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Minimizing Home Health Care-Acquired Pressure Injuries through Effective Nursing Teamwork

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

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2017

Abstract

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MSN, Walden University, 2012

BSN, Anna Maria, 2009

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

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Abstract

Pressure injuries (PIs) affect an estimated 2.5 million people in America and cost the nation approximately $11.6 billion each year. The goal of this DNP project was to minimize the rate of PIs at a home health care agency through effective teamwork. Prevention of PIs is very important because PIs damage patients' skin integrity, cause significant amount of pain, are costly to treat, and cause life-threatening infections. The purpose of this DNP project was to evaluate nursing compliance with PI prevention measures and the level of nursing teamwork at the project agency. The Braden-Bergstrom conceptual framework was used to explain the etiology and progression of PI while Lewin's Change Theory was used to promote behavioral change in the nursing team. The practice-focused questions for closing the gap between nursing knowledge and practice were what percentage of nurses complied with standard PI prevention guidelines and what was the level of nursing staff teamwork in the agency per the Nursing Teamwork Survey [NTS]. This PI prevention initiative used a cross-sectional design. Data collection involved review of nursing documentation and electronic surveying of all nursing staff using the MISSCARE survey, the NTS, and the AHRQ assessment checklists, which were completed via SurveyMonkey, an online survey software. The impact of the PI prevention initiative was assessed by comparing the results of the documentation review and surveys pretest to the posttest results. There was significant improvement in nursing compliance with PI prevention and treatment. Pressure injury incidence rate fell from 13.6% to 5.1%. The positive social impact includes improving patient care and safety, minimizing PI incidence and producing an efficient team.

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Dedication

I would like to dedicate my Doctor of Nursing Practice (DNP) final project to Almighty God for allowing me to achieve my dreams and placing amazing people in my life. To my husband, Emmanuel, children Faithful and Eliaza; brother, Emmanuel, and mother, Margaret, I say a very big “Thank you” for your unflinching support and love. Words cannot express my gratitude to you for your love, support, and understanding during the course of my studies. Thank you all for always believing in me and praying for me from the beginning of my DNP program till now. To all my friends, family members, and co-workers, who have supported and helped me along this journey, this is for you.

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Section 1: Overview of the Project

Introduction

Pressure injuries (PIs) affect approximately 2.5 million people in the United States and cost the nation about $11.6 billion a year (Agency for Healthcare Research and Quality [AHRQ], 2014a; Brem et al., 2010). The Centers for Medicare and Medicaid Services considers PIs preventable adverse conditions, classifies stages 3 and 4 PI as never events, and does not reimburse health facilities whose patients develop stages 3 and 4 PI during admission (National Pressure Ulcer Advisory Panel [NPUAP], 2016). Prevention of PIs requires team effort between nurses and certified nurse's assistants (CNAs). In the home health care setting effective nursing teamwork is difficult to achieve because of limited resources. Unlike acute care hospitals where there is around-the clock nursing care, in home health care, nursing care ranges from one to ten hours per week depending on the patients' health care needs and the type of health insurance they have. The goal of this DNP project was to minimize the rate of PIs in the project site from 13.3% to 5.0% within six months through effective teamwork. The purpose of this paper is to describe the project for minimizing home health care-related PIs through effective teamwork. Beginning with the background, problem statement, and the purpose of the project, the paper discusses the project objectives, guiding questions, and significance of the project in terms of reducing the gap between evidence and practice; the implications for practice, the assumptions, limitations, and delimitations of the project.

