DESIGNING AND TESTING A COMPREHENSIVE FALL PREVENTION PROGRAM WITH MASTERY OUTCOMES: A CASE STUDY

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DESIGNING AND TESTING A COMPREHENSIVE FALL PREVENTION PROGRAM WITH MASTERY OUTCOMES: A CASE STUDY

DISSERTATION

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Education in the College of Education at the University of Kentucky

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2017

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ABSTRACT

DESIGNING AND TESTING A COMPREHENSIVE FALL PREVENTION PROGRAM WITH MASTERY OUTCOMES: A CASE STUDY

Existing research demonstrates the usefulness of multi-factorial approaches to the challenge of patient fall prevention (Spoelstra, Given, & Given, 2012; Wexler, D’Amico, & Rolston, 2011; Hart-Hughes, Quigley, Tatjana, & Scott, 2004). Some of the current strategies include assessment of a patient’s risk for falling based on a valid assessment instrument, management of a patient’s environment to provide a safe space, medication monitoring and management to avoid use of medications that could lead to falls, patient teaching, post-incident evaluation, and more. Implementation of these strategies is dependent upon patient care employees including nurses, nursing assistants, and physical therapists.

Instructional systems design models provide an approach to addressing the problem of awareness of patient fall prevention opportunities with instruction through assessment of the specific circumstances of the hospital environment and learner needs, design of interventions to address the identified needs, development and implementation of an educational plan, and evaluation of the effectiveness of the implemented interventions (Dick & Carey 1990; Morrison, Ross, & Kemp, 2004). The model is easily likened to that of the nursing process involving assessing, planning, implementing, and evaluating to achieve holistic caring for individuals or groups of patients. In the case of this study, the models are applied to addressing the identified instructional needs of hospital staff in order to influence change in their knowledge and behaviors related to fall prevention and to decrease the incidence of falls in the hospital environment.

In this case study research, from 2015-17, 1,126 employees at a large urban hospital were trained using a fall prevention program entitled “Reducing Inpatient Falls Using an Evidence-Based Practice Approach” as part of the hospital site’s fall prevention program. The training combined an innovative user-tested narrative simulation with fall-prevention informative instruction. There were three cohorts of repeat users (as the fall prevention program is required each year). Cohorts were defined by their performance levels on a criterion referenced fall prevention knowledge test, based on the content of the simulation and informative content. Using a mastery scoring approach, trainees needed to achieve a score of 85% or higher on the knowledge test. To achieve mastery a trainee could 1) retake the simulation or 2) upon a second failure to master, was provided didactic training and another (different) commensurate simulation on fall prevention. The study analysis focuses on the performance of the three cohorts (high, medium, and low performing groups) over time. The findings suggest among high initial performers who achieve mastery, there was evidence of high retention of fall prevention content and increased mastery scores over subsequent annual trainings. The hospital site documented
an actual 30.6 % reduction of patient falls over the study years, from a mean of 3.46 to 2.40 patient falls per 1,000 patient days.

KEYWORDS: instructional design, narrative simulation, fall prevention, patient safety, culture of safety
DESIGNING AND TESTING A COMPREHENSIVE FALL PREVENTION PROGRAM WITH MASTERY OUTCOMES: A CASE STUDY

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Director of Graduate Studies

April 12, 2017
Date
DEDICATION

To my husband, Lawrence, who has been beside me throughout this years-long journey, prodding and encouraging incessantly. To our sons, Justin and Adam, who have never known their mom not to be a student, and they have been okay with it. Hopefully, they have learned the value of an education and of persistence and patience. And to Julia, our granddaughter, who at five, makes me smile while patiently watching Nana study and write. She has approved every word, and in her words, “it’s amazing!” I hope this inspires the spirit of discovery. I love you all!
Many thanks go to the members of my committee for their support and encouragement and for sharing their insight. Special thanks go to Dr. Joan Mazur, chair of my committee, for her many hours, dare I say years, of coaching, brainstorming, validating, advising, proofreading, and correcting, and for the many ‘aha’ moments she has inspired. I would be remiss not to thank Dr. Henry Cole who so many years ago put this idea into my head and started the wheels turning.

I must also thank Dr. Karen Hill for allowing me the opportunity to pursue this project, Dr. Terry Altpeter for her unwavering support along the way, and Dr. Dorothy Brockopp for her guidance, advice, and assistance with the statistics. All have been there when I needed them, and for that I am very grateful. I am fortunate to be in a position to learn from all of these strong and knowledgeable women who are so willing to share. Many others have contributed to this effort as well, and to all, my gratitude. Thank you!
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Chapter 1: Introduction and Focus of the Research

Overview of the Situation

Falls and fall-related injuries in the hospital present a significant challenge to patients and employees alike. An estimated one million patient falls in hospitals are reported annually in the United States (Oliver, Healey, & Haines, 2010). The majority of these falls occur among elderly patients, 65 years or older, and lead to further debilitation through limitation of activity, loss of strength and independence, or worse (Oliver et al., 2010). The Kentucky Injury Prevention and Research Center (KIPRC), estimates there were 32,000 hospitalizations or emergency department visits generated by falls of Kentuckians 65 years and older during 2011 (Pope, Bunn, & Slavova, 2012). About half of the Kentuckians who fall and break a hip are never able to return home or live independently again (Kentucky Safety and Prevention Alignment Network, 2012). This debilitation represents a dramatic change to the quality of the lifestyle of elderly Kentuckians who are never able to overcome the outcomes of the fall event, as well as for family members who will provide care for them.

In addition to pain and suffering incurred by the victim of a fall, the monetary costs of falls are significant. In Kentucky alone, hospital inpatient charges resulting from treatment of falls in 2010 was estimated at $240 million (Kentucky Safety and Prevention Alignment Network, 2012).

In their 2000 report, To Err is Human: Building a Safer Health System, the Institute of Medicine (IOM) proclaims that healthcare must take the lessons learned in other industries to develop an awareness of safety issues and the need for improved performance in those areas, noting that it is just as important to plan for safety as it is to
plan for any other business endeavor. The IOM goes on to push for the allocation of adequate resources for achieving a safe healthcare environment including research and the dissemination of that research, thus expanding the base of knowledge for safety improvements in healthcare.

**Background for the Study**

Customarily, fall prevention programs consist of three general types of interventions: health promotion programs, fall risk assessment and risk management, and injury minimization strategies (Ganz, Alkema, & Wu, 2008). Health promotion strategies consist generally of attempts to maximize the physical abilities of both patients and general community members through provision of classes including strengthening, balance, and flexibility training.

Fall risk assessments include evaluation of the physical condition of individuals with regard to factors that have been demonstrated to put persons at an increased risk for falling. These factors include gait, balance, strength, eyesight, cognition, current medications, and history of falling. The evaluation of these individual characteristics is then used to develop strategies for intervening in the potential for falls and implementing those strategies to make it less likely for the individual to fall. The identified risks are managed, and hopefully, the fall is prevented.

Finally, if it is determined that an individual is likely to fall, it is prudent to attempt to minimize the potential for injury. Strategies such as low beds, padded mats on the floor, and hip protectors can be identified and implemented to minimize the likelihood of serious injury from a fall.
All these strategies are currently in use in hospital and community settings, but health care providers continue to see increasing numbers of falls in both arenas. Moreover, the increase in an aging population leads to predictions that the incidence of falling will continue to rise, since advancing age is a known risk factor for falls.

Ganz, Alkema, and Wu (2008) point out that each of these three types of strategies for prevention of falls occurs in relative isolation from the other. Health promotion classes occur regularly in community settings. Fall risk assessments are carried out frequently throughout a patient’s stay for patients in a hospital setting, and injury prevention strategies are implemented more commonly in longer-term care settings, such as skilled nursing or mental health facilities. Each of these settings presents a pressing set of challenges for healthcare workers that is unique to the setting, and different categories of healthcare workers are more attuned to a different set of risks for falls. For instance, the nurse may be more concerned with the risk assessment, while the physical therapist may be more involved with helping patients maintain strength, balance, and flexibility. An additional obstacle in all these areas is one of persistence in maintaining implemented fall prevention strategies, both from a perspective of sustaining the individual’s interest in participation in community education courses and from the standpoint of the healthcare worker who must care for multiple patients with competing health challenges.

An Institute of Medicine (IOM) (2004) report, entitled Keeping Patients Safe: Transforming the Work Environment of Nurses, called for the development and implementation of “bundles” of changes that support other components of change, thus “altering the context of worker behavior within a work environment” (p. 48). The report
cites four areas for development of these bundles in all health care organizations: (1) management and leadership, (2) workforce deployment, (3) work processes, and (4) organizational culture (IOM, 2004, p. 48), and suggests there must be broad transformation in all these areas in order to achieve the goal of patient safety. For instance, in an acute care setting such as in this study, the IOM recommendations would indicate a need for demonstrated support and commitment of management and leadership to keep patients safe from falling, adequate staffing (right person, right place, right time), safe work practices (use of risk assessments, use of gait belts, monitoring of environment, etc.), and a culture of safety across the institution.

Focus of the Study

In their review of previous works on patient fall prevention, Spoelstra, Given, and Given (2012) state that hospitals that have been successful in reducing patient fall rates have included in their interventions the following elements: 1) development of a culture of safety; 2) fall-risk assessments; 3) multi-factorial interventions; 4) post-fall analysis and quality improvement activities; and 5) integration with electronic records.

The IOM (2001) concluded that one of the biggest, if not the biggest, challenge for healthcare organizations today is that of “changing the culture from one of blaming individuals for errors to one in which errors are treated not as personal failures, but as opportunities to improve the system and prevent harm” (p.79). This statement builds upon its previous report wherein the IOM called for the creation of interdisciplinary training programs in health care “such as those involving simulation, that incorporate training designed to improve and maintain skills, as well as improve communication among team members” (IOM, 2001, p. 79).
Previous efforts at patient fall prevention have involved developing more sure patient risk assessments or application of new technologies to patient movement alarms (bed and chair) and sensors. This study used an instructional narrative simulation to educate; encourage critical thinking, reflective judgment, and communication regarding interventions to prevent falls combined with instructional information for worker awareness of identification and communication of fall hazards in order to address such obstacles in a timely manner so as to prevent patient falls. The simulation was extensively user-design tested and then combined with informational instruction in a comprehensive fall prevention training package for scale-up in the real-world setting of a large hospital with requirements for ongoing training of healthcare workers.

**Description of Environment**

The setting for this case study is a 383-bed, Magnet designated, acute care hospital facility located in an urban area of the Southeast. In particular, this hospital provides services to the local area and is a major referral center for patients from a nearby Appalachian region. In addition to patient care professionals, there are many other categories of employees (including custodial, security, food service, and administrative), all of whom are working to provide patients with a safe experience while they are in the facility. All of these employees bring a broad spectrum of work and life experiences and education to the challenge of patient safety. Educators are tasked with integrating quality and safety concepts into staff development and continuing education that can meet the needs of the various caregivers who must work together to provide a safe patient environment.
The Present Study

Awareness of fall risk and fall prevention and accompanying educational strategies have often been focused on patients and patient care personnel, and often consist of “how to’s” regarding new or existing equipment or safety procedures. This study developed and implemented fall prevention and awareness education through use of an instructional narrative, consisting of a story scenario and choices, paired with discussion as an innovative component of a more traditional informative instructional program. This narrative structure was designed to specifically increase attention to and reflection on potential hazards in patient care areas and involve more staff members in this important patient safety responsibility. The study addressed the need for change in awareness of and thinking about fall hazards and fall prevention related to awareness of opportunities for fall prevention, reflection on known factors influencing falls, and the decisions associated with the circumstances. Rather than accepting the assumption that falls happen, workers were encouraged to adopt a new perspective for fall prevention and reflect critically on the topic by asking “Why do patients fall?” and “What can I do to keep patients from falling in the hospital?” Rather than addressing the patient’s fall incident retrospectively, this work focused learner attention toward prevention of the fall through consideration and reflection on circumstances that could perhaps be simulated and modified in advance of the accident. This study adds to our knowledge of how instructional narrative simulation can encourage reflective thinking and critical judgment with regard to fall prevention leading to more considered actions to prevent these patient accidents. Paired with other evidence-based instructional information on fall prevention, the approach provided an effective fall prevention program that resulted in increased
knowledge of fall prevention strategies among providers and reduction of falls overall in the acute hospital setting.

**Significance of the Research to Instructional Design**

Existing research demonstrates the usefulness of, and even necessity of, multifactorial approaches to the challenge of patient fall prevention (Spoelstra, Given, & Given, 2012; Wexler, D’Amico, & Rolston, 2011; Hart-Hughes, Quigley, Tatjana, & Scott, 2004). Some of the current strategies include assessment of a patient’s risk for falling based on a valid assessment instrument, management of a patient’s environment to provide a safe space, medication monitoring and management to avoid use of medications that could lead to falls, patient teaching, post-incident evaluation, and more. Implementation of these strategies is dependent upon patient care employees including nurses, nursing assistants, and physical therapists.

Instructional systems design models provide an approach to addressing the problem of awareness of patient fall prevention opportunities with instruction through assessment of the specific circumstances of the hospital environment and learner needs, design of interventions to address the identified needs, development and implementation of an educational plan, and evaluation of the effectiveness of the implemented interventions (Dick & Carey 1990; Morrison, Ross, & Kemp, 2004). This model is easily likened to that of the nursing process involving assessing, planning, implementing, and evaluating to achieve holistic caring for individuals or groups of patients. In the case of this study, the models will be applied to addressing the identified instructional needs of hospital staff in order to influence change in their knowledge and behaviors related to fall prevention and to decrease the incidence of falls in the hospital environment.
Dr. Henry Cole (1997) and colleagues have demonstrated the usefulness of narrative simulation education exercises related to the work environment in preparing workers to recognize risk factors for injury in the areas of mining and agriculture and to act to remove or mitigate those risk factors. Cole’s group designed authentic narrative exercises specifically to cause workers to think about on-the-job safety issues and promote safety behaviors that would prevent injuries. Facilitated review of the workers’ performances (an integration of experience, knowledge, and attitudes about the work) with the narratives was demonstrated to cause workers to reflect critically on those circumstances and what they should do, or should have done, to prevent injury.

Cole’s work has been developed in the areas of mining and agricultural safety. This study extrapolated that previous work and hypothesized that similar instructional simulation experiences would be equally effective when used to address fall prevention factors in the hospital setting. Narrative simulation instruction was used to encourage workers to critically evaluate what they know about a given situation and make inferences based on what is known in order to prevent falls. When combined with instructional information about fall reduction strategies, this innovative combination was designed to provide a comprehensive fall prevention training program.

**Research Questions**

*Question 1:* Does user knowledge of outcomes of fall prevention decisions confirm the design intentions of the narrative simulation?

*Question 2:* Does hospital employee demonstration of mastery of knowledge of risk factors for patient falls change following participation in a large scale,
comprehensive, hospital fall prevention program that includes informational instruction combined with a narrative simulation?

*Question 3:* How does participation in the fall prevention program change hospital staff’s abilities to prevent patient falls as measured by the fall rate/thousand patient days?

In Chapter Two that follows, the conceptual framework and literature review that scaffold the study are presented. The study methods are presented in Chapter Three. Chapter Four presents the findings from the study, and Chapter Five provides a discussion of findings, implications, and directions for further research.
Chapter 2: Conceptual Framework and Review of Relevant Literature

Narrative Thinking

Bruner (1986) postulated that humans employ two methods of meaning making, paradigmatic and narrative. He saw language as man’s dominant means of organizing our experiences. Humans, according to Bruner, used language to form both arguments (paradigmatic) and consciousness (narrative), or “what those involved in the action know, think, or feel, or do not know, think, or feel” (1986, p. 180). Bruner asserted that a lifelike narrative begins in a stable state that somehow becomes insecure through circumstances leading to a crisis to be addressed. The cultural toolkit to which the individual is linked then influences their thinking about addressing the narrative situation. One’s response to the circumstances is under one’s personal self-control and mediated by reflection on the issues associated with the narrative (Bruner, 1986, p. 929). It is from these stories, and our reflection on them, that knowledge is constructed.

