources</b> A. <i>Resources Available</i> B. <i>Resources Needed</i> 65 <i>(financial, human, political &amp; other)</i>	<b>Potential Barriers</b> A. <i>What individuals or organizations might resist?</i> B. <i>How?</i>	<b>Communications Plan</b> <i>Who is involved?</i> <i>What methods?</i> <i>How often?</i>
<b>Step 1:</b> Negotiate Scholarly Project committee	<u>K.M.-negotiate and request C.G. as chair, D.M. as first reader and D.L. as second reader</u> Send each member a copy of initial proposal via email. Send form for signature Upload completed form with signatures to A.R.	-By end of May, 2015	A. DNP faculty advisor  B. DNP administrative chair	A. knowledge of credentials required B. Availability of potential committee members	-Meet with DNP administrative chair once for clarification of committee requirements - Meet with advisor for input - Meet with each potential member
<b>Step 2:</b> Complete Collaborative Institutional Training Initiative (CIII) tu torial training	<u>K.M.-complete basic modules of CIII training and upload certificate of completion to Nurs 839</u>	-Week Three of Nurs 839 (September 13, 2015)	A. CIII training modules online  B. Black board upload	A. No barriers identified	- Communication of completion in form of CIII training certificate of completion uploaded to assignment link of Week Three Black board, Nurs 839 once
<b>Step 3:</b> Written Proposal to Chair	<u>K.M.- Written proposal emailed to Chair</u>	-By September 20, 2015	A. Email available	A. Time constraints related to Nurs 839 intensive and CCNE site visit  B. Access to process engineering at Centra for statistical overview of proposed methodology	-Communication with Chair via email as requested by Chair

			B. Statistician needed for confirmation of correct test named in methodology		
Step 4: Written Proposal approved by chair sent to committee members	<u>Chair- review and corrections sent to K.M.</u> <u>K.M. – Correct proposal for dissemination to committee</u>	-By September 30, 2015	A. Email available  B. Outside reader for peer review needed prior to sending to committee	A. Time constraints of chair and committee and reader	-Communication with Chair via email as requested by Chair  -Communication with committee as needed
Step 5: Comments Received by Committee and Corrections made	<u>Chair-Comments emailed to K.M.</u> <u>Co-chair- Comments emailed to K.M.</u> <u>Reader- Comments emailed K.M.</u> <u>K.M.- Feedback received from each of the three committee members will be received and act as catalyst for corrections to be made</u>	-By October 12, 2015	A. Email available  B. Outside reader for peer review needed prior to sending revised copy to committee	A. Receipt of committee correction identified by set time frame	-Communication with Chair via email as requested by Chair  -Communication with committee as needed

<p><b>Step 6:</b> Oral Defense</p>	<p><u>K.M.- Send copy of proposal and ppt. to committee along with DNP Scholarly Project Defense Announcement Template (p171 of handbook)</u></p>	<p>-Week of October 19, 2016</p>	<p>A. Email available  B. Information Technology (IT) support for ppt. delivery</p>	<p>A. Availability of committee  B. Availability of IT support</p>	<p>-Communication with Chair via email as requested by Chair  -Communication with committee as needed  -Communication of acceptance or conditional acceptance with revisions via the DNP Scholarly Project Proposal/ Final Project /Presentation Evaluation Tool Evidence-based Practice/Process Improvement (p.165 of handbook)</p>
<p><b>Step 7:</b> IRB Submission</p>	<p><u>K.M.- scan all documents, including permissions and Provisional letter from Centra upload and email to <a href="mailto:irb@liberty.edu">irb@liberty.edu</a></u></p>	<p>-November</p>	<p>A. IRB contact person-LU.- [REDACTED]  B. IRB, research council – Centra</p>	<p>A. Liberty University IRB meeting schedule may delay  B. Centra LGH, BMH must supply provisional letter to accompany initial LU IRB submission. Delay in this provisional letter will delay IRB</p>	<p>-Communication to IRB via email link for questions, continual support during submission process and followup  -Communication to Centra administration for provisional letter via email and in person</p>

<p><b>Step 8:</b> Intervention and Data collection</p>	<p><u>K.M.- plan and train unit staff related to intervention and CITI principles, place lock box for surveys on each unit, label each room with color specific to control or intervention, print surveys and envelopes and place on units with discharge packages</u></p>	<p>-January- April</p>	<p>A. CLGH and CBMH unit managers (UM), staff nurses and discharge volunteers  B. CITI training ppt. printables needed  C. Lock box (3) needed</p>	<p>A. CLGH and CBMH unit managers, staff and volunteers may delay process if staff meetings are scheduled at differing dates/times  B. Data collection is limited to inclusion in discharge package to patient  C. Data collection is limited to patient completion of survey prior to discharge and deposit in lock box on unit at nursing station</p>	<p>- Communication of intervention structure, process and outcome measure will be disseminated to staff, UM and volunteers along with CITI training at staff meetings per unit  -Bi-Weekly, and weekend multishift communication rounding on unit sites for project support during first two months of data collection</p>
<p><b>Step 9:</b> Data analysis, correlation and synthesis</p>	<p><u>K.M.- Collection of survey boxes (3) from units Input of data to SPSS under supervision of statistician, Correlation of data and synthesis of data with statistician</u></p>	<p>-April</p>	<p>A. Statistical Package for the Social Sciences (SPSS)  B. Statistician (Chi) and process engineer at Central (A.L.)</p>	<p>A. Time delay of analysis  B. Incorrect input of data would delay. The refer for statistician will assist in both input and interpretation</p>	<p>- Communication with statistician and process engineer bi weekly once data collection is complete and analysis begins.</p>
<p><b>Step 10:</b></p>	<p><u>Chair-</u></p>	<p>-Week of April 1, 2016</p>	<p>A. Outlook email and appointment calendar</p>	<p>A. Individual committee member faculty/personal schedules</p>	<p>-Communication with committee through chair via email or in</p>

<p>Oral Defense of Scholarly Project</p>	<p><u>Concrete date with committee members for oral defense</u> <u>K.M.-Notification through Invitation to Committee with attached final proposal and ppt.one month prior to final defense date</u> <u>(Use DNP Scholarly Project Defense Announcement Template p.171 of handbook)</u> <u>K.M.-Secure room for final oral defense presentation</u> <u>Secure WebEx use and invitation for final defense</u> <u>K.M.- Oral Defense</u></p>	<p>-Week of May 1, 2016 Reminder email sent June 1 and 15  -Week of April 1, 2016  -Week of June 20, 2016</p>	<p>B. Campus Calendar  C. 25 Live/Digital Reservation Gateway  D. WebEx/IT support</p>	<p>B. Summer school university assignments  C. Spatial constraints related to number attending defense and availability of room assignment on campus  D. WebEx technology support</p>	<p>person once a month until date is secured and weekly thereafter</p>
--	---	---	--	---	--