Background and Context

The project site was a 150-patient home health care agency in the Atlanta Metropolis. Review of patients' intake admission forms, nursing progress notes, and supervisory visit notes revealed high rates of pressure injuries (PIs) in the agency. Nearly fifty-five percent of the patients received from acute care settings were admitted with a PI. About fifty percent of the patients were at high risk for developing a PI and thirty percent developed a PI after admission

Several factors contributed to the high incidence of PIs in the project agency. The majority of patients in the project setting were medically frail or compromised, were wheelchair or bed-bound, and lacked mobility. Most of the patients were incontinent, older adults with diseases that affected their blood flow, such as diabetes and cardiovascular diseases, and who lacked proper nutrition. Since Medicare "does not cover pressure redistribution surfaces and other prevention products", patients receiving Medicare had to provide their own high-density foams, pillows, and wedges (Bergquist-Beringer & Daley, 2011, p. 147). Unlike inpatient healthcare facilities where patients had around-the-clock nursing care, patients with PI in the project setting received approximately eight and half hours of nursing care per week. This was because insurance companies paid the agency one hour per client per day for wound care. Nurses, therefore, depended on CNAs and the families of the patients to ensure compliance with PI preventive measures, such as two-hour turning, providing proper nutrition, elevating patients' heels off the mattress, and applying barrier creams.

Another contributing factor to the development of PIs was the lack of teamwork between nurses and CNAs. Lack of nurses and CNA teamwork was a major reason for ineffective compliance with PI prevention measures and treatment plans at the agency. Since nurses did not provide around-the-clock patient care at the project site, they depended on CNAs to monitor patients for PI risks and to implement basic PI preventive measures, such as two-hour turning, pressure relief, and ambulation. Lack of effective communication and teamwork delayed nursing intervention, resulting in the development of a PI.

Some of the causes of lack of nursing teamwork at the project site were staff shortage due to budgetary constraints, pressure of work due to work overload, inadequate information sharing, and ineffective communication between nurses and CNAs. Constrained by limited financial capital, the agency's nursing department was woefully understaffed, resulting in work overload and pressure of work. Work overload and pressure at the project site led to inadequate information sharing and ineffective communication among nurses and CNAs. Ineffective communication between nurses and CNAs resulted in CNAs failing to report skin changes promptly to nurses for immediate intervention. Similarly, nurses were unable to effectively monitor CNA PI prevention activities when there was improper communication between nurses and CNAs.

Another reason for lack of nursing teamwork at the agency was poor work habits. Some CNAs had the bad habit of not performing their assigned tasks if they were left alone with a nonverbal patient. For example, some CNAs routinely failed to provide incontinent care on time to immobile, incontinent patients. Others did not comply with

scheduled skin inspection, ambulation for patients that could walk, repositioning patients every two hours, and applying barrier cream. Examples of poor nursing work habits included failing to share patients' skin needs with CNAs, not communicating physicians' order to CNAs, and not responding quickly to reported skin changes. The cumulative result of these poor work habits was the high PI incidence rate at the agency.

Lack of teamwork at the project agency was also the result of CNAs feeling unappreciated or not respected. The CNAs reported of nurses "talking down" to them, not sharing vital patient information with them, and ignoring their opinion. While some CNAs reciprocated perceived nurse disrespect with angry outbursts, others became cold towards the nurse in question. The perceived CNAs feeling of disrespect impeded cordial nursing work relationships, which are essential for effective patient care collaboration and implementation of PI prevention strategies (Kalisch, Xie, & Ronis, 2013).

Problem Statement

The practice problem for the DNP project was the high incidence of PIs in home health care and lack of nursing teamwork to prevent them. Prevention of PIs was very important because PIs damage patients' skin integrity, caused significant amount of pain, were costly to treat, and caused life-threatening infections (Bergquist-Beringer & Daley, 2011). On average, the project agency admitted five patients a week with stage 2 to stage 3 PIs and two clients developed a new PI within the first week. Within one hundred days, approximately sixty percent of clients with PIs had their PI healed, twenty percent had their PI worsened, and ten percent experienced slight improvement.

With a pressure injury rate of 13.3%, the project agency's PI incidence rate was higher than the average national rate of 8.5% (AHRQ, 2012, p. 1). Thirty percent of the patients were admitted with stage 3 PI, while thirteen percent developed one soon after admission. Nurses at the agency spent seven to ten hours per week on a patient with PI compared with one hour per week on a client without PI. Thus, on average, eighty-five percent of the agency's nursing hours were spent on PI-related wound care compared with the national average of sixty-three percent (Bergquist-Beringer & Daley, 2011, p. 146). Moreover, eighty percent of the agency's nursing cost went into PI treatment.