Cole (1997), following Sarbin (1998), defined narrative thinking as the process of converting experiences to stories, thus integrating facts, perceptions, emotions, actions, intentions, and consequences. Storytelling, Cole contends, is an effective process for organizing perceptions and thought. Narrative thinking involves knowing through our stories, lived, heard, or told (Cole, 1997). The nature of narrative thinking means that it is always contextualized and empowers meaningful communication and learning in ways that cannot be achieved through scientific or paradigmatic thinking or didactic instruction alone. Learning in context, using authentic stories featuring circumstances that learners might encounter in their customary work environments, leads to deeper thinking and reflection on how action or inaction achieves desired outcomes for workplace objectives.
Dewey (1938) wrote that an important aspect of education based on experience is that the educator selects experiences for students that prompt thought and creativity in future experiences of a similar nature. Theodore Sarbin (1998) similarly wrote about how our stories or narratives, built from both our reality and our imaginations, form the foundation for our beliefs, and it is through discussion and reflection on those stories that we develop decisions about our actions. Such is the goal of the interactive narrative simulation. The educator/instructional designer selects stories about experiences with which students are familiar and with which they will likely be involved in the future. In the case of the current study, it would be unusual to find a hospital staff member who has not had some experience with a patient fall.

Using the notion of narrative thinking as a basis, Cole (1997) offers a theoretical model for health beliefs and behaviors, applicable to this writer’s current project, that he calls the four “Cs,” Culture, Cognition, Conduct, and Consequences (Figure 2.1). The four “Cs” represent dimensions of learning and human behavior that are necessary for effective safety programs which would include fall prevention strategies. The theory here is that our culture includes our stories, lived, heard, and told. Those stories influence our cognitive efforts, which in turn guide our behaviors and actions (conduct) to achieve outcomes (consequences). Those outcomes, good or bad, intended or unintended, are then folded into our stories, helping to shape our culture, and ultimately influencing future considerations, actions, and more outcomes.
Narrative Simulation vs. Case Study Instruction

The case study has been promoted in nursing education as an effective teaching strategy for nursing students to learn why and how a nurse should think, act, and react in patient care situations. While case studies have been used in other disciplines such as law and business for decades, the case study has only been widely adopted in nursing education in the last 30 years (Johnson & Purvis, 1987). The nursing education case study generally provides realistic data and facts about a fictitious patient’s circumstances and the nurse’s considerations and reactions to those circumstances in planning and implementing patient care (Wagner, 2006). However, case analysis is retrospective. All of the information is presented in one continuous story. The student has knowledge of how the story ends before he or she begins contemplation on the contents or outcomes of the case narrative. Through examination of the data points and outcomes provided in the
story, the student is supposed to discern how a nurse thinks in order to be able to emulate this sort of process in providing care for future patients. The student reflects on how the nurse achieved the outcomes presented in the case study including the data points considered by the nurse in selecting actions to reach those outcomes. The student is then expected to demonstrate synthesis and transference of knowledge gained from this case study through analysis of the decisions made by the nurse in the story and care provided to the fictitious patient by planning and implementing care to a real patient experiencing symptoms similar to those described in the case studies.

The interactive narrative simulation, by contrast, is prospective, evolving with reader choices, at the decision points, toward achieving desired outcomes. The narrative presents part of an authentic scenario where the student is allowed to reflect and recognize important facts about the situation in order to be able to anticipate and control what will follow. The story pauses to pose several thought-provoking questions to the reader, requiring a decision by the participant before continuing. Having made the required decisions through reflection on the facts at hand, the story continues, and the participant discovers whether those decisions were good and what will happen in the narrative as a consequence of those decisions. The participant interacts with the story by making decisions that affect the outcome of the situation. The authenticity of the scenario encourages situational awareness and transference of knowledge to similar circumstances the participant is likely to encounter in the future. In addition to the critical thinking involved with assessing the situation described and evaluating the options for action, the scenario participants develop skills in articulating their thoughts and supporting their opinions through discussion with their peers. Faculty facilitate
active learning by providing immediate feedback and encouraging further reflection and discussion.

In health care, such interactive narrative simulations, describing authentic clinical events or situations, encourage workers to reflect on the patient and his or her specific story and consider how knowledge of the individual patient and his or her specific circumstances influence decisions made about care provided ‘in the moment’. Schmidt, Goldhaber-Fiebert, Ho, and McDonald (2013) point out that verbal simulation, such as with the interactive narrative simulation, is useful for the practice of cognitive skills, such as those that would be required in planning for patient fall prevention and safety. This sort of critical thinking and reflective judgment is needed to be able to make solid inferences for defensible decisions based upon what the nurse knows about the patient, leading to more patient-centered decisions.

The Haddon Phase by Factor Matrix, a conceptual model developed by Dr. William Haddon, Jr. in the 1960’s, is a tested injury prevention framework. The framework is especially useful for consideration and identification of how injuries occur in order to design situation-specific strategies for intervention and prevention of injury-causing accidents (Runyan, 2015). Though Haddon’s work has had extensive use in public health, agricultural safety and traffic safety, his work is highly pertinent to this present research in prevention of patient falls in the hospital environment.

Prior to Haddon’s work, injury prevention was focused on the event with little thought about what might have led to the incident. Haddon designed a three-phase method of analyzing these events in order to lead to greater understanding of the cause of the injury and points at which decisions could be altered in order to prevent an injury.
Haddon’s Matrix is a tool designed to facilitate these decisions consisting of four columns and three rows representing the three injury phases (pre-event, event, and post-event) and the four factors (host, agent, physical environment, and social environment) for consideration in evaluating an accident (Figure 2.2).

<table>
<thead>
<tr>
<th>Event Phase</th>
<th>Host</th>
<th>Agent</th>
<th>Physical Environment</th>
<th>Social Environment</th>
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<tbody>
<tr>
<td>Pre-Event</td>
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<tr>
<td>Event</td>
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<tr>
<td>Post-Event</td>
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*Figure 2.2. Haddon Phase by Factor Matrix (Runyan, 2015).*

For instructional designers, use of this framework in the development of an interactive narrative simulation facilitates the characterization of realistic simulations from which reflection and discussion of pre-event factors can lead to effective decision-making on the part of learners that will result in better outcomes.

King and Kitchener (1994) describe several features for consideration in constructing reflective thinking measures including:

1. **Ill-structured problems should be the focus of the assessment task.**
2. **The assessment should elicit information about the rationale for a response as well as its content.**
3. **Thinking should be sampled across a variety of issues.**
4. **The content should be generally familiar to a wide range of individuals.**
5. **The content should not constrain the instrument’s use to individuals in formal educational settings.**
6. **The reading level should be such that it can be used with a wide range of potential test takers.**
7. **If the measure is based on a model that purports to describe the development of reflective thinking, the theoretical model on which it is based should be validated.** (pp. 78-80).
All of these aspects of the construction of critical thinking prompts can be achieved through the use of an interactive narrative simulation. In the case of this research, the problem is set in a story describing factors leading up to a fall event. Patient care workers should be familiar with fall risk factors from previous training and experience and should have some ability at anticipating when a fall might be a consequence of those factors. The reading level of the story has been intentionally worked to about a sixth-grade level (Flesch Grade Level Readability Scale), and it is modeled on the work of research in other fields that can be transferred to the patient care arena.

**Experiential Learning**

Kolb (1984) describes a model of experiential learning including four stages during which 1) the learner experiences an event, 2) reflects on the experience, 3) draws some conclusions from the experience, and based on those conclusions 4) develops some new outcomes that can be applied to future similar experiences (Figure 2.3).

![Figure 2.3. Kolb’s Model of Experiential Learning (1984).](image)

The progression of experiential learning involves the processing of experiences that leads to reflection on those experiences and subsequent integration of new concepts into one’s existing knowledge and behaviors. In the context of patient care and patient
falls, the learner might have a patient who experiences a fall. As the learner reflects on the experience, he or she discovers that there are circumstances surrounding the event that could have been controlled and that might have prevented the patient fall experience. As a result, that patient care worker (the learner) develops new knowledge and will apply that new knowledge, modifying behaviors, to future patient care planning and activities in order to prevent a patient fall experience.

Similarly, in nursing and health care, Bilinski (2002), proposed a *Circles of Meaning* model (Figure 2.4) suggesting that reflection on experiences leads to concept clarification and deeper understanding of the topic in clinical healthcare settings.

![Figure 2.4. Circles of Meaning, (Bilinski, 2002, p. 39).](image-url)
Through analyzing (reflecting on) a challenging clinical experience, the student considers other influences and their implications for the issue at hand. Through reflection on possible solutions and outcomes, the student then arrives at some conclusions about the encounter and whether it was handled appropriately or might have been better dealt with in another way. This sort of reflection on action leads to personal growth through the development of new knowledge for the learner.

Bringing this discussion closer to the setting of the current study, Schmidt, Goldhaber-Feibert, Ho, and McDonald’s research (2013) focuses on the use of simulation in healthcare education as an important patient safety strategy. Pointing out what seems obvious, that increasing hours of practice with a simulation will not improve patient safety on its own; rather, facilitated reflection on the simulation can have an impact and result in improved patient safety in healthcare settings.

**Importance of Context – Learning Transfer**

John Dewey describes reflection as an active and intentional thinking process influencing one’s future experiences and based on previous experiences. Dewey (1933) observed that reflective thinking is initiated in context only after recognition that a real problem exists and that the problem is one for which there may be conflicting or insufficient data. According to Dewey, an individual makes a reflective judgment to bring closure to uncertain situations. Such situations are those for which there is no way to definitively prove that a proposed response is correct. The participant interprets the authentic narrative in order to make real decisions and judgments that have real consequences for which the participant must take responsibility, thus linking practice and theory. Dewey wrote,
Reflection involves not simply a sequence of ideas, but a consequence—a consecutive ordering in such a way that each determines the next as its proper outcome, while each in turn leans back on its predecessors. The successive portions of the reflective thought grow out of one another and support one another… (1910).

Herrington, Parker, and Boase-Jelinek (2014) suggest that reflection on experiences occurring in an authentic learning environment is important to workers in a service environment, such as a hospital, since “critical reflection is part of every-day practice” (p. 32). Further, Dewey reminds us that students learn best in context of where they live, and as in the case of this study, where they work, where they have the ability to apply what they experience in that workplace (Eastman, 2012). This study took place in a hospital with patient care workers as the participants. The staff worked in small groups to reflect on the provided narrative during breaks in the story when they had the opportunity to make decisions about appropriate actions for avoiding a patient accident.

**Learning at Work**

Considering the value of context in learning, one easily recognizes the worth of the background of the workplace as a location where learning occurs. In this environment, learning is structured by both the goals of the workplace and the activities occurring there on a daily basis. Employees value learning in the workplace as a necessary component of maintaining their jobs. The workplace provides the authentic context within which to integrate learning. In the workplace, problem solving is one means by which learning takes place. New knowledge is constructed by the interaction of the learner with the circumstances of the work day, the application of existing knowledge, including beliefs, values, and attitudes and the assimilation of existing knowledge with the current activity that appears to be similar to a previously completed
activity where the application of this knowledge has been successful. Thus, engaging in
tasks at the workplace can lead to the reinforcement of existing knowledge, as well as the
construction of new knowledge. Billett (1999) suggests that such experiences can be
made even more meaningful in the workplace when the learner is provided some
guidance. Lack of guidance in workplace learning can lead to poor outcomes.
Workplace values regarding what is prized and what is of lesser value can lead to results
inconsistent with the desired outcomes and good habits among workers. For instance, if
workers value a safe working environment, they will develop knowledge about the right
way to perform work activities to maintain safety. Billett suggests that structured
guidance is necessary to address aspects of workplace culture that may discourage
development of good worker habits and construction of sound knowledge. Engaging
workers through participation in a facilitated, interactive narrative simulation, such as the
one designed for this study, focusing on patient fall prevention is one component of an
evidence-based instruction plan and provides guidance and support for the construction
of valid knowledge leading to outcomes consistent with both the workers’ values and
patient safety.

Dick, Carey, and Carey (2005) point out three concerns for the development of
instruction pertinent to this project.

1. Will the development of this instruction solve the problem that led to the need
   for it?
2. Are these goals acceptable to those who must approve this instructional
development effort?
3. Are there sufficient people and time to complete the development of
   instruction for this goal? (Dick, Carey, & Carey, 2005, p. 26).

In the case of this research, evidence-based informational instruction was
appropriate to prompt critical thinking about patient condition and risk factors that could
lead to a patient fall. Decreasing numbers of patient falls is desirable for both the patients involved and the staff caring for those patients, as well as the facility in which care is provided. In the present study, through the initial simulation design phase, an implementation issue regarding the simulation alone was identified. The issue of sufficient people and time to implement simulation instruction only to address this issue proved to be of substantial concern as the challenge of patient falls was pressing. Combining evidence-based informational instruction with a narrative simulation created effective instruction that could be provided for a large number of employees in a time efficient manner.

Traditionally, with the issue of patient falls, training has centered around tasks to be carried out to prevent falls and/or equipment to be used in fall prevention. These might include assessing a patient’s cognition – is the patient confused? – or assuring a night light is left on in the patient’s room and the nurse call bell is close at hand. There might be instruction regarding use of a gait belt when getting a patient out of bed in order to provide a way to stabilize the patient on his feet more efficiently. The Veterans Affairs National Center for Patient Safety (2015) publishes the ABCS Tool which is a checklist of tasks to be completed if the patient meets prescribed criteria. For instance, part of one of these checklists reads:

**Age:** Individuals who are greater than or equal to 85 years old or frail due to a clinical condition

<table>
<thead>
<tr>
<th>Assistive devices within reach</th>
<th>☐</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hip protectors (if fracture risk)</td>
<td>☐</td>
</tr>
<tr>
<td>Floor mats (when patient is resting in bed)</td>
<td>☐</td>
</tr>
<tr>
<td>Height adjustable beds (low when resting only, raise up bed for transfer)</td>
<td>☐</td>
</tr>
</tbody>
</table>
The difference between this sort of training and that involved in the current research is that these tasks are simply that – a task to be carried out without additional thought and checked off the list of things to be done. The purpose of the current research is to encourage patient care workers to use their critical thinking abilities in determining personalized care strategies to prevent patient falls.

_Haddon’s Phase by Factor Matrix_ shows us that consideration and reflection on pre-event factors of an accident can prompt more effective decision making, such as that needed by patient care workers to lead to better outcomes for the patient. For instance, if a patient is on medications that might lead to dizziness or weakness, perhaps the patient care worker should advise the patient not to get up without help and even put a bed exit alarm to use to alert the nurse or patient care technician when that patient tries to get up so that a fall might be averted. These sorts of decisions are not on a task list; rather, they are a result of critical thinking about the individual patient and his/her unique needs. The combination of an evidence-based informational instruction with a case-based narrative simulation reinforces the use of assessment data collected by the nursing staff about individual patients in conjunction with appropriate strategies for fall prevention. Critical reflection on the assessment data should lead to better decisions about which fall prevention strategies might be most effective for the individual patients.
The Intervention: The Narrative Simulation

The interactive narrative simulation, *Mr. Foster’s Fall* (Appendix E), is a story written by the researcher about a fictional hospitalized patient and based upon authentic patient experiences from the researcher’s 40 years as a Registered Nurse and study of patient fall accidents over the past 30 years (Piercy, 1989). The story is in three sections; each section is followed by several questions to be considered and discussed by the learners as a group in order to come to some agreed-upon conclusions regarding the care of the fictional patient and preventing him from falling again. In Figure 2.5, the narrative simulation structure and decision points are illustrated. The complete simulation is

*Figure 2.5. Participant Progress through Simulation*
available in Appendix E. Design considerations based on the *Haddon Injury Prevention Matrix* are shown in Table 2.1.

**Table 2.1.**

<table>
<thead>
<tr>
<th>Haddon Injury Phase by Factor Matrix for Mr. Foster’s Fall.</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="" alt="Table content" /></td>
</tr>
</tbody>
</table>

The story is made personal to participants by creation of a scenario common to a patient care setting such as the one in which they currently work. Participants are able to connect the narrative to their lived experiences or to stories they have heard in the workplace.
As previously noted, the narrative structure of the simulation is built on the framework of the *Haddon Injury Phase by Factor Matrix* of a pre-event, event, and post-event; the factors identified are host, agent, and environment. The host is the individual at risk for injury. The agent refers to some sort of force having an impact on the host. The environment can be physical and/or social.

Runyan (2015) writes that many accidents are a consequence of a succession of events rather than a single, specific moment in time labeled as the accident or injury point (p. 126). It is this continuum of occurrences that must be reviewed in order to identify points leading up to the accident where one is able to break the cycle. Therefore, the interactive narrative provides details about the pre-event, event, and post-event phases upon which the learner reflects in order to make decisions about steps which might be taken in order to achieve the desired outcomes, or in this case, to prevent a patient fall. Important to this study is that prevention of falls occurs in the pre-event phase of the Haddon Matrix. The pre-event phase is the interval during which patient care workers need to identify and reflect on potential risk factors for falls in order to make appropriate decisions to take actions to prevent the incident. For instance, in the narrative, *Mr. Foster’s Fall*, the reader is provided with some history of the onset of Mr. Foster’s illness followed by his trip to the hospital and surgery (pre-event). The participant is then asked to reflect on his circumstances at that point and his likely customary responses to attending to his own needs and respond to four true/false items to prompt critical thinking regarding the patient’s condition. One of these items is included to prompt reflection and situational awareness of Mr. Foster’s ability to recall instructions given by the nurse.
following his surgery (pre-event). The entire narrative simulation is provided in Appendix A.
Chapter 3: Methodology

Study Design

The research design for this investigation is an embedded case study (Yin, 2014) focused on the design and implementation of a comprehensive fall prevention program at a large acute care hospital facility in a mid-sized southeastern city. The phenomenon in this case involved the development of the fall prevention program to include a more traditional, widely used evidence-based informational approach with a designed and tested narrative simulation.

Yin (2014) writes that a case study is useful to examine an existing phenomenon in its real-world context that is especially beneficial when “the boundaries between phenomenon and context may not be clearly evident” (p. 16). Yin (2014) asserts that case studies are the preferred method for examining contemporary events when behaviors cannot be manipulated, or variables isolated. Case study method contrasts with an experiment where the context and the phenomenon being examined are distinctly separate, and the context is being controlled. There are four applications wherein case study research is appropriate and useful; 1) explaining causal links in real applications; 2) describing the intervention and its context; 3) illustrating the topic; and 4) enlightening a situation where there may be no clear outcomes (Yin, 2014, p. 19). Using Yin’s descriptions of application for case study, Table 3.1 describes the parallels to this current study.
Table 3.1.

*Use of the Case Study in Research and How the Current Study Obtains.*

<table>
<thead>
<tr>
<th>Application of Case Study</th>
<th>Present Case Study Relevance</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Explain</em> causal links</td>
<td>This research seeks to explain the link between the fall prevention instructional program and participant mastery of knowledge of patient fall prevention.</td>
</tr>
<tr>
<td><em>Describe</em> an intervention and its real-world context</td>
<td>The narrative simulation and fall prevention information components resulted from the specific real-world challenge of patient fall prevention by health care workers in the context of an acute care facility.</td>
</tr>
<tr>
<td><em>Illustrate</em> topics in a descriptive way</td>
<td>The case illustrates design of a fall prevention program training workers in reflection, judgement, and knowledge of fall prevention practices through evidence-based informational instruction and the effectiveness of a scale-up of that program in decreasing numbers of patient falls.</td>
</tr>
<tr>
<td><em>Enlighten</em> circumstances where the intervention has multiple possible outcomes</td>
<td>The research seeks to inform the use of a comprehensive fall prevention education program in achieving multiple outcomes including fewer patient falls and improved nurse/PCT competence in preventing falls.</td>
</tr>
</tbody>
</table>

When a single case study includes subunits for analysis, Yin (2014) writes that a more complex research design is developed involving multiple data sources. This current investigation is an embedded case study. The subunits provide opportunity for more comprehensive analysis of the case and consequently the opportunity to achieve greater insight. The narrative simulation, in this case, is one subunit for study. Its
implementation in face-to-face teaching provided one subunit for analysis; whereas
implementation of the narrative simulation in conjunction with an informational
component provided an additional opportunity (another subunit) for analysis. The Figure
3.1, below, shows the elements of an embedded case study design.

*Figure 3.1.* Holistic and Embedded Case Studies (Skogerbø, 2011).
The present case study comprised embedded units of a Stage One development cycle (Figure 3.2) for the fall prevention program in the context of the hospital’s fall prevention program and a Stage Two sub-unit of the scale up Implementation cycle. In Stage One, the initial plan was that the narrative simulation would be developed and tested using an intervention-control pre-post- research design as a proof-of-concept regarding the effectiveness of this fall prevention program component. Despite the best good faith efforts of the researcher, soliciting matched-comparison groups of senior nursing students at a local regional university nursing program, no participants could be

![Figure 3.2. Two-Stage Development and Implementation Embedded Sub-units for the Case Study](image_url)

Stage One, the initial plan was that the narrative simulation would be developed and tested using an intervention-control pre-post- research design as a proof-of-concept regarding the effectiveness of this fall prevention program component. Despite the best good faith efforts of the researcher, soliciting matched-comparison groups of senior nursing students at a local regional university nursing program, no participants could be
enticed to serve as a control for the envisioned pre-post testing of the narrative simulation
design. However, using a standard user-testing rapid-prototyping design approach
(Rubin, 2008), the researcher was able to verify the design intentions of the narrative
simulation and to confirm the conceptual elements of story simulation design in
participant responses to the narrative simulation decision points using a within-subject
pre-post outcome design.

Once the simulation effectiveness had been established, for the Stage Two
Implementation the simulation was combined with evidence-based informational
instruction to prevent falls using established best-practice sources. In the real-world
setting of a large urban hospital, where employees are starting virtually every day and
needed training, the time required for a narrative simulation program alone (with
discussion e.g.) proved impractical (elaborated further in the Stage One proof-of-concept
study description below). However, the simulation experience was valued, as employees
need to make daily decisions and judgments to prevent falls. Combining these two
instructional approaches was the innovative intervention for this case study.

As a final implementation step in the scale up, the combinative, comprehensive
Fall Prevention Program was placed into a web-based Learning Management System
(LMS) for online delivery, again to create efficiency in training hospital employees in fall
prevention. The final version of the comprehensive fall prevention program is contained
in Appendix B. The multiple data sources for this study, as required by Yin (2014), will
be the data from the Stage One narrative simulation proof-of-concept study (conducted
over a six-month period of time) and then Stage Two implementation data, three (3) years
of longitudinal performance data, using mastery outcomes, from the LMS comprehensive fall prevention program in actual use by this acute care facility.

**Research Questions**

The research questions for this embedded case study were:

**Question 1**: Does user knowledge of outcomes of fall prevention decisions confirm the design intentions of the narrative simulation?

**Question 2**: Does hospital employee demonstration of mastery of knowledge of risk factors for patient falls change following participation in a large scale, comprehensive, hospital fall prevention program that includes informational instruction combined with a narrative simulation?

**Question 3**: How does participation in the fall prevention program change hospital staff’s abilities to prevent patient falls as measured by the fall rate/thousand patient days?

**The Study Context**

The study context for this case involved a voluntary, convenience sample of health care workers from a community-based, 383-bed, three-time Magnet re-designated, acute care hospital facility in a large, southeastern U.S. city. Magnet designation by the American Nurses’ Credentialing Center (ANCC) signifies a healthcare organization that supports excellence in nursing care and professional activities of nurses, as well as dissemination of professional best practices (ANCC, 2017). The health care workers there had a variety of job titles including Registered Nurse, Licensed Practical Nurse, Patient Care Technician, and Unit Clerk, and their possible ages range from 19 to 80 years, as documented in the age range demographic used for the study. It was anticipated
that there would be more females than males in the group due to the nature of the hospital health care workforce. The ethnic background was representative of that in the surrounding geographical region which is 81% Caucasian, 13.5% African-American, 5% Hispanic, 0.2% Asian, and smaller numbers of other ethnic groups (KHA, 2014). No health care employee of the facility who volunteered to participate was excluded from the study. The anticipated number of participants was about 40.

A culture of safety is important in most any workplace, but it is especially important in patient care areas where health care workers are striving to keep all their patients safe and where patients deserve to be cared for safely. With the volume of patient falls that occurs annually, patient fall prevention is a focus area for safety considerations and offers potential for improvement. A culture of safety influences more than simply patient care, though. The American Nurses’ Association (ANA) defines a culture of safety as

one in which a health care organization’s leaders, managers and workers are committed to core values and behaviors that emphasize safety over competing goals. Other signs of a safety-focused culture include openness and mutual respect when discussing safety concerns and solutions without shifting to individual blame; a learning environment; transparency and accountability; and reliable teams (ANA, 2016, 1).

This culture of safety ultimately has an influence on all activities in the hospital including employee safety and nurse retention. Furthermore, the implementation of evidence-based practices under the umbrella of a culture of safety supports the Magnet designation of the facility.

**Soliciting Participants**

In accordance with the Human Subjects Protocol, approved by the University of Kentucky IRB, Exemption Certificate for Protocol No. 14-0073-X4B (Appendix C) and
the hospital’s IRB, Exemption Certificate for Protocol No. BHL-14-1158 (Appendix D), recruitment of participants to test the story simulation would occur at regularly scheduled staff meetings that occur monthly. At the beginning of a regularly scheduled staff meeting, the researcher introduced and described the nature of the study. The researcher explained that anyone interested in participating could do so immediately following the staff meeting. To those who volunteered to participate, the researcher introduced and explained the cover letter (Appendix E). At that time, the participants were provided time to ask questions and decide whether to participate. As explained in the cover letter, participant consent was implied by their continuing participation. At additional meetings of staff, the researcher repeated these steps in order to recruit more participants for the study until sufficient participants were recruited for analysis of results.

The IRB at the hospital would not permit a control group; therefore, faculty at a local university were approached to ask whether their senior nursing students could be asked to participate by taking the pre- and post-tests. The faculty agreed to post the cover letter and Qualtrics link (Appendix F) for the tests on their class Blackboard sites; however, no students elected to participate and the use of a matched control group, initially planned was not possible. Given this situation, the narrative simulation was tested using accepted user-center participatory design procedures (Rubin, 2008).

In the two stage study procedures described below, the specific participants for each study are reported separately.

**Study Stage One – Development of the Narrative Simulation**

The Study Development Stage One had two phases. The first phase, with 17 participants was used as the initial end-user study to test the acceptability and overall
utility of the narrative simulation for reflection on fall injury prevention. The second phase refined the aspects of the post-knowledge testing and incorporated suggestions from an external expert panel (the dissertation committee). Both phases were used to confirm the design intentions of the narrative simulation to promote knowledge of reflective decision making for hospital fall prevention.

**Participants: Stage One Proof-of-Concept Study/Phase #1 (n=17)**

The first round of end-users were staff from a single unit of the hospital. Participants self-selected into groups consisting of four to six learners each. As they used the simulation, participants were encouraged to identify fall risk factors and other cues that might indicate the patient’s risk for falling in order to plan to mitigate those risks.

**Measures**

Initially, the narrative simulation combined with pre- and post-testing was used with staff of one specific unit of the facility selected for having a higher rate of patient falls and to refine the materials for further use. To test the effectiveness of the simulation and prior to completing the intervention, participants (n=17) completed a demographic measure (Appendix G) as well as the Fall Knowledge Test (Time 1) (Appendix H). A 12-item demographic questionnaire (Appendix G) was administered to all participants. The demographic includes items such as health care job title, time in the job, employment status (full- or part-time), education level, and prior experience with a fall accident. A 13-item pre-test, the Fall Knowledge Test (Appendix H) was administered at the time the demographic questionnaire was returned (Time 1). The pre-test is a fall knowledge assessment provided by the United States Department of Health and Human Services,
Agency for Healthcare Research and Quality (AHRQ) and validated in their ongoing research. Scores can range from 0 to 13.

For this study, participants self-selected into groups of four to six learners. Groups consisted of multiple job titles, genders, and experience levels. The groups then read the narrative, stopping to discuss the questions presented at the two decision points in the narrative simulation. A week after completion of the simulation experience, participants again completed the identical Fall Knowledge Test (Time 2) (Appendix H). Table 3.2 depicts this progression.

| Table 3.2. |
|---|---|---|---|
| Development Stage One: Simulation User-Design Proof-of-Concept Study. | | | |
| Intervention | Pre-Test | Simulation | Discussion | Post-Test |
| **Intervention Group** | **Demographic** | **Mr. Foster's Fall** | **Small Group Discussion and Decision Making** | **Fall Knowledge Test (Time 2)** |
| Patient Care Workers | Fall Knowledge Test (Time 1) | | |

**Procedures**

The investigator visited the selected hospital unit during both day and night shift staff meetings for the summer and early autumn of 2014. From these groups, 17 staff members of different levels completed all segments of the project: the demographic, the pre-test, the narrative simulation intervention, and the post-test.

**Administration of Pre-Test Measures**

Upon recruitment, the participant was provided a packet which included the cover letter (Appendix F), a demographic form (Appendix G), and a pre-test (Appendix H) to assess the participant’s current knowledge of fall prevention (Time 1). Participants were
asked to complete the packet prior to the education intervention session occurring
immediately following the staff meeting.

**Administration of Intervention – *Mr. Foster’s Fall Simulation***

Upon completion of the staff meeting, the researcher introduced the interactive
narrative simulation (Appendix A), an authentic story about a fictional hospitalized
patient who experiences a fall during his hospital stay. The story was written by the
researcher at a Flesch-Kincaid Grade Level Scale of 6.3. The narrative simulation has
two decision points during which students were asked to reflect on and discuss the
situation presented and respond to several questions about the story. At each of these
decision points in the simulation, possible responses were discussed including
consideration of the consequences and potential outcomes of the possible responses. At
the conclusion of the exercise, the researcher facilitated a discussion about challenges and
issues related to prevention of patient falls in the hospital setting including those
identified during the exercise.

**Post-Test Administration**

Following the facilitated discussion and about one week later, participants were
asked to repeat the Fall Knowledge Test (Time 2) for comparison with the pre-test (Time
1) to demonstrate change. Mother’s birthdate was used for purposes of matching the pre-
test responses with the post-test responses from the same participant.

**Analysis of Data**

Descriptive statistics have been compiled on the demographic data. A paired-
samples *t*-test was conducted to evaluate the impact of the intervention on fall prevention
knowledge scores from Time 1 of the Fall Knowledge Test to Time 2 of the same test
following the intervention. Multiple point-biserial correlations were considered with data from the six final items on the narrative simulation.

**Study Stage One, Phase Two**

Following suggestions from the dissertation committee, the story of *Mr. Foster’s Fall* and the pre-and post-test were augmented to address current practices which had evolved since the beginning of this study. A post-fall huddle and nurse rounding were added to the story, and three items were added to both the pre- and post-tests for a total of 16 items.

**Participants (n=32)**

In administration of the second-phase testing and story, additional facility units were visited by the researcher, again going to staff meetings on both the day and night shifts to recruit participants. Ultimately a total of 32 hospital patient care staff of various levels participated in the full process of the demographic questionnaire, pre-test (Time 1), narrative simulation, and post-test (Time 2).