Preliminary review of nursing documentation at the project site revealed noncompliance with basic pressure injury prevention measures such as intake admission skin assessment, scheduled two-hour turning, incontinent care, and prompt reporting of skin changes. There was lack of effective teamwork at the agency as evidenced by nurses not monitoring CNAs' activities, CNAs not reporting skin changes promptly to nurses, and CNAs not complying with scheduled pressure relieving measures. Nurses and CNAs did not seem to understand the concept and benefits of teamwork relative to the provision of high quality patient care and the attainment of patient and staff satisfaction. The project was aimed at bridging the gap between nursing knowledge about PI preventive measures and nursing teamwork to minimize the rates of home health care-related PIs.

Purpose Statement

The purpose of this DNP project was to evaluate nursing compliance with pressure injury prevention measures and determine the level of teamwork among nurses and CNAs at a home health care agency in Atlanta, Georgia. Nursing compliance with PI

prevention measures was evaluated by reviewing admission notes, nursing progress notes, and supervisory visits reports. The purpose of reviewing nursing documentation was to reveal whether nurses did comprehensive skin assessment during intake admission, established treatment plan for at-risk patients, and complied with physicians' orders. Similarly, review of daily progress notes was to demonstrate whether CNAs complied with basic PI prevention measures such as scheduled two-hour turning, applying barrier cream, providing incontinent care, and keeping the patient well hydrated. Evidence has shown that the rate of PI incidence could be minimized significantly through effective nursing teamwork and compliance with standard PI preventive measures such as regular skin assessment, moisture management, two-hour patient repositioning, and the use of specialized mattresses and seating (Bergstrom et al., 2013; Kalisch, Xie, & Ronis, 2013).

Project Objectives

Three objectives were set for the project. Objective one was to determine whether nurses used the Braden scale and the AHRQ facility assessment checklists to screen patients for PI risk. Nursing compliance with PI prevention measures such as performing skin and PI risk assessment during patient intake admission and shift change; documenting existing wound(s) on admission, establishing treatment goals for high-risk patients, and repositioning patients every two hours were assessed (Bergstrom et al, 2013). Failure to comply with standard PI prevention measures could result in the development of a PI within twenty-four hours, along with its attendant pain, high treatment cost, and loss of nursing hours (Smeltzer et al, 2008).

The second objective was to determine nursing compliance with PI treatment plan such as referring at-risk patients and patients with wounds to their primary care physicians for specialized wound care; and following the facility protocol for pressure injury prevention development including pressure relief, moisture management, and skin inspection once each shift. Nursing compliance with PI treatment plan is vital for preventing high risk patients from developing a PI and patients with wounds from getting worse. An effective PI care plan should be comprehensive, nurse-directed, and take into consideration all the factors that contribute to the PI (AHRQ, 2014c).

The third objective was to measure the degree of teamwork between nurses and CNAs as measured by the Nursing Teamwork Survey (Kalisch, Xie, & Ronis, 2013). Prevention of pressure injury required collaboration among the interdisciplinary team of nurses, CNAs, primary care physicians, physical therapists, dieticians, and occupational therapists. As the primary direct care professionals, teamwork between nurses and CNAs was vital for the early detection and treatment of PIs. Teamwork effort was required to reposition immobile patients, provide incontinent care, report symptoms of PI, and in following physicians' orders. By communicating openly about PI prevention strategies and their respective roles, nurses and CNAs could work together as effective teams.

Project Questions

The following guiding questions were used to address the nursing practice gap:

1. What percentages of nurses a) screened their clients for pressure injury risk using the AHRQ facility assessment checklists; b) assessed their clients for pressure injury care planning using the AHRQ facility assessment checklists;

c) applied pressure ulcer preventive measures using the Pieper pressure injury knowledge test; and, d) complied with treatment plan as ordered by clients' physicians?