**Measures**

1. A 12-item demographic questionnaire (Appendix G) was administered to all participants. The demographic includes items such as health care job title, time in the job, employment status (full- or part-time), education level, and prior experience with a fall accident.

2. A 16-item pre-test, the Fall Knowledge Test (Appendix H) was administered at the time the demographic questionnaire is returned (Time 1). The pre-test is the fall knowledge assessment provided by the United States Department of Health and Human Services, Agency for Healthcare Research and Quality (AHRQ).
Three additional items were added at the suggestion of the researcher’s committee to address current practice. Scores can range from 0 to 16.

3. The same 16-item test used as the pre-test was repeated after the simulation and compared to the previous effort.

Development Stage One Insights

Clearly the Mr. Foster’s Fall narrative was effective at delivering a series of simulation circumstances where health care workers who participated could increase their knowledge of fall prevention and reflect on pre-injury events and decision-making needed to anticipate fall prevention strategies.

However, one key finding from the simulation proof-of-concept testing was problematic. The time required to do these simulations as described in Stage One proved to be excessive as fewer than 50 patient care workers were reached during the six months of this trial. These workers had to leave their patient care assignments for about 30 minutes in groups of four to six at the same time to complete the testing and simulation and again a week later to repeat the Fall Knowledge Test. Since there are more than 1,100 patient care workers in the facility, there was a need to speed up dissemination of instruction with little effect on simultaneous patient care activities to address the challenge of patient falls more efficiently.

Study Stage Two – Scale Up to a Comprehensive Fall Prevention Program for a Large Hospital Setting

Seeing the real world need to expand the exercise to reach more staff more quickly to address the issue of patients falling, the study was scaled up to reach greater numbers of staff through use of a computer-based learning management system (LMS)
during annual competency assessments. The LMS module included an evidence-based informational portion addressing two objectives: 1) to summarize the negative impact of inpatient falls on the healthcare delivery system, and 2) to identify and apply evidence-based nursing interventions that reduce inpatient falls and promote patient safety. The Mr. Foster’s Fall narrative simulation previously used in the face-to-face setting followed the informational portion of the Fall Prevention Program materials.

**Participants**

For stage two, the LMS module was required to be completed by every nurse and patient care technician (PCT) (n=1126) in the facility during a period of two months. Using the LMS, participation was individual and could be accomplished during patient care down time.

**Procedures**

Participants entered the computerized LMS module and reviewed the evidence-based instructional component followed by the same narrative simulation used in the stage one education.

**Measures**

Participants were required to take a 27-item test addressing the objectives (Appendix B). Participants were required to achieve a minimum of 85% correct to be considered passing. Those not passing on the first attempt were provided a second opportunity to succeed by achieving a minimum of 85% correct. Those remaining were provided remediation followed by a different LMS module (Appendix I) consisting of an evidence-based informational piece and a different narrative simulation with test. At this point, all who began and persisted through the sequence achieved the required passing
score (Figure 3.3). Participants were followed through the sequence using their unique employee numbers.

**Analysis**

For the Stage Two study, the outcome was reduction in number of falls per thousand patient days at the hospital. A knowledge test of fall prevention was administered using a within subject design, with no control group. The IRB at the hospital would not consent to the use of a control for this study; however, it is crucial to note that the reduction of falls IS the primary outcome of this training, and findings of fall prevention improvements are essential to patient quality care and hospital accreditation.
Chapter 4: Findings

Study Stage One Results

Research Question 1: Does user knowledge of outcomes of fall prevention decisions confirm the design intentions of the narrative simulation?

Development Stage One Phase One Results.

Data on knowledge of falls were compared pre- and post-intervention in order to discover whether the interactive narrative simulation and discussion were effective in increasing fall prevention knowledge scores. A paired-samples $t$-test (Table 4.1) was conducted to evaluate the impact of the intervention on fall prevention knowledge scores, and indeed, there was a statistically significant increase in fall prevention knowledge scores from Time 1 (mean score = 7.71, SD = 2.37) to Time 2 (mean score = 11.00, SD = 1.90), $t(17) = -5.74$, $p < .001$. The mean increase in scores was 3.29 on a scale of 0 - 13.

Table 4.1.

Stage 1/Phase 1: Paired Samples Statistics.

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>N</th>
<th>Standard Deviation</th>
<th>Standard Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Pre-</td>
<td>7.7450</td>
<td>17</td>
<td>2.36550</td>
<td>.57372</td>
</tr>
<tr>
<td>Total Post-</td>
<td>11.0000</td>
<td>17</td>
<td>1.90394</td>
<td>.46177</td>
</tr>
</tbody>
</table>

A few suggestions for change to the story and the testing to reflect nursing practice changes over the months of the initial study were advised by the writer’s dissertation committee. Consequently, both pieces were modified slightly with the addition of three additional items added to the pre- and post-testing as described in the next section.
Development Stage One Phase Two Results.

As observed in Table 4.2 below, the Stage One, Phase Two study group participants (N=32), were predominantly registered nurses (29 of 32 or 91%). The remaining three participants (9%) were patient care technicians (PCT).

### Table 4.2.

Demographic data reported by study participants in Development Stage One/Phase Two.

<table>
<thead>
<tr>
<th>Demographic Characteristic</th>
<th>N=32</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Job Title</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RN</td>
<td>29</td>
<td>90.62</td>
</tr>
<tr>
<td>PCT</td>
<td>3</td>
<td>9.37</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>25</td>
<td>78.12</td>
</tr>
<tr>
<td>Male</td>
<td>7</td>
<td>21.87</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range 23-58 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>M</em> = 35.25 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>SD</em> = 10.33 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Employment Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full time</td>
<td>30</td>
<td>93.75</td>
</tr>
<tr>
<td>Part time</td>
<td>2</td>
<td>6.25</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High school/GED</td>
<td>3</td>
<td>9.37</td>
</tr>
<tr>
<td>College</td>
<td>29</td>
<td>90.62</td>
</tr>
<tr>
<td><strong>Years in Position</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 year or less</td>
<td>4</td>
<td>12.50</td>
</tr>
<tr>
<td>2-5 years</td>
<td>15</td>
<td>46.88</td>
</tr>
<tr>
<td>6-10 years</td>
<td>7</td>
<td>21.88</td>
</tr>
<tr>
<td>&gt;10 years</td>
<td>6</td>
<td>18.75</td>
</tr>
<tr>
<td><strong>Years in Hospital</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 year or less</td>
<td>4</td>
<td>12.50</td>
</tr>
<tr>
<td>2-5 years</td>
<td>11</td>
<td>34.38</td>
</tr>
<tr>
<td>6-10 years</td>
<td>9</td>
<td>28.13</td>
</tr>
<tr>
<td>&gt;10 years</td>
<td>8</td>
<td>25.00</td>
</tr>
</tbody>
</table>

Participant ages ranged from 23 to 58 years old with a mean of 35.25 years (*SD* = 10.33 years). As anticipated, only seven of the 32 participants were male (22%), all of whom
were registered nurses, and only two participants (6%) were employed part time. The remainder of the participants were employed full time (94%).

Most participants (88%) had been employed at the hospital more than one year ($M = 7.56, SD = 6.6$). Likewise, a majority of the participants (88%) had been in their current position for more than one year ($M = 5.8, SD = 4.6$). The group was largely experienced in their jobs and had a history with their current work locations.

**Prior Experiences with Falls and Prior Knowledge of Fall Prevention**

Following the simulation were two contingency items that inquired about participants’ experiences with fall injuries, the first was a contingency question regarding personal experiences with falls, the second related to personal workplace fall experiences (see Appendix A). Of the 32 participants, 13 (40.63%) reported that they had previously had either a personal injury from a fall or a family member injured in a fall that resulted in injuries greater than a bruise or scratch (contingency item #1). Eight of the injuries were perceived by the participant as serious, and all 13 respondents believed that the falls could have been prevented.

When asked whether they had ever cared for a patient who had fallen during their shift, 29 (90.62%) participants answered affirmatively, and seven of those falls reportedly lead to additional hospital time for the patient.

A point-biserial correlation (Table 4.3) was conducted to evaluate the association between knowledge at Time 1 and the participants’ experience with patient falls. The results demonstrated a moderate, negative association between pre-knowledge score and the question “Have you ever cared for a patient who fell during your shift?”, $r = -.456$, $n = 32$, $p = .009$. The results indicate that higher pre-knowledge scores are associated with
participants responding “no” to the question “Have you ever cared for a patient who fell during your shift?”

**Table 4.3.**

*Prior Experiences with Falls and Prior Knowledge of Fall Prevention*

<table>
<thead>
<tr>
<th>Total Pre-Score</th>
<th>Have you ever cared for a patient who fell during your shift?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>- .456* (1)</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.009</td>
</tr>
<tr>
<td>N</td>
<td>32</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Have you ever cared for a patient who fell during your shift?</th>
<th>Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>- .456** (1)</td>
<td>.009</td>
<td>32</td>
</tr>
</tbody>
</table>

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

A second point-biserial correlation (Table 4.4) was conducted demonstrating the association between pre-knowledge score and the question “Did the patient who fell suffer injury(ies) resulting in additional hospital time?”, $r = -.397$, $n = 32$, $p = .033$. Again, the results demonstrate that higher pre-knowledge scores are associated with participants responding negatively to the question “Did the patient who fell suffer injury(ies) resulting in additional hospital time?”

The negative association of these questions to the Time 1 Fall Knowledge Test may point to participants who had higher levels of knowledge regarding fall risk factors being more attuned to mitigating fall risk for their patients.
Table 4.4.

Prior Experiences with Falls Resulting in Injury.

<table>
<thead>
<tr>
<th>Total Pre-Score</th>
<th>Did the patient who fell suffer injury(ies) resulting in additional hospital time?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>-.397**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.033</td>
</tr>
<tr>
<td>N</td>
<td>32</td>
</tr>
<tr>
<td>Did the patient who fell suffer injury(ies) resulting in additional hospital time?</td>
<td>Pearson Correlation</td>
</tr>
<tr>
<td></td>
<td>-.397**</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
</tr>
<tr>
<td></td>
<td>.033</td>
</tr>
<tr>
<td></td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>29</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.05 level (2-tailed)

A paired-samples t-test was conducted to evaluate the impact of the intervention on students’ scores on the Fall Knowledge Test (Table 4.5). A statistically significant increase in the scores from Time 1 ($M = 10.4375, SD = 2.55$) to Time 2 ($M = 15.2813, SD = 0.92403$), $t(31) = -10.572, p < 0.001$ (two-tails) was found. The mean increase was 4.84 points on the Fall Knowledge Test with a 95% confidence interval ranging from 3.90935 to 5.77815. The eta squared statistic was .78561, which indicates a large effect size.

Table 4.5.

Stage 1/Phase 2: Paired Samples Statistics.

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>N</th>
<th>Standard Deviation</th>
<th>Standard Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Pre-</td>
<td>10.4375</td>
<td>32</td>
<td>2.55188</td>
<td>.45111</td>
</tr>
<tr>
<td>Total Post-</td>
<td>15.2813</td>
<td>32</td>
<td>.92403</td>
<td>.16335</td>
</tr>
</tbody>
</table>
Verisimilitude of the Simulation: Participant Evaluation of the Exercise

Following the intervention simulation, participants in Stage 1, Phase 2 were asked to respond, using a four-point Likert Scale, whether they believed a situation such as that discussed during the simulation could happen to them. Without exception, all \((n = 32)\) agreed that the fall incident described could have possibly occurred while the patient was under their care. Continuing that line of questioning, and using the four-point Likert scale, respondents were asked to respond to whether they believed their participation in the simulation exercise would help them anticipate and prevent patient falls in the future (Table 4.6). Of the responders, 91\% \((n = 29)\) agreed or strongly agreed that they believed their participation in this study supported their abilities to anticipate and prevent future patient falls. With a single exception, the respondents \((97\%, n = 31)\) believed they had learned something new through their participation in this exercise.

Table 4.6.
Simulation Participant Evaluation.

<table>
<thead>
<tr>
<th>Item</th>
<th>Strongly Disagree</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>The situation described in this exercise could happen to me.</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>29</td>
</tr>
<tr>
<td>I learned nothing new from this exercise.</td>
<td>19</td>
<td>12</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>This exercise helped me to understand the importance of hourly rounding.</td>
<td>0</td>
<td>3</td>
<td>19</td>
<td>10</td>
</tr>
<tr>
<td>This exercise helped me identify some environmental risk factors for falls.</td>
<td>0</td>
<td>0</td>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td>This exercise helped me understand how to document patient falls.</td>
<td>1</td>
<td>0</td>
<td>10</td>
<td>21</td>
</tr>
<tr>
<td>This exercise will help me to anticipate and prevent patient falls in the future.</td>
<td>1</td>
<td>2</td>
<td>14</td>
<td>15</td>
</tr>
</tbody>
</table>
Relationship Between Scores on Decision Points in Simulation and Knowledge Post-Test Scores

During the simulation, participants’ responses to the decision points were recorded on an answer sheet embedded in the simulation. These responses were tallied by the researcher and used to examine relationships between those decision points and post-test scores. As shown in Table 4.7, a Pearson Correlation was conducted to examine the relationship between scores on the decision points within the story and post activity knowledge scores. The results revealed a strong positive correlation between the two variables, $r = .487$, $n = 32$, $p = .005$, meaning that higher scores on the decision point questions are associated with higher scores on the post-intervention Fall Knowledge Test, and lower scores on the decision point questions are associated with lower scores on the post-intervention Fall Knowledge Test.

Table 4.7.

<table>
<thead>
<tr>
<th>Correlations.</th>
<th>Total Pre-Score</th>
<th>Total Knowledge Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Post-Knowledge Score</td>
<td>Pearson 1</td>
<td>.487</td>
</tr>
<tr>
<td>Correlation Sig. (2-tailed) 32</td>
<td>.005</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>32</td>
<td>32</td>
</tr>
<tr>
<td>Total Decision Points Choice Score</td>
<td>Pearson .487</td>
<td>1</td>
</tr>
<tr>
<td>Correlation Sig. (2-tailed) 32</td>
<td>.005</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>32</td>
<td>32</td>
</tr>
</tbody>
</table>

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

Group Discussion at Decision Points

The group discussions occurring at the decision points in the narrative simulation were quite interesting and revealed insights into participants’ patient fall prevention
knowledge and awareness. For example, several participants recognized toileting issues as a major factor in patient falls, and they knew that Mr. Foster would be unsteady if he were to get out of bed by himself after the surgery and anesthesia. However, they generally failed to recognize that he may have forgotten the instructions he got from the nurse when he was admitted to the patient room after surgery. There was some discussion of how Mrs. Foster should have gotten some instructions regarding letting the staff know when she left the room. No one identified that since Mr. Foster was accustomed to taking care of his own needs independently, it was not likely he would call for help in getting to the bathroom.

At the second decision point discussion, it was apparent that staff knew the floor should be clear and dry, but they failed to consider Mr. Foster’s medication load and the potential for confusion following anesthesia as fall risk factors. Additionally, being in an unfamiliar environment was not considered a risk factor. Participants needed to be reminded that their own familiarity with the environment and routine of the patient care unit should not cause them to overlook Mr. Foster’s need for some orientation to his new environment and its routine to prevent falls. The discussions generally were productive and some participants experienced ‘aha’ moments talking about how they would be more attentive to these fall risk factors.

**Implementation Study Stage Two Results**

Research Question 2: Does hospital employee demonstration of mastery of knowledge of risk factors for patient falls change following participation in a large scale, comprehensive, hospital fall prevention program that includes informational instruction combined with a narrative simulation?
Recall that a key finding from the Development Stage study was that the time required to use the simulation simply was not practical in a large urban hospital setting. To scale up the implementation of the simulation to include more participants and reduce the time for all patient care workers to complete the simulation, the use of the computerized learning management system (LMS) with evidence-based direct instruction was included at the beginning of the module. Participants then moved through the narrative simulation with decision points and progressed to the test at the end of the module. A mastery knowledge outcome was also employed; participants were required to score 85% or higher on the test in order to pass. A total of 1,126 participants, 829 nurses and 297 patient care technicians (PCT), completed the module at 2015 Time 1. Those not achieving the required minimum score were required to repeat the module. A total of 108 of the 2015 Time 1 test takers, 92 nurses and 16 PCTs, repeated the module at 2015 Time 2. Of the original group, a total of 16 PCTs did not achieve the required minimum at the second testing and went on to the third attempt.

The third attempt (2015 Time 3) involved a different evidence-based instructional module with a different narrative simulation (Appendix X) both of which followed one-on-one remediation with a nurse instructor. One PCT continued to the third attempt and was successful in achieving the required minimum score of 85% (Table 4.6).

As this LMS module has become an annual requirement for all nurses and patient care technicians, 772 nurses and PCTs did the module again in the fall of 2016. Of that group, all achieved scores $\geq 85\%$ and passed.
Table 4.8.

Study Stage Two Participants and Test Scores.

<table>
<thead>
<tr>
<th></th>
<th>2015 Time 1</th>
<th>2015 Time 2</th>
<th>2015 Time 3</th>
<th>2016 Time 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nurse</td>
<td>n=829</td>
<td>n=92</td>
<td>n=16</td>
<td>n=569</td>
</tr>
<tr>
<td>Score ≥ 85%</td>
<td>87%</td>
<td>82%</td>
<td>87.5%</td>
<td>100%</td>
</tr>
<tr>
<td>(n=721*)</td>
<td>(n=75*)</td>
<td>(n=16)</td>
<td>(n=1*)</td>
<td>(n=203)</td>
</tr>
<tr>
<td>Score Range</td>
<td>8-100%</td>
<td>50-100%</td>
<td>77-100%</td>
<td>94%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>81-96%</td>
<td></td>
</tr>
<tr>
<td>Nurse = RN or LPN</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCT</td>
<td>n=297</td>
<td>n=16</td>
<td>n=16</td>
<td>n=203</td>
</tr>
<tr>
<td>Score ≥ 85%</td>
<td>89%</td>
<td>87.5%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>(n=264*)</td>
<td>(n=16)</td>
<td>(n=1*)</td>
<td>(n=569)</td>
<td>(n=203)</td>
</tr>
<tr>
<td>Score Range</td>
<td>50-100%</td>
<td>81-100%</td>
<td>85-100%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Discrepancies in number totals reflect personnel turnover in the employee position*

Research Question 3: How does participation in the fall prevention program change hospital staff’s abilities to prevent patient falls as measured by the fall rate/thousand patient days?

In collecting baseline patient fall data from calendar year 2012, prior to beginning this project, the rate of patient falls per 1,000 patient days in calendar year 2012 was 4.79. During the year that this study began (2014), the rate was 3.46 falls per 1,000 patient days, a 28% decrease from 2012. Beginning in the summer 2014, testing of the simulation began as part of the effort to develop an improved employee fall training program. Since 2015, all patient care employees have participated in the Study Stage Two evidence-based instruction with narrative simulation at least twice, once in 2015 and again in 2016. In that two-year period plus the first quarter of 2017 the hospital has experienced a 30.6% decrease in numbers of patient falls, as shown in Figure 4.1. There has been a consistent decline in the falls/thousand patient days rate over the course of the comprehensive fall training implementation, and a sustained drop below the benchmark has been achieved.
Figure 4.1. Falls per 1,000 Patient Days with Timeline of Fall Prevention Initiatives
Chapter 5: Discussion and Implications for Further Study

Development of the Simulation: Design Intentions and Decision Making and Awareness of Fall Prevention for Patients as Individuals

An important outcome of this research is the design and testing of the narrative simulation, *Mr. Foster’s Fall*, for use in the acute care hospital setting. While the Haddon Phase by Factor Injury Matrix was previously used in other industries, including agricultural safety, fire safety, and mining, this writer found no report of prior use of narrative simulation in the acute care hospital setting. The Institute of Medicine (IOM) report of 2000, *To Err is Human: Building a Safer Health System*, encourages the healthcare industry to take lessons learned in other businesses to aid development of awareness of safety issues and the need for improved performance in those areas. The IOM emphasizes that it is important to plan for safety in any business endeavor including the business of healthcare. Part of planning for safety in an acute care setting relies on the hospital staff’s recognition of patient safety risk factors and the use of critical thinking to plan and take action to avoid circumstances that put patients at risk. The Haddon Phase by Factor Injury Matrix provides an evidence-based format for development of narratives encouraging reflection on what is known about a situation prompting critical thinking about actions that might be taken to avert an accident. This sort of critical thinking leads to better clinical decision making.

The narrative simulation used in this study is experience-based and depicts a scenario that is both realistic and plausible. Anyone working in patient care in a hospital setting should be able to relate to the sort of challenge described in the narrative’s scenario with the falling patient. This sort of connection is especially important in
designing instruction for the workplace intended for use with multiple job titles and varying education levels. Participants should be able to see themselves in the scenario and find the narrative realistic and plausible, and in this case, 100% of the participants ($n = 32$) in Study Stage One, Phase Two agreed that the situation and circumstances described could happen to them.

Of interest, participants who indicated they had never had a patient fall while in their care scored higher on the Time 1 of the Fall Knowledge Test. This finding leads one to speculate that those with a higher level of knowledge regarding patient fall prevention are less likely to have a patient fall since the health care worker is more aware of fall prevention measures. Such a finding also supports the employer’s investment in fall prevention employee education as one piece of a comprehensive safety education plan, reinforcing and nurturing a culture of safety within the facility.

It was anticipated that more job categories would be represented among the volunteer group of participants. One wonders whether fall prevention knowledge is perceived as important by those who are not in hands-on patient care job categories such as housekeeping and food service.

Verisimilitude of the simulation was high and likely memorable, and the relationship between the decision point responses and the knowledge gains was positive, indicating that the simulation was leading the participants to critically think about the *pre-injury events* – the only time when falls can be *prevented* through such decisions. As in Cole’s (1997) research, the conversion of experiences to stories leads to the integration of facts, perceptions, emotions, actions, intentions, and consequences, and thus critical thinking and decision making in a contextualized situation.
While use of this narrative simulation in conjunction with the evidence-based instructional information delivered via the LMS technology has been but one piece of patient fall reduction in the hospital, it has been important in conveying effective instruction with consistent information to large numbers of patient care workers in a relatively short period of time. This sort of simulation with the instructional module could be extended to address other concerns for patient safety as well, aiding the development and nurturing of a culture of safety within the facility. Consider, for instance, the challenge of prevention of pressure injuries (HAPI) or catheter associated urinary tract infections (CAUTI).

The relationship between scores on the decision points within the story and post activity knowledge scores revealed a strong positive correlation between the two variables meaning that higher scores on the decision point questions were associated with higher scores on the post-intervention Fall Knowledge Test, and lower scores on the decision point questions were associated with lower scores on the post-intervention Fall Knowledge Test. These outcomes support the use of the narrative simulation to encourage critical thinking about the circumstances described in the simulation to prompt better decisions in providing patient care and preventing falls.

**Implementation Findings Discussion: Mastery of Knowledge of Risk Factors for Fall Prevention**

Participants in this study demonstrated mastery of knowledge of fall risk factors in multiple ways. They passed the test after completing the narrative simulation and informational LMS with a score of 85% or better, and they implemented what they learned as evidenced by the significant reduction in patient falls. Retention of knowledge
is demonstrated in their scores on the post-test in the next year as well as the continued decline in patient falls.

**Implementation Findings Discussion: The Comprehensive Fall Prevention Training Program and Fall Reduction Outcomes.**

Participating in the fall prevention educational program clearly had an effect on reduction of patient falls as demonstrated by the significant decrease in the rate of patient falls per thousand patient days during the years of this study. Therefore, this comprehensive fall prevention education approach has been an important addition to the development of a culture of safety in the facility.

In reviewing the data in Figure 4.1 (previous chapter), one can note the drop from 2012 to 2014 prior to the implementation of the training program that was the focus of this case. This drop may be attributed to multiple initiatives related to fall prevention including increased attention to the issue, resulting from a stepped-up culture of safety approach at the hospital. However, in the next year, immediately following that downturn, there was an uptick in falls/thousand patient days. During this time, there was also an extensive hiring of approximately 100 new patient care employees, suggesting that employees with less experience and familiarity with the facility was also a possible factor.

**Recommendations for Further Investigation**

One important finding of this study is that the Haddon Phase by Factor Injury Matrix, not previously used in patient safety instruction, could provide a framework for development of narrative simulations addressing patient fall prevention by encouraging
critical thinking among the nursing staff leading to better clinical decision making and should be considered for future research in other patient safety areas as well.

This study took place in a single acute-care, community hospital located in a sizable city where, according to 2014 Census Data, 40.6% of adults over 25 have at least a bachelor’s degree and 17% have an advanced degree, making it the 13th best educated large city in the nation (Guide to the Bluegrass, 2015). Additionally, nearly 60% of persons 18-24 years of age are currently enrolled in college or graduate school. Thus, findings from this single, well-educated employee group may not be generalizable to other patient care sites. In the study facility, 54% of the nurses have earned at least a bachelor’s degree in nursing. More than 90% of the participants in Stage One of this study had a college education and nearly 90% had two or more years’ patient care experience. The majority of the Patient Care Technicians employed by the facility are also nursing students. Undertaken at a rural site or one where participants might not be so well-educated or experienced, one might find a need to augment the narrative simulation with other types of teaching activities such as the evidence-based instructional portion added during Study Stage 2. One might also consider the use of such an educational structure to address patient safety issues in ambulatory settings. Further investigation is needed to ascertain usefulness at other healthcare sites.

This sort of comprehensive fall prevention education might also be designed at a more complex level to include in the clinical career ladder for nurses in the institution. Such an initiative may aid the development of champions for fall prevention throughout the facility and further support the culture of safety.
Developing the LMS data collection to track more fine-grained participant responses during the mastery training cycles would also suggest further areas to target for further or continuing education training. The LMS in this study was not set up to capture those data.

As with all case study investigations, one outcome is typically the identification of variables that might be examined in a more systematic, experimental study follow up. The use of a control group at another hospital not using this particular comprehensive training program with a narrative simulation component would certainly be in order. Additionally, several independent variables might also be employed in another study using quantitative analyses. For example, if simulation decision point data were available in addition to the informational data, participants could be grouped by performance decision scores and then fall prevention areas in which high or lower performers on that decision making could be identified and also emphasized during training. Or, perhaps as a design improvement in the simulation portion of the training could provide real-time feedback after their decision was recorded for mastery scoring, providing additional instructional impact.

**Limitations of the Study**

Case study research is limited by design, in the capacity to generalize findings to larger populations. Thus, the findings of this case study should be carefully extrapolated to similar case contexts and situations.

The researcher was in charge of the design and implementation of the fall prevention program that was the focus of this study. Researcher bias was addressed through professional reflection and also, obviously, through the use of fall data statistics.
to show fall reductions achieved by other hospital staff charged with those responsibilities.

Several other activities have been carried out across the years of this study that may have also had an effect on the patient fall rate, including activities conducted during the annual National Fall Prevention Awareness Day recognition (first day of the autumn, or fall, season every year), increased rounding by unit directors and charge nurses focusing on fall prevention, toileting protocols, medication reviews, new signage, gait belts available in every patient room, and follow up of every patient fall with the involved staff to determine the cause of the fall and what might have been done differently to prevent the accident, again prompting reflection and critical thinking among those involved. While all these activities likely had some influence over the rate of patient falls, the decrease was not sustained with these time limited initiatives. It remains to be seen whether the use of the LMS module including the narrative simulation will instigate a persistent decline in the rate of patient falls; however, the results of this study, with the fall rate declining to below the benchmark, are suggestive of the value of this sort of educational endeavor making it worth continued use.

Conclusion

This project has been a longitudinal, case study with embedded subunits carried out in the context of a large, urban hospital and intended to encourage patient care workers to reflect on what they know about their patients and their circumstances in order to plan fall prevention measures suitable for each patient. The first subunit (Study Stage One) involved the design and development of the narrative simulation based on the Haddon Phase by Factor Injury Matrix. The simulation was developed and refined in
small group testing. Analysis of collected data from the use of the narrative simulation demonstrated an improvement in participant knowledge of measures to prevent patient falls, but the dissemination of this sort of education was prohibitively slow and inefficient for reaching more than one thousand patient care workers in a reasonable time frame to address a pressing patient safety challenge. To address this issue more efficiently, the narrative simulation developed for Study Stage One was added to a computerized, evidence-based informational module and distributed through the facility’s learning management system (LMS) constituting the second subunit for this case study (Study Stage Two). Data collected across the years of use (2015-2017) of the LMS module demonstrate both an increase in fall prevention knowledge, mastery of the subject matter among patient care workers, and a decrease in the rate of patient falls in the facility, thus improving patient safety, supporting a culture of safety, and ultimately cultivating better patient outcomes.
APPENDICES
Appendix A

Mr. Foster’s Fall

This is a story about Mr. Foster and his hospital stay.

Instructions

Put yourselves in groups of three or four. Read the story and answer the questions that appear in the text.

Mark your answers on the answer sheet. After you have selected your answers to a question, discuss your choices among your group, but please don’t change your answers on your answer sheet. Continue reading the story while answering and discussing the questions.

When you finish the story, ask for a copy of the answer key. Compare your answers to those in the key, but don’t change your answers. Discuss the story and answers with the group and the instructor. When you finish, complete the questionnaire attached to the answer sheet. Give the booklet and the completed answer sheet to the instructor. Your responses will be used to improve the exercise. Thanks!
Mr. Foster’s Fall

Mr. Foster is a 62-year old farmer from Central Kentucky. He lives on his farm with his wife of 40 years. They enjoy their farm life and appreciate their independence.

From his years of working on the farm, he is in good shape physically. He’s never been sick with anything more than a cold. Mr. Foster sees his family physician regularly, eats well, and gets plenty of exercise working on the farm.

Two days ago, Mr. Foster started having some pain in his lower abdomen. He thought it might have been something he ate, but he didn’t want to bother his doctor with a ‘stomach ache.’ He continued to take care of the cattle and work around the farm, but he wasn’t moving quite as fast as usual. Yesterday evening, the pain was so bad that he couldn’t eat dinner, and he had to go straight to bed when he came in from the farm. It was too late in the day to get in to see his doctor, so he decided he’d call first thing in the morning. The pain kept him awake all night, though, and it seemed to be localizing to the right lower quadrant.

Mr. Foster called the doctor’s office when they opened the next morning and described the pain. The nurse told him to come right in to the office. When he got to the office, Mr. Foster discovered that his pain was much better, but he had a fever and just felt generally awful. After examining him, the doctor advised Mr. Foster to go straight to the hospital.
Upon arrival at the hospital accompanied by his wife, Mr. Foster had some lab work and x-rays done. His doctor had called a surgeon, and the surgeon soon came to examine Mr. Foster and decided that Mr. Foster probably had a ruptured appendix. Mr. Foster went off to the operating room quickly.

After his surgery, Mr. Foster was returned to his room in the late afternoon, but he was still groggy from the anesthesia. The nurse greeted him, assessed his vital signs and wound, checked his IV, and instructed him not to get out of bed without assistance. She gave him the nurse call button and left him to sleep it off. Mrs. Foster told him she’d be back after she took care of the cattle, and she left.

What do you think is going on here? (For each item, circle T or F on the answer sheet.)

T F 1. Mr. Foster is a usually healthy man who is accustomed to taking care of things for himself.

T F 2. Mr. Foster remembers in detail all of his post-operative instructions from the nurse.

T F 3. Since he hadn’t slept the night before, Mr. Foster will sleep the rest of the day and through the night.