2. What was the level of nursing teamwork as measured by the Nursing Teamwork Survey [NTS] (Kalisch, Xie, & Ronis, 2013)?

The goal of these questions was to evaluate nursing compliance with PI preventive measures and to determine the degree of teamwork among the nursing staff. The objective evaluation of these two quality measures were used to improve the quality of care delivery at the agency in the future. All the questions aligned with the DNP project goal of preparing "students to participate in evidence-based scholarship in their roles as nurse leaders and scholar-practitioners" (Walden University, 2011, p.1).

Significance of the Project

Evidence has shown that pressure injuries (PIs) could be minimized by early detection of PU risk and use of appropriate PI preventive measures such as skin assessment on admission and shift change, scheduled skin inspection for at-risk patients, and two-hour client repositioning (Cooper, 2013). Despite their training in PI prevention measures, the nurses and CNAs were unable to strictly adhere to PI prevention protocols; resulting in "patient morbidity, treatment cost, and reimbursement issues" (Zaratkiewicz et al., 2010, p. 45). Patients who acquired PUs were more likely to die than those without a PI (Zaratkiewicz et al., 2010). Minimizing PI incidence was a quality of care indicator for the project agency and a requirement for Medicare/Medicaid reimbursement

(NPUAP, 2014). Moreover, a PI-related lawsuit could cost the project agency significant sums of money (AHRQ, 2014c).

Reduction of Gaps

Prevention of PI was a major goal of the nursing team in the project site because PIs caused patients significant pain, was hard to treat, and could be fatal (AHRQ, 2014c). The nurses and CNAs in the project agency had a vital role to play to minimize the incidence of agency-related PIs. Teamwork and effective communication between nurses and CNAs as well as consistent assessment and documentation were critical in combating PIs in the agency. Team developments took time and required persistence (Marquis & Huston, 2014).

According to Tuchman and Harper (2012), team development goes through four recognizable phases: forming, storming, norming, and performing with each phase having distinct set of feelings, behaviors, and tasks. At the forming phase, nurses and CNAs would be excited about the prospects of working together as a team but at the same time would be nervous about and unsure of what lies ahead (Bonebright, 2010). The leader of the team would be expected to cast the vision, explain team roles and desired outcomes, and encourage members to develop relationships (Marquis & Huston, 2014). Next, the nurses-CNAs team has to be formed by aligning all the members behind a clearly defined vision, harnessing the strengths of the members, and developing clarity and cohesiveness. In the norming phase, team members focus on increased efficiency and productivity, both individually and collectively, and evaluate team processes and outcomes (Bonebright, 2010). When the team gets to the performing stage, members

experience high satisfaction, significant progress towards defined goals, and high team competency and performance (Marquis & Huston, 2014).

According to O'Sullivan et al (2012), effective communication could help clinicians to identify patients' problems more accurately, and could lead to higher patient satisfaction, better patient understanding of diagnosis and treatment options, and improved patient compliance to treatment. Patients also experience less anxiety and improved outcomes when clinicians communicate effectively (O'Sullivan, 2012). The main nursing tasks in communication with patients are to identify patients' problems, determine patient's perception of their problems, educating patients on their diagnosis, discussing treatment options with patients, and answering patients' questions and concerns. Nurses and CNAs in the agency can improve their communication skills by learning to listen to one another with mutual respect, using the professionally accepted channels of communication, being empathic, and utilizing conflict management skills (Marquis & Huston, 2014). This project used the findings from the nursing documentation reviews to demonstrate the gap between evidence-based practice and practice. Then, using discussion, the nurses and CNAs were educated about team and communication skill development, and effective assessment skills.

With the use of the AHRQ facility checklists, the nurses could identify patients who were at high risk of developing a PI and then established comprehensive care plan for PIs prevention. Additionally, by complying with physicians' orders for PI treatment, nurses could play a pivotal role in combating PI. On their part, the CNAs at the project site could minimize PI development by assisting with patient mobility and two-hour

repositioning; providing good skin and perineal care, and anticipating and meeting toileting needs of patients (Sorrentino & Remmert, 2014). Nurse's assistants could also minimize PIs by frequently inspecting patient's skin, providing fluids as needed, and using pressure relieving devices to minimize friction and shearing (Sorrentino & Remmert, 2014).

Implications for Social Change

The Doctor of Nursing Practice (DNP) program prepares nurses to be scholar-practitioners and to be positive social change agents (AACN, 2006). Leading the nursing team to apply evidence-based knowledge to minimize pressure injury rates in the project site was one way this DNP-student nurse could be a positive social change agent (Zaccagnini & White, 2011). This project has had a remarkable impact on the agency and society at large. The project has significantly transformed the culture of the agency to improve team effort, improved communication between nurses and CNAs, improved care, and minimized PI incidence in the agency. A culture of teamwork was an essential model for newly hired nurses and CNAs (Kalisch, Curley, & Stefanov, 2007). According to Brem et al. (2010), minimizing PI rates in the agency could "eradicate enormous pain and suffering, save thousands of lives, and reduce healthcare expenditures by millions of dollars" (p. 474). Minimizing PI rates improved the health conditions and social status of thousands of patients by eliminating PU-related stigma, and restored their self-worth, dignity, and functionality. It has also helped the agency to receive Medicare and Medicaid reimbursement on time and improve its reputations.

The project has helped the nursing team to provide higher quality care to prevent and treat PIs. It has also increased staff satisfaction as the nursing staff have developed better understanding and relationships between themselves. Furthermore, implementation of the project has significantly improved communication between nurses and CNAs, reduced work overload, and the level of stress and burnout among nurses and CNAs (Kalisch, Weaver, & Salas, 2009). It has also reduced nurse-related errors, and improved efficiency of patient care and safety. Additionally, the change has enhanced greater accountability among nurses and CNAs as they have developed a sense of collective responsibility for each patient's care. In short, the project has produced a more efficient team of healthcare professionals whose services would transform thousands of lives and save the healthcare system millions of dollars in treatment cost.

Definition of Terms

The major terminologies associated with pressure ulcer minimization and teamwork were as follows:

- **Pressure Injury (formerly known as pressure ulcer or decubitus ulcer or bed/pressure sores):** "A localized damage to the skin and/or underlying soft tissue, usually over a bony prominence or related to a medical or other device as a result of intense and/or prolonged pressure and/or shear" (NPUAP, 2016, p. 1).
- **Wound:** A break in the skin or mucous membrane. A wound can be a point of entry for microbes (Smeltzer et al., 2008).

- **Partial thickness:** A wound that breaks into the dermis, epidermis (Smeltzer et al., 2008).
- **Full thickness:** A wound that breaks into the dermis, epidermis, subcutaneous tissue. It may also involve the muscle and bone (Smeltzer et al., 2008).
- **Friction:** "The resistance to movement that occurs when a patient slides down or is improperly pulled up in bed" (Smeltzer et al, 2008, p. 208).
- **Shear:** "Occurs when one layer of tissue slides over another, and blood vessels stretch and twist, disrupting the microcirculation of the skin and subcutaneous tissue" (Smeltzer et al, 2008, p. 209).
- **Deep Tissue Injury:** "Intact or non-intact skin with localized area or persistent non-blanchable deep red, maroon, purple discoloration or epidermal separation revealing a dark wound bed or blood-filled blister" (NPUAP, 2016, p. 2).
- **Stage 1 Pressure Injury:** "Non-blanchable erythema of intact skin – Intact skin with a localized area of non-blanchable erythema, which may appear differently in darkly pigmented skin". (NPUAP, 2016, p. 2).
- **Stage 2 Pressure Injury:** "Partial-thickness loss of skin with exposed dermis. The wound bed is viable, pink or red, moist, and may represent as an intact or ruptured serum-filled blister" (NPUAP, 2016, p. 2).
- **Stage 3 Pressure lnjury:** "Full-thickness loss of skin, in which adipose (fat) is visible in the ulcer and granulation tissue and epibole (rolled wound edges) are often present. Slough and/or eschar may be visible" (NPUAP, 2016, p. 2).