T F 4. Patients recovering from anesthesia need extra assistance with activities of daily living until they are fully recovered.

(After you have marked your answers, please continue with the story.)
Mr. Foster awakens in a strange, darkened room a couple of hours later. He’s alone. At first, he couldn’t recall where he was, but in a few minutes, he remembered he was in the hospital. His sore belly reminded him of his situation when he moved to turn over in the bed. He sees the IV in his arm, and he has this overwhelming urge to get to the bathroom quickly.

Mr. Foster sits up on the side of his bed and discovers that he is very dizzy. He decides he can use the IV pole to help steady himself, and he stands up – wow! That hurts! The pain is almost as bad as it was before the surgery. He still feels a little dizzy, but he really has to go to the bathroom. He’s been going to the bathroom by himself all his life, so there’s no need for help now. Besides, that would be embarrassing if he had to call for help. He starts rolling the pole toward the bathroom. He really needs to hurry now, but every step hurts. He gets his foot tangled in the blanket dangling over the end of the bed, and he goes sliding landing on his butt in the floor. Now what can he do?! He sees the lounge chair close by, and he tries to use it to help himself get out of the floor, but the chair rolls away when he puts any pressure on it. He calls out for help. He really needs to get to the bathroom.

Circle the correct response(s) for each item on your answer sheet. Select all that apply.

5. The healthcare worker knows environmental fall hazards for patients include:
   a. clutter at the bedside.
   b. linen in the floor.
   c. flowers on the windowsill.
   d. water in the floor.

6. Risk factors for patient falls in the hospital include:
   a. previous history of falling.
   b. multiple medications.
   c. impaired mobility.
   d. confusion.
7. Patients with impaired mobility should be:
   a. confined to bed.
   b. encouraged to mobilize with assistance.
   c. assisted with transfers.
   d. evaluated for strength and ability to mobilize.

8. Fall risk factors for Mr. Foster include:
   a. unfamiliar environment.
   b. dizziness.
   c. pain.
   d. urgency.

What additional fall risk factors for Mr. Foster can you identify? Discuss among your group and share your response.

(After your discussion, please continue with the story.)

Mr. Foster’s calls for help got the attention of the PCT in the hallway who went quickly to the room. Upon finding Mr. Foster in the floor, the PCT called for the nurse who also came quickly. Together they got Mr. Foster back to his bed, and the PCT went for a urinal. The nurse quickly conducted a head-to-toe assessment and determined that Mr. Foster had not suffered any injury. The nurse notified the house supervisor and Mr. Foster’s physician and wife of the incident and then documented everything objectively and completed an objective incident report.

Nursing staff on the unit on which Mr. Foster is a patient routinely conduct purposeful hourly rounding. During the hourly rounding with each patient, nursing personnel are expected to address the five P’s including Pain, Potty, Position, Possessions, and Protection. Even though Mr. Foster had been asleep during the previous two hours of rounding by the nurse and the PCT, based on what you know about Mr. Foster and his room, what might staff have been able to do to prevent a fall?

Discuss among your group and share your findings.
Thinking about the story of Mr. Foster’s fall and the exercise you’ve just completed, circle one number after each of the following statements reflecting your agreement or disagreement with each.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.</td>
<td>The situation described in this exercise could happen to me.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>10.</td>
<td>I learned nothing new from this exercise.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>11.</td>
<td>This exercise helped me to understand the importance of hourly rounding.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>12.</td>
<td>This exercise helped me identify some environmental risk factors for falls.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>13.</td>
<td>This exercise helped me understand how to document patient falls.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>14.</td>
<td>This exercise will help me to anticipate and prevent patient falls in the future.</td>
<td>1</td>
<td>2</td>
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Appendix B

Reducing Inpatient Falls Using an Evidence-Based Practice Approach

Objectives

- Summarize the negative impact of inpatient falls on the healthcare delivery system.
- Identify and apply evidence-based nursing interventions that reduce inpatient falls and promote patient safety.

Formal Definition

A patient fall:
- Is an unintentional loss of balance
- Is assisted or unassisted
- May result in injury
- Includes an unplanned assisted lowering to ground

Negative Impact on Healthcare

Falls are the most common patient safety incident in acute care:
- Results in mild to major injuries
- Increases hospital length of stay and costs of care
- Often results in admission to longer-term care facilities

Negative Impact on Healthcare

- KY incidence:
  - 585,000 healthcare visits related to falls (2014)
  - 7,392,017 injuries
  - 12% of those who fall cannot return home to live independently
  - National incidence of inpatient fall risk: 54.9% million by 2020

Intrinsic Risk Factors for Inpatient Falls

- History of falls
- Age (>65 years)
- Multiple comorbidities
- Cognitive impairment, vision, hearing
- Evolving fractures
- Impaired mobility
- Obstructed/compromised
- Pain, stress
- Tachypnea, tachycardia
- Sedatives
- Alcohol or substance abuse
Extrinsic Risk Factors for Inpatient Falls
- New environment
- Poor lighting
- Trip hazards
- Accessibility of call light & belongings
- Location of room away from nurse's station
- Unsafe footwear
- Hospital floors

Evidence Base
- From our research, we know that the top three indicators of fall potential among our Baptist Health Lexington patients are:
  - History of a fall within last six months (due to another patient)
  - About three times more likely to have an inpatient fall
  - Confused/disoriented patient
  - Frequent toileting needs

Evidence-Based Fall Prevention Program
- Interventions cited in the literature that support patient safety and reduce the risk of inpatient falls have been implemented through the collaborative efforts of nurses, PCTs, nurse leaders, and members of the interdisciplinary team.

Patient- and Family-Centered Education and General Safety Measures
- Every patient is taught to call for a fall activity.
- Provide the following general safety measures:
  - Orient patient/family to room and ensure call light is within reach.
  - Place bed in lowest position.
  - Ensure bed and/or chair wheels are locked.
  - Ensure patient's room is free of clutter and obstructions.
  - Ensure personal items are within reasonable reach (telephone, bedside table, water, eyeglasses, wrist watch, etc.).

Patient- and Family-Centered Education
- Ensure adequate lighting in the patient’s room.
- Encourage patient/family to call for assistance when help is needed.
- Ensure personal needs of the patient are communicated among members of the interdisciplinary team (i.e., mobility issues, HOH, speech difficulties, etc.) and provide alternatives whenever possible.

Fall Prevention Equipment
- Educate, implement, and document the following precautions for all patients as appropriate. Implementation of alarms and assistive devices should be based on patient/family needs as well as physical patient identification:
  - Bed alarms (high-risk patients)
  - Chair alarms (high-risk patients)
  - Communication boards
  - Personal alarms and visual aids (e.g., fall alarm wands, eyeglasses, etc.)
  - Gait belt/assistive devices (high risk and/or impaired mobility)
  - Lift system & transport boards
  - Bed/Chair hoots
  - BIB available in all patient rooms
Scripting of Communication

- Why: To promote safety and communication
- Phrasing: "Come help me to the bathroom. Would you mind waiting just outside the door so I can call you when I am done?" Always have someone with you when using the bathroom. Never leave a patient alone in the bathroom.
- Procedures: "Can you help me to the bathroom?"
- Questions: "What are you doing alone in the bathroom?"

Toileting Protocols

- Establish a toileting schedule: Never leave patient alone.
  - Alone in a BSC:
  - Alone in the bathroom:
  - Sitting on the side of bed:
- Always use a patient bath when helping a patient out of bed.

Post-Fall Huddles

Purpose of Post-Fall Huddles is to review and identify:
- Risk assessment
- Compliance with program
- Gaps in practice
- Opportunities for improvement

Nurse Empowerment

As a Magnet nurse, you are encouraged and empowered to initiate the high-risk fall protocol interventions based upon:
- Your nursing judgment
- When patients do not score 13 or greater on the assessment

Case Study

Mr. Foster is a 62-year-old farmer from Central Kentucky. He lives on his farm with his wife of 45 years. They enjoy their farm life and appreciate their independence. From his years of working on the farm, he is in good shape physically. He's never been sick with anything more than a cold. Mr. Foster sees his family physician regularly and he, as well, gets plenty of exercise working on the farm.

Two days ago, Mr. Foster started feeling some pain in his lower abdomen. He thought it might have been something he ate, but he didn't want to bother his daughter with a "minor" issue. He continued to work on the farm until work around the farm, but he wasn't moving quite as Foster usually. Yesterday evening, the pain was so bad that he couldn't eat dinner. He decided to call the family physician first thing in the morning and went straight to the hospital. The pain kept him awake all night, and it seemed to be localized in the right lower quadrant.

The next day, Mr. Foster called the physician's office where he was quickly admitted and taken to the hospital. Upon arrival, Mr. Foster had severe back pain and was vomiting. The physician consulted a surgeon, and was given a rapid diagnosis of a ruptured appendix. Mr. Foster went off to the OR immediately.
After his surgery, Mr. Foster was admitted to the floor in the late afternoon. He was still groggy from the anesthesia. The nurse greeted him and explained the post-op instructions as outlined, including to use the call button and get out of bed with assistance. She gave him the call button and left him to sleep. Mr. Foster told her he needed to get back after the nurse care of the patient, and then left.

Risk Considerations

Mr. Foster is a usually healthy man who is accustomed to taking care of things for himself.

True

False

Mr. Foster remembers in detail all of his post-operative instructions from the nurse.

True

False

Since he didn't sleep the night before, Mr. Foster will sleep the rest of the day and through the night.

True

False
Since he hadn’t slept the night before, Mr. Foster will sleep the rest of the day and through the night.

- True
- False

Patients recovering from anesthesia need extra assistance with activities of daily living until they are full recovered.

- True
- False

Mr. Foster awakens in a trance, feeling more or less normal. Heart beaten flat, he doesn’t want to wake up. He seems to be dead, he was in the hospital. The nurses around him were him in his room, they asked him if he had any questions when he woke up. He sat up in bed, and he felt overwhelmed by the idea of getting to the bathroom. Quickly.

Mr. Foster sits up on the side of his bed and discovers that he is very dizzy. He decides to see if he can use the bed rail to help steady himself, and he stands up — very carefully.

"The heart is easy to treat," the nurse added, as she sat down on the chair. He still felt a little dizzy, but he decided to go to the bathroom. He had been going to the bathroom by himself all his life, and he’s used to needing for help now. Nursing, less about caring for someone, it’s about getting help.

He starts walking the pole toward the bathroom. He really needs to hurry now, but every step turns. He gets his feet tangled in the tangled lamp over the floor, and he tries to get back on his feet. Now what can be done? He waves to the nearest door, and he turns on the lights in the room, and he’s able to get around on the floor, but the door will swing when he push on pressure on it. He calls for help. He really needs to get to the bathroom.

Mr. Foster is the only one help get the attention of the ICU in the hallway who went quickly to the room. Upon walking in front of the room, the ICU called for the nurse who also came quickly. Together they get Mr. Foster to his bed, and he PCU went for control.

The nurse quickly conducted a head-to-toe assessment and determined that Mr. Foster had not suffered any injury. The nurse notified the house supervisor and both the nurse’s physician and nurse of the incident and then documented everything objectively in the patient’s chart and comprehensive incident report.

Aurora Health Care notified the public via the health hotline, the ICU, the patient, and the OSN. Nursing staff on the unit, or which Mr. Foster is in patient, notify conduct comprehensive intensive rounding. During the hour, when with each patient, nursing personnel are expected to address the RN’s including him, Inky, Ingrid, Ines, and Harriet. Even though the incident was brief, matters involving the patient’s health and well-being, and medical nature or what you know about the event or history, what staff has been able to do to prevent a redo.

73
The healthcare worker knows environmental fall hazards for patients include: (select all that apply)

- clutter at the bedside.
- linen in the floor.
- flowers on the window sill.
- water in the floor.

The healthcare worker knows environmental fall hazards for patients include: (select all that apply)

- clutter at the bedside.
- linen in the floor.
- flowers on the window sill.
- water in the floor.

Patients with impaired mobility should be (select all that apply):

- encouraged to mobilize with assistance.
- assisted with transfers.
- evaluated for strength and ability to mobilize.
- referred for exercise program or prescription of walking aids as appropriate.

Patients with impaired mobility should be (select all that apply):

- encouraged to mobilize with assistance.
- assisted with transfers.
- evaluated for strength and ability to mobilize.
- referred for exercise program or prescription of walking aids as appropriate.

Fall risk factors for Mr. Foster include (select all that apply):

- unfamiliar environment.
- dizziness.
- pain.
- urgency.

Fall risk factors for Mr. Foster include (select all that apply):

- unfamiliar environment.
- dizziness.
- pain.
- urgency.
Evidence-Based Fall Prevention Program

- Patient-family centered education
- Patient needs high risk fall risk Assessment tool
- Appropriateness of round
- Individualized communication
- Fall prevention, education
- Fall risk reduction
- Nurse engagement

Please proceed to the post test.
1. Which of the following is considered the most common patient safety incident in acute care organizations?
   a. wrong site surgeries
   b. hospital-acquired pressure ulcers
   c. inpatient falls
   d. central line infections

2. Inpatient falls are likely to increase the patient’s overall length of stay.
   a. True
   b. False

3. Which of these patients might be at a higher risk for falling?
   a. A patient experiencing alcohol withdrawal
   b. A female patient receiving an oral bowel preparation
   c. A male patient receiving moderate doses of IV vasodilators
   d. All of the above
   e. None of the above

4. Current nursing research studies have found that patients are at a higher risk for falling during hospitalization if he/she:
   a. fell in the last 6 months
   b. requires frequent toileting
   c. is confused and disoriented
   d. all of the above

5. Based on existing research, which of the following factors identifies the patient as being about three times the normal risk for an inpatient fall?
   a. fell in the last 6 months
   b. requires frequent toileting
   c. is confused and disoriented
   d. takes multiple medications
6. Which of the following are considered common causes of inpatient falls as cited in the literature?
   a. A diagnosis of diabetes, hypertension, and dehydration
   b. A patient whose room is cluttered and dark
   c. A patient who has IV Morphine administered for post-operative pain control
   d. All of the above

7. The literature indicates implementation of bedside reporting and walking rounds, including communication of each patient's risk for falling is key to improved patient safety.
   a. True
   b. False

8. Supporting use of the buddy system for nurses on patient care units, a patient's risk for falling should be communicated to the buddy as well as the PCT at the beginning of each shift.
   a. True
   b. False

9. In order to obtain the best patient outcomes related to inpatient falls, organizational policies that address screening and prevention interventions should be based on:
   a. Journal articles
   b. Evidence as cited in the research studies
   c. Best practice only
   d. All of the above

10. Which of the following is a common cause for inpatient falls?
    a. Use of walker or cane when ambulating
    b. Use of non-slip footwear when walking to the restroom
    c. Lack of comprehensive screening and prevention programs
    d. Lack of evidence-based fall risk assessments
    e. Both a & b

11. Education on general safety measures to prevent inpatient falls should be provided to which of the following patient populations?
    a. Patients at low risk for falls
    b. Patients at moderate risk for falls
    c. Patients at high risk for falls
    d. All patients and families admitted to the organization
12. According to BH&Ex policy, the provision of patient and family-centered education on fall prevention strategies and documentation in the nursing record should occur:
   a. Upon admission in the nursing database
   b. Upon the onset of each shift as part of the initial assessment
   c. Upon any change in the patient's condition or in the event of a fall
   d. All of the above

13. Implementation of fall prevention equipment (e.g. bed/chair alarms, gait belts, walkers, etc.) is required with any patient identified at high risk for falls based on clinical nurse judgment, even if the patient would not otherwise score as high risk.
   a. True
   b. False

14. Per BH&Ex policy, the Baptist Health High Risk Falls Assessment should be completed and documented on every patient:
   a. At the beginning of each shift
   b. Incidentally after a fall occurs
   c. When patient returns from a procedure and receives IV infusion
   d. After the completion of a Code 10 or Rapid Response Team event
   e. All of the above

15. When completing the Nurse Judgment Score on the Baptist Health High Risk Falls Assessment, the nurse should consider which of the following when calculating the score?
   a. Administering a diagnosis of a CVA even when symptoms have resolved
   b. The patient's response to new medications, their actions and interactions
   c. The patient's risk of a fall at that moment in time when they/she is completing the assessment
   d. All of the above

16. When determining the Nurse Judgment Score using the scale of 0-10 (0= low risk; 10= high risk), the nurse's instinct and clinical judgment indicate that the patient is at high risk for a fall even though there is not a lot of supporting qualifying criteria. How should the nurse rate the Nurse Judgment Scale?
   a. Identify a nurse judgment score that indicates a high risk level.
   b. Identify high nurse judgment score based on intuition and clinical judgment, and implement shock/I internal alarms and gait belt use.
   c. Identify the patient as a low risk.
   d. Use the score from the previous shift.