- **Stage 4 Pressure lnjury:** “Full-thickness skin and tissue loss with exposed or directly palpable fascia, muscle, tendon, ligament, cartilage or bone in the ulcer. Slough and/or eschar maybe visible” (NPUAP, 2016, p. 2).
- **Unstageable Pressure Injury:** “Full-thickness skin and tissue loss in which the extent of tissue damage within the ulcer cannot be confirmed because it is obscured by slough or eschar” (NPUAP, 2016, p. 2).
- **Team:** “Two or more individuals who are interdependent and share a common purpose” (Kalisch, Weaver & Salas, 2009, p. 298).
- **Teamwork:** The process of working collaboratively with a group of people to achieve a common goal (Kalisch, Weaver & Salas, 2009).

Assumptions, Limitations, and Delimitations

There were five assumptions included in the project. It was assumed that adopting and implementing evidence-based strategies such as the TURN guideline would reduce the incidence of pressure injuries. It was also assumed that nurses and CNAs would adopt and implement the evidence-based intervention. The third assumption was that nurses and CNAs would participate in the planned surveys and provide truthful feedback. Anonymity and confidentiality of respondents were protected by using study codes on data documents, encrypting identifiable data, removing face sheets containing identifiers, properly disposing of study information, restricting access to identifiable information, and storing study data in a locked location (Kaiser, 2009). Moreover, it was assumed that nurses and CNAs at the project site understand the benefits of teamwork and would work

together as a team. Finally, it was assumed that the convenience sample would be representative of the population to which inferences would be made.

Limitations

There were four major limitations to the project. First, the information and data provided in the project were collected from a single home health care agency. The information in this project, therefore, did not necessarily represent all home health care agencies. Second, a small sample of convenience participants was used since participation in the study was voluntary. A third limitation was the staffing shortage at the agency. The staffing shortage limited the size of the population from which to select the project sample. The final limitation was the short time available for nursing care, which hindered effective implementation of PU prevention measures.

Delimitations

The high incidence of PIs in home health care was selected for the project initiative because, even though PIs could be prevented, if allowed to develop, they were difficult to treat, caused patients significant amount of pain, and cost patients and healthcare organizations significant healthcare dollars. The project questions were carefully framed to determine whether nurses in the project site had incorporated PI prevention measures into their assigned tasks. The questions would also reveal the level of teamwork between nurses and CNAs to minimize the incidence of PI in the agency.

Summary

Pressure ulcer is a major preventable adverse health condition. It causes patients significant pain, is costly to treat, and is the cause of reimbursement and legal issues. The

study problem for the DNP project was the high incidence of home health care-related pressure injury (HHPI) and lack of nursing teamwork. The purpose of the project was to evaluate nursing compliance with PI prevention measures and determine the level of teamwork among nursing staff at the home health agency. Initial review of nursing documentation at the project site revealed noncompliance with basic PI prevention measures such as intake admission skin assessment, scheduled two-hour turning, incontinent care, and prompt reporting of skin changes. The degree of nursing teamwork at the agency was quite low. The project aimed at bridging the gap between nursing knowledge about PI preventive measures and nursing teamwork to minimize HHPIs. The effective nursing teamwork and implementation of evidence-based PI measures such as skin and PI risk assessments, two-hour turning, moisture management, and proper nutrition would significant reduce “patient morbidity, treatment cost, and reimbursement issues” (Zaratkiewicz et al., 2010, p. 45).