17. Once a patient has been identified as a high risk for falls (score ≥ 13), which of the following has been cited in the literature as an effective strategy for nurses to facilitate communication of the risk to other patient care providers while preserving patient confidentiality?
   a. Place a sign over the patient’s bed labeled “High Risk for Falls”
   b. Place a visual aid (yellow dot or falling stick figure) beside the patient’s name on the unit’s assignment board
   c. Document the risk of falls only in the nursing record
   d. None of the above
18. Per BILex policy, once a patient receives a total score ≥13 on the Baptist Health High Risk Fall Assessment, which of the following high risk strategies should be implemented:
   a. Ensure that staff member uses a gait belt and remains with the patient when Hobbing to the bathroom or bedside commode.
   b. Coordinate a “prompted” toileting schedule for the patient at least every 2 hours while awake (especially upon awakening, at bedtime, and before and after meals).
   c. Discuss fall prevention measures with patient and family.
   d. Insure use of functional bed and chair rails at all times.
   e. All of the above

19. Based on findings in current literature, implementation of nurse bedside report has demonstrated improvements in patient safety.
   a. True
   b. False

20. Benefits gained from bedside reporting include which of the following:
   a. Enables both the oncoming and off-going nurse to visualize and discuss the full condition of the patient at the time of shift.
   b. Promotes patient and family-centered education and engagement regarding care delivery.
   c. Allows nurse to assess the environment at the onset of shift and implement fall prevention strategies with both the patient and family.
   d. All of the above

21. During nurse bedside report at shift change, the nurse should perform the following:
   a. Check the signage for accuracy outside the patient’s door and on the white board in the room.
   b. Validate the fall risk score for the incoming nurse.
   c. Discuss fall prevention strategies with the patient and family.
   d. Document patient and family teaching about fall prevention.
   e. All of the above

22. The key to successful implementation of purposeful hourly rounds is to:
   a. Debrief to unlicensed nursing assistive staff.
   b. Design the rounds based on purpose.
   c. Avoid the use of scripted communication.
   d. None of the above

23. Per BILex policy, implementation of hourly rounds occurs in collaboration with nurses and patient care technicians (nurses round on the even hours and patient care technicians on the odd hours).
   a. True
   b. False
24. When addressing the 5 P’s during patient rounds, which of the following actions should be included?
   a. Assessing the patient’s current pain level
   b. Establishing a toileting schedule based on the patient’s needs
   c. Using standard communication scripts to address clinical concerns
   d. Implementing repositioning based on a schedule the patient requests
   e. Ensuring the environment is free of clutter and protects patient safety
   f. All of the above

25. According to BIIEx policy, which of the following is permissible when implementing a scheduled toileting protocol for a high-risk falls patient?
   a. The patient care technician can stand on the outside of the curtain, but within arm’s length, when assisting the patient to use the bedside commode.
   b. The nurse must stay in the bathroom with the patient when assisting the patient to use the bathroom.
   c. The physical therapist can allow the patient to sit on the bedside alone after completing therapy
   d. A and B only

26. Which of the following best describes the purpose of conducting post-fall huddles on the unit?
   a. To identify gaps in nursing practice as compared to the BIIEx fall prevention policy
   b. To prevent a future inpatient fall
   c. To identify why the patient fell
   d. All of the above

27. Per BIIEx policy, a nurse should complete and document a full patient assessment in the nursing record immediately after a patient fall and include notes referring to the completed incident report.
   a. True
   b. False
Appendix C

EXEMPTION CERTIFICATION

MEMO: Emily Piercy, M.S.N.
Education Curriculum & Instr

FROM: Institutional Review Board
       c/o Office of Research Integrity

SUBJECT: Exemption Certification for Protocol No. 14-0073-X4B

DATE: February 25, 2014

On February 25, 2014, it was determined that your project entitled, "Use of Interactive Narrative Simulation to Increase Awareness of Fid Prevention Opportunities Among Hospital Employees," meets federal criteria to qualify as an exempt study.

Because the study has been certified as exempt, you will not be required to complete continuing or final review reports. However, it is your responsibility to notify the IRB prior to making any changes to the study. Please note that changes made to an exempt protocol may disqualify it from exempt status and may require an expedited or full review.

The Office of Research Integrity will hold your exemption application for six years. Before the end of the sixth year, you will be notified that your file will be closed and the application destroyed. If your project is still ongoing, you will need to contact the Office of Research Integrity upon receipt of that letter and follow the instructions for completing a new exemption application. It is, therefore, important that you keep your address current with the Office of Research Integrity.

For information describing investigator responsibilities after obtaining IRB approval, download and read the document "IRB Guidance to Responsibilities, Qualifications, Records and Documentation of Human Subjects Research" from the Office of Research Integrity's Guidance and Policy Documents web page [http://www.research.uky.edu/ohui/guidance/html/PIT201]. Additional information regarding IRB review, federal regulations, and institutional policies may be found through OHU's web site [http://www.research.uky.edu/ohui/]. If you have questions, need additional information, or would like a paper copy of the above mentioned document, contact the Office of Research Integrity at (859) 257-9428.
September 20, 2016

Emily Piercy, MSN, RN, CNE

RE: #BHL-14-1158 (Reference#012341) “Use of Interactive Narrative Instruction to Increase Awareness of Fall Prevention Opportunities Among Hospital Employees”

Dear Ms. Piercy,

On behalf of the Institutional Review Board (IRB), I expeditiously reviewed and approved the continuation of the above listed protocol on 09/20/2016. This will be reported to the IRB at its 10/20/2016 meeting.

The IRB approval for this protocol will expire on 09/19/2017. Please submit your continuation request by 09/05/2017 in order to avoid lapses in approval of your research.

As principal investigator, you are responsible for complying with IRB decisions, conditions and requirements. The protocol procedures should be implemented as approved by the IRB and any other changes in this protocol, including closure, must be reported promptly to the IRB through iTRIS, the IRB submission system. No change may be initiated without review by the IRB, except where necessary to eliminate apparent immediate hazard to the participant. In addition, any unanticipated problem involving risk to the participant or others must be reported immediately to the IRB.

If you have any questions, please contact the IRB office.

Sincerely,

Signature applied by Dee Beckman on 09/22/2016 10:13:19 AM EDT

Dee Beckman, MBA, MSN, RN, NE-BC
IRB Chairperson
November 02, 2015

Emily C. Piercy, MSN, RN, CNE

RE: #BHL-14-1158 (Reference#011363) “Use of Interactive Narrative Instruction to Increase Awareness of Fall Prevention Opportunities Among Hospital Employees”

Dear Ms. Piercy,

On behalf of the Institutional Review Board (IRB), I expeditedly reviewed and approved the continuation of the above listed protocol on 11/02/2015. This will be reported to the IRB at its 11/19/2015 meeting.

The IRB approval for this protocol will expire on 11/01/2016. Please submit your continuation request by 10/18/2016 in order to avoid lapses in approval of your research.

As principal investigator, you are responsible for complying with IRB decisions, conditions and requirements. The protocol procedures should be implemented as approved by the IRB and any other changes in this protocol, including closure, must be reported promptly to the IRB through iRIS, the IRB submission system. No change may be initiated without review by the IRB, except where necessary to eliminate apparent immediate hazard to the participant. In addition, any unanticipated problem involving risk to the participant or others must be reported immediately to the IRB.

If you have any questions, please contact the IRB office

Sincerely,

Signature applied by Dee Beckman on 11/02/2015 11:36:34 AM EST

Dee Beckman, MBA, BSN, RN, NE-BC
IRB Chairperson
March 4, 2014

Emily C. Piercy, MSN, RN, CNE

RE: BHL-14-1158 (Reference#008718) Use of Interactive Narrative Instruction to Increase Awareness of Fall Prevention Opportunities Among Hospital Employees

Dear Ms. Piercy,

Your new protocol listed above was approved under the expedited review process on 03/04/2014 and will be reported at the 03/20/2014 meeting of the Institutional Review Board. This protocol meets the criteria for expedited review under research category 45 CFR 46.110 (b) (1).

The IRB approval for this protocol will expire on 02/26/2015. Please submit your continuation request by 02/12/2015 in order to avoid lapses in approval of your research.

As principal investigator, you are responsible for complying with IRB decisions, conditions and requirements. The protocol procedures should be implemented as approved by the IRB and any other changes in this protocol, including closure, must be reported promptly to the IRB through iRIS, the IRB submission system. No change may be initiated without review by the IRB, except where necessary to eliminate apparent immediate hazard to the participant. In addition, any unanticipated problem involving risk to the participant or others must be reported immediately to the IRB.

If you have any questions, please contact the IRB office.

Sincerely,

[Signature]

Signature applied by Dee Beckman on 03/04/2014 12:36:51 PM EST

Dee Beckman, MBA, BSN, RN, NE-BC
IRB Chairperson
Appendix E
Letter to Potential Control Group Study Participants Posted on Blackboard

To study participants:

The purpose of this study is to explore the use of certain educational strategies in decreasing the incidence of patient falls and increasing knowledge of prevention of patient falls. Although you may not attain any personal benefit from taking part in this research study, your responses may help us to understand more about fall prevention education in a healthcare environment.

I hope that about 60 people will complete this short Fall Knowledge Test at two different sittings not later than March 20, 2017. Of course, you have a choice about whether to complete the testing, and you are free to skip any portions of the testing or discontinue at any time. The test will take about 15 minutes to complete and should be done twice with several days in between testing times.

There are no known risks to participating in this study. Your responses to the questions are confidential, which means no names will appear or be used on research documents, in presentations, or in publications. The researcher will not know that any information you provided came from you, nor whether you even participated in the study. There are no costs to you associated with this study.

Should you select to complete this test on two different occasions, you will be eligible for a $25 Visa gift card drawing if you choose to include your email address for contact.

If you have questions about the study, please feel free to ask; my contact information is provided below. If you have concerns, suggestions, or questions about your rights as a research volunteer, contact the staff of the University of Kentucky Office of Research Integrity at 859-257-9428 or toll-free at 1-866-400-9428. Faculty guidance for this study is provided by Joan M. Mazur, PhD, University of Kentucky, College of Education. The study Exemption Certificate Protocol Number is 14-0073-X4B.

Thank you in advance for your assistance with this important project. If you consent to participate in this project, please go to the assessment here to begin:
https://uky.az1.qualtrics.com/SE/?SID=SV_3PK1QMzFcdD8LMp

Sincerely,

Emily Piercy, MSN, RN, CNE
To potential study participants:

You are invited to participate in a study because you are a healthcare worker or . The purpose of the study is to explore the use of certain educational strategies in decreasing the incidence of patient falls and increasing your knowledge of prevention of patient falls. Although you may not attain any personal benefit from taking part in this research study, your responses may help us to understand more about fall prevention education in a healthcare environment.

I hope about 60 people will complete this educational program, so your answers are important. Of course, you have a choice about whether to complete the program and submit study materials, but if you do participate, you are free to skip any portions of the program or discontinue at any time. The program will take about 30 minutes to complete.

There are no known risks to participating in this study. Your responses to the questions are confidential, which means no names will appear or be used on research documents, or be used in presentations or publications. The researcher will not know that any information you provided came from you, nor whether you even participated in the study. There are no costs to you associated with this study.

If you have questions about the study, please feel free to ask; my contact information is given below. If you have concerns, suggestions, or questions about your rights as a research volunteer, contact the staff in the University of Kentucky Office of Research Integrity at 859-257-9428 or toll-free at 1-866-400-9428. Faculty guidance for this study is provided by Joan M. Mazur, PhD, University of Kentucky, College of Education. There may be others assisting with the research at different times, including the Evidence Based Practice Consultants of Baptist Health Lexington.

Thank you in advance for your assistance with this important project. If you consent to participate in this project, please go to the first page of your study booklet and begin.

Sincerely,

Emily Piery, MSN, RN, CNF
College of Education, University of Kentucky
Mother’s Birthdate: (MM/DD/YYYY) __________________________

**Demographic Questionnaire**

Please complete this questionnaire. Your responses will help the researcher describe your demographic characteristics and those of the other healthcare workers involved in the project. Additional items ask about your experience with falls.

For your current job (same position and same unit), please respond to the following:

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>1. I am a:</td>
<td>___HUC</td>
<td>___PCT</td>
<td>___LPN</td>
</tr>
<tr>
<td>2. I have worked in this position on this unit for _______ years.</td>
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<td>3. I have worked in this hospital for _______ years.</td>
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<tr>
<td>4. How old are you? _______ years</td>
<td></td>
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<tr>
<td>5. I am employed here:</td>
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<tr>
<td>a. Full-time</td>
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<tr>
<td>b. Part-time</td>
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<tr>
<td>6. Circle highest completed education:</td>
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<tr>
<td>a. High school/GED</td>
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<tr>
<td>b. College/University</td>
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<tr>
<td>c. Graduate School</td>
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<tr>
<td>7. Circle gender:</td>
<td></td>
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<tr>
<td>a. Male</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>b. Female</td>
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</tbody>
</table>

Please check all that apply in the questions below.

| Have you or a family member ever been hurt, more than a scratch or a bruise, from a fall? | ____Yes | ____No |
| If yes, did the fall result in serious injury? | ____Yes | ____No |
| In your opinion, could the fall have been prevented? | ____Yes | ____No |
| Have you ever cared for a patient who fell during your shift? | ____Yes | ____No |
| Did the patient who fell suffer injury(ies) resulting in additional hospital time? | ____Yes | ____No |

Please continue to the Fall Knowledge Test
Appendix H

Mother’s Birthdate:  (MM/DD/YYYY) ________________________

Fall Knowledge Test

Each question may have more than one option as the correct answer. Please circle the letters that correspond to the correct answers.

1. Which of the following statements is correct? (circle all that apply)
   a. Falls have various causes, so fall prevention programs should include multiple possible interventions.
   b. Regular review of medication can help to prevent patient falls.
   c. The risk of falling will be lessened when a patient’s toileting needs are met.
   d. The use of antipsychotic medications is associated with an increased risk of falls in older adults.

2. A multifaceted intervention program should include (circle all that apply):
   a. Individually-tailored fall prevention strategies.
   b. Education to patient/family and health care workers.
   c. Environmental safety.
   d. Safe patient handling.

3. Risk factors for falls in the acute hospital include all of the following except (circle all that apply):
   a. Dizziness/vertigo
   b. Previous fall history
   c. Antibiotic usage
   d. Impaired mobility from stroke disease

4. Which of the following statements is true? (circle all that apply)
   a. The cause of a fall is often an interaction between patient’s risk, the environment, and patient risk behavior.
   b. Increase in hazardous environments increases the risk of falls.
   c. The use of a patient identifier (e.g., identification bracelet) helps to highlight to staff those patients at risk for falls.
   d. A fall risk assessment should include review of history of falls, mobility problems, medications, mental status, continence, and other patient risks.
5. Patients with impaired mobility should be (circle all that apply):
   a. Confined to bed
   b. Encouraged to mobilize with assistance
   c. Assisted with transfers
   d. Referred for exercise program or prescription of walking aids as appropriate

6. The management of the acutely confused patient should include all of the following except (circle all that apply):
   a. Moving patients away from the nursing station
   b. Involving family members to sit with the patient
   c. Orienting patients to the hospital environment
   d. Reinforcing activity limits to patients and their families

7. Which of the following statements is false? (circle all that apply)
   a. Fall prevention efforts are solely the nurse’s responsibility.
   b. A patient who is taking four or more oral medications is at risk for falling.
   c. A patient who is taking psychotropic medication is at higher risk for falling.
   d. Testing or treatment for osteoporosis should be considered in patients who are at high risk for falls and fractures.

8. In hospital settings, intervention programs should include (circle all that apply):
   a. Staff education on fall precautions
   b. Provision and maintenance of mobility aids
   c. Post-fall analysis and problem-solving strategies
   d. Bed alarms for all patients, regardless of risk

9. When assessing patients, which of the following statements is false? (circle all that apply)
   a. All patients should be assessed for fall risk factors at admission, at a change in status, after a fall, and at regular intervals.
   b. Medication review should be included in the assessment.
   c. All patients should have their activities of daily living and mobility assessed.
   d. Environmental assessment is not important in the hospital as it is all standardized.
10. Risk factors for falls include (circle all that apply):

   a. Parkinson’s disease
   b. Incontinence
   c. Previous history of falls
   d. Delirium

11. Exercise programs for ambulatory older adults should (circle all that apply):

   a. Be very aggressive
   b. Be unsupervised
   c. Be ongoing
   d. Include individualized strength and balance training

12. Which of the following statements on education in fall prevention is false? (circle all that apply)

   a. Education programs should target primarily health care providers, patients, and caregivers.
   b. Education programs for staff should include the importance of fall prevention, risk factors for falls, strategies to reduce falls, and transfer techniques.
   c. Instruction on safe mobility, with emphasis on high-risk patients, should be provided to both patients and families.
   d. Education should only be given at the start of the fall prevention program.

13. Which of the following is recommended to improve patient safety? (circle all that apply)

   a. Locking wheeled furniture when it is stationary.
   b. Having nonslip flooring.
   c. Placing frequently used items (including call bell, telephone, and remote control) within reach of the patient
   d. Rounding hourly to address patient needs
14. During bedside report at shift change, the nurse knows to: (circle all that apply)¹

a. Verbalize the patient’s fall risk score for the oncoming nurse.
b. Discuss fall prevention strategies with the nurse and the patient/family.
c. Assure the bed alarm is functional if appropriate.
d. Communicate the fall risk assessment and prevention strategies with the PCT.
e. Assure the yellow fall risk sign is in full view.

15. According to our policies, a nurse should complete and document a full patient assessment in the patient’s chart immediately after a patient fall, including what was observed regarding the fall incident, and include the same notes in the completed incident report. The nurse should not refer to the incident report in the chart.

   a. True
   b. False

16. During the post-fall staff huddle, what will you share about the patient’s situation to prevent a future fall? (circle all that apply)

   a. Types of prevention measures in place
   b. Patient’s cognitive status
   c. Patient’s needs for assistance
   d. Patient’s food preferences

____________________________________


____________________________________

¹ Items 14 through 16 were added after the stage one, phase one data gathering at the suggestion of the dissertation committee and are not part of the Singapore Ministry of Health tool.
Appendix I

Using Evidence-Based Nursing Practices to Reduce Patient Falls

Objectives
- Identify three primary fall risk indicators for patients at Baptist Health Lexington and methods to mitigate those indicators
- Identify and apply five components of hourly rounding for RNs and PCTs
- Develop and apply effective risk communication practices
- Describe what to do if a fall occurs

What is a fall?
- A patient fall is a sudden, unintentional descent, with or without injury to the patient, that results in the patient coming to rest on the floor, on or against some other surface (e.g., a counter), on another person, or on an object (e.g., a trash can) (Press Ganey, 2016).
- Can be assisted or unassisted

More than a Safety Issue
- Patient falls are the most common patient safety incident in acute care.
- Falls result in:
  - Injuries ranging from mild to severe
  - Increased length of stay for our patients
  - Increased cost of care
  - Changes to patient and caregiver lifestyles

Across Kentucky
- In 2014, $366.5 million was spent in Kentucky on caring for elderly patients with fall-related injuries with average charges of $4,893 each.
- Nearly half of the Kentuckians who fall and break a hip are never able to return home or live independently again.
- Women fall more frequently than men, but men suffer worse injuries.

Intrinsic Risk Factors for Falling
- These are factors over which we have little control, but of which we must be aware.
- History of falls
- Age (>65 years)
- Medications (multiple barriers)
- Decreased communication, vision & hearing
- Generalized weakness
- Impaired mobility
- Depression
- Frailty
- Urinary incontinence
- Cardiovascular disease
- Gait issues
- Treatment of pain
- Medications
- Alcohol or substance abuse

Extrinsic Risk Factors for Falling
- New environment
- Poor lighting
- Trip hazards
- Accessibility of call light and belongings
- Location of room away from nurse’s station
- Unsafe footwear
- Hospital floors

Evidence Base
- From our research, we know that the top three indicators of fall potential among our Baptist Health Lexington patients are:
  - History of a previous fall (during or prior to admission)
  - Confusion
  - Toileting needs

Consider this...
Mr. Martin is an 80-year-old man, admitted from the emergency department to the telemetry unit for cardiac monitoring after an episode of syncpe. He was recently discharged from the hospital due to chronic obstructive pulmonary disease due to smoking cessation.

Yesterday, he tripped over a throw rug on the floor prior to his admission home. He was asymptomatic, but he felt weak and dizzy. He is taking multiple medications, including aspirin, warfarin, and losartan. Mr. Martin is also a smoker and has a history of chronic obstructive pulmonary disease due to smoking cessation.

Mr. Martin is a retired professor and a devotee in his church.

Risk Factors
- Previous fall
- Polypharmacy
- Elderly
- Skin
- Low vision
- Progressive weakness
- Confusion
- Multiple illnesses
- Urgency
- Unfamiliar environment

Mr. Martin is assessed at a higher risk for falling.

How will you communicate Mr. Martin’s fall risk to others working on your unit? (select all that apply)
- Bedside report
- Buddy report
- Charge nurse report
- Yellow high fall risk marker on assignment board
- Yellow high fall risk marker outside patient’s door

The nurse knows that steps can be taken to help prevent Mr. Martin from falling while he is in the hospital, including:
- Hourly rounding with a purpose
- Education of patient and family regarding fall prevention
- Use of fall prevention equipment and alarms
Hourly Rounding with a Purpose

Hourly rounding involves more than merely saying hello. Hourly rounds should focus on the five priorities:
- Pain
- Potty
- Position
- Protections
- Protection

Hourly Rounding with a Purpose

1. Pain — Is the patient in pain? Will repositioning or distracting help? Does the patient need medication?
2. Potty — Does the patient need to be assisted to the bathroom? Tell the patient, “I have time now. I will help you to the bathroom while I am here.”
3. Position — Does the patient need assistance with repositioning?

Hourly Rounding with a Purpose

4. Possessions — Can the patient reach the call light, phone, television remote, water, glasses, reading material, trash can? If it is meal time, will the patient be able to reach the tray table to eat?

Education of Patient and Family

- Teach both the patient and family members to call for assistance when needed.
- Let patient and family members know what you are doing to prevent falls and how they can help, i.e., assistance to the bathroom (E1C), keeping the floor clear (who has had a patient trip over a family member’s purse?), using alarms and assistive devices, etc.
- Encourage patient and family members to watch the educational video on TISR TV 457.

Use Fall Prevention Equipment and Alarms

- Bed and chair alarms
- Gait belt and assistive devices
- Communication boards
- Personal auditory and visual aids (e.g., hearing aids, eye glasses, etc.)
- Lift system and transport boards
- Bed/Chair locks
- BSC available in all patient rooms

Toileting Protocols

- Establish a toileting schedule for every patient
- Never leave a high risk patient:
  - Alone on a BSC
  - Alone in a bathroom
  - Sitting on the side of the bed
- Always use a gait belt when helping a patient out of bed.
Post-Fall Huddle

Okay, so you had a patient fall. Now what?

- A post-fall huddle conducted shortly after each known occurrence of a fall includes two to three individuals participating in the care delivery for the patient including:
  - primary nurse
  - charge nurse
  - patient care technician
  - family
  - medical staff
  - other individuals who observed or were involved in the event
  - Clinical Nurse Supervisor

The primary purpose of the huddle is to identify opportunities to prevent future falls.

Debriefing Post-Fall

- Consider:
  - How could this have been prevented?
  - What was the impact of the fall on the patient's condition?
  - How can we improve care for these types of falls?
  - What can we do to prevent similar incidents?
  - How can we ensure the patient's safety?
  - Patients and family members are involved in the process.
  - How can we improve the patient's care?

American Society for Healthcare Information Management (ASHIM) 2015, Learning through debriefing. Retrieved from https://www.asim.org/professional/journal/allearning-through-debriefing

BH Lexington Policy

1. Note use of the patient's needs.
2. Complete and submit report immediately after each fall stop the standard fall. Include the expected patient's name, department, diagnosis, and treatment. Complete the documentation completely to include patient's name and time of occurrence.
3. Complete and submit a fall assessment at the nursing record immediately after the fall.
5. Document the fall objectively in the patient's chart (CPR) as a significant event.
6. Complete an objective fall report prior to the end of the shift. DO NOT refer to the board report in the nursing documentation.

1. Which of the following is the most common patient safety incident in acute care hospitals?
   - a. wrong site surgeries
   - b. hospital-acquired pressure ulcers
   - c. inpatient falls
   - d. central line infections

2. Inpatient falls are likely to increase the patient's overall length of stay and cost of care.
   - a. True
   - b. False

3. Which of these patients might be at higher risk for falling?
   - a. A patient experiencing alcohol withdrawal
   - b. A female patient receiving an oral bowel prep pre-colonoscopy
   - c. A male patient receiving moderate doses of IV medications
   - d. All of the above
   - e. None of the above
4. Current nursing research demonstrates that an inpatient is at a higher risk for falling during hospitalization if he/she:
   a. fell in the last 6 months.
   b. requires frequent toileting.
   c. is confused and disoriented.
   d. all of the above

5. Which of the following are considered common risks for inpatient falls?
   a. A patient with multiple diagnoses of diabetes, hypertension, and depression
   b. A patient on four or more medications regularly
   c. A patient requiring IV morphine for postoperative pain control
   d. A patient who becomes confused after certain medication
   e. All of the above
   f. None of the above

6. Education on general safety measures to prevent inpatient falls should be provided to which of the following patient populations?
   a. Patients at low risk for falls
   b. Patients at moderate risk for falls
   c. Patients at high risk for falls
   d. All patients and families admitted to the hospital

7. Per SRL policies, the Baptist Health High Risk Falls Assessment (BHHRFA) should be completed and documented on every patient:
   a. at the beginning of each shift
   b. immediately after a fall occurs
   c. when a patient returns from a procedure and receives IV sedation
   d. after the completion of a Code 10 or Rapid Response Team event
   e. All of the above

8. Per SRL guidelines, once a patient receives a total score of ≥11 on the Baptist Health High Risk Falls Assessment (BHHRFA), which of the following high-risk interventions should be implemented?
   a. Ongoing fall risk assessment and documentation
   b. Patient is assigned a designated bedside bell
   c. Blood pressure monitoring and documentation
   d. Ongoing fall risk assessment and documentation
   e. None of the above

9. The literature indicates communication of fall risk among staff is key to improved patient safety.
   a. True
   b. False
10. The primary purpose for a post-fall huddle debriefing is to identify opportunities to prevent a future fall by reflecting on:
   a. what caused the fall
   b. whether everyone did what they were supposed to do
   c. whether all equipment was available and working
   d. whether any environmental hazards were present
   e. what could be done differently to prevent a future fall.
   f. All of the above

11. The nurse knows that a score of 15 or greater on the Baptist Health High Risk Falls Assessment Tool indicates a need for greater surveillance and fall prevention. The assessment tool is a 5-point scale from 0 to 5, with a score of 0 indicating no need for fall prevention measures, and 15 indicating the need for timely or higher risk fall prevention. The nurse uses this judgment by:
   a. implementing the risk for nursing staff through high-risk alarm sensitivity
   b. using visual cues and reminders
   c. involving the pharmacist or nurse practitioner in the patient's care
   d. fall prevention education for the patient and their family;
   e. All of the above

12. The nursing judgment assessment for the Baptist Health High Risk Falls Assessment (BHHRFA) is an autonomous assessment by the RN resulting from critical thinking and reflection upon the patient's total picture with regard to risk for falling.
   a. True
   b. False
References


Vita
Emily C. Piercy

EDUCATION

Indiana University-Purdue University, Indianapolis, Indiana, December, 2004
Graduate Certificate Teaching in Nursing

Indiana University-Purdue University, Indianapolis, Indiana, August, 2004
Graduate Certificate Teaching and Learning in Web-Based Courses

Bellarmine University, Louisville, Kentucky, December, 1989
Master of Science, Nursing Administration

Eastern Kentucky University, Richmond, Kentucky, May 1976
Bachelor of Science in Nursing

PROFESSIONAL LICENSE AND CERTIFICATION

Registered Nurse, Commonwealth of Kentucky, September, 1976

Certified Nurse Educator, National League for Nursing, November, 2005

PROFESSIONAL EXPERIENCE

2011 to present – Baptist Health Lexington
Performance Improvement Coordinator/NDNQI Site Coordinator

2004 to present – University of Phoenix
Faculty Graduate Nursing Program

2000-2011 – University of Kentucky Lexington Community College / Bluegrass Community and Technical College
Associate Professor (tenured) – 2006 to 2011
Program Coordinator Associate Degree Nursing – 2008-2011
Assistant Professor of Nursing – 2003 to 2006
Instructor – 2000 to 2002

1997 to 1999 – Central Baptist Hospital
Program Manager, Medical Call Center

1976 to 1997 – Saint Joseph Hospital
ASK-A-NURSE Product Manager – 1989 to 1997
Operations Manager, Emergency Services – 1994 to 1996
Nursing Care Manager – 1986 to 1989
Registered Nurse, Pediatrics – 1976 to 1986
PUBLICATIONS AND PRESENTATIONS


**Piercy, E. C.** (7 March 2014). *Use of Interactive Narrative Simulation to Increase Awareness of Fall Prevention Opportunities Among Hospital Employees.* Poster presentation. Baptist Health Lexington Evidence-Based Practice Conference.


**Piercy, E.C.** (2013, April 6). *Use of interactive narrative instruction to increase awareness of fall prevention opportunities among hospital employees – a Case Study Proposal.* Presentation for University of Kentucky, University of Louisville, and University of Cincinnati Spring Research Conference, Lexington, KY.

the Incidence of Catheter Related Urinary Tract Infections. Poster presentation. Kentucky Organization of Nurse Leaders, Louisville, KY.


Piercy, E.C. (2010, October). *Designing curriculum to enhance student understanding*. Presentation at Faculty Continuing Education Seminar Series, Bluegrass Community and Technical College, Lexington, KY.


PROFESSIONAL ASSOCIATIONS

Kentucky League for Nursing
2011-2013 President
2009-2011 President Elect
2007-2009 President
2005-2008 Treasurer
2007 Annual Nurse Educator Conference Chair

Sigma Theta Tau International Honor Society of Nursing, 1987 to present
2013-2014 Chair, Governance Committee
2005-2006 Chair Publicity, Website, and Heritage Committees
2005-2006 Co-Chair Fundraising Committee

National League for Nursing
National League for Nursing Ambassador 2006 to 2012

Kentucky Nursing Capacity Consortium

Kentucky Organization of Nurse Leaders