Section 2: Review of Literature and Theoretical and Conceptual Framework

Introduction

The practice problem investigated for the DNP project was the high incidence of pressure injuries (PIs) in home health care and lack of nursing teamwork to prevent them. Four critical strategies for closing the gap were early PI detection measures, consistent assessment and documentation, compliance with PI treatment regimen, and effective teamwork and communication between nurses and CNAs in the agency. The practice-focused questions for closing the gap were what percentage of nurses complied with standard PI prevention guidelines using the AHRQ facility assessment checklists and what was the level of nurses-CNAs teamwork in the agency as measured by the Nursing Teamwork Survey [NTS] (Kalisch, Xie, & Ronis, 2013)?

The purpose of the DNP project was to evaluate nursing compliance with pressure injury prevention measures and determine the level of teamwork between nurses and CNAs at a home health care agency in Atlanta, Georgia. The Braden-Bergstrom conceptual framework was used to discuss the etiology and progression of PI. To provide a vivid description of how to build cohesive teamwork between nurses and CNAs at the project site, the Lewin's Change Theory was discussed. The purpose of this section, therefore, is to provide the background and context of the DNP project in terms of the concepts, models and theories used through extensive review of the literature.

Search Strategy

The review of the literature is an evaluative report that describes, summarizes, evaluates, and clarifies the literature; and provides a theoretical framework for the study

(Terry, 2012). Its purpose is to provide an objective context and justification for the study, explain its relevance, reveal gaps, and show how the study adds to existing body of knowledge (Terry, 2012). To better understand nursing compliance with PI prevention measures and the degree of nursing teamwork in the home health care agency, a comprehensive search of the following library databases and search engines was conducted: Cumulative Index to Nursing and Allied Health Literature (CINAHL), Medline, Google Scholar, and Walden University library. Searches were also conducted on the following databases: Agency for Healthcare Research and Quality (AHRQ) National Clearinghouse, EBSCO host, PubMed, and Cochrane Library database.

The combinations of keywords used in the search included team, teamwork, team building process, pressure ulcer, pressure ulcer prevention, pressure ulcer measures, pressure ulcer interventions, communication skills, and home health care. To ensure currency, the search was limited to articles published in the last ten years (between 2007 and 2016), available in full article and abstract, published in the English language, and peer-reviewed. Similarly, to determine reliability of articles searched, the Nursing Journal Toolkit (NJT) was used to critique all reviewed literature. The NJT is known to provide reliable guidelines for critiquing both quantitative and qualitative articles (Coughlan et al, 2013). A total of twenty-seven articles were identified. Fifteen will be used to discuss PI prevention guidelines and strategies, five for describing teamwork and team building strategies, three for explaining the conceptual framework, and four for discussing leadership and communication.

Specific Literature

The articles reviewed focused on a wide range of issues including evidence-based PI prevention strategies, nurses' knowledge and perception about PI prevention strategies, hindrances to PI prevention implementation, cost of PI treatment, economic impact of PI prevention intervention, and the impact of two-hour patient turning (Kowal-Vern et al., 2009; Zaratkiewicz et al., 2010; Yap et al., 2013; Bergquist-Beringer & Daley, 2011). All the authors acknowledged the limitations of their articles and highlighted areas that needed further study. A wide range of methods were used in the articles reviewed, including mixed studies such as descriptive cross-sectional and descriptive multi-methods (Strand & Lindgren, 2010; Sving et al., 2012); and quantitative studies such as descriptive cross-sectional, psychomotive evaluation, and cross-sectional (Källman & Suserud 2009; Beeckman, Defloor et al., 2010; Beeckman et al., 2011). Qualitative studies used methodologies such as qualitative content analysis, descriptive qualitative, and phenomenology (Athlin et al., 2009; Samuriwo, 2010).

Three main objectives were set for the project: determine nursing use of Braden scale and the AHRQ facility assessment checklists to screen patients for PI risk, determine nursing compliance with PI treatment plan, and measure the degree of teamwork between nurses and CNAs as measured by the Nursing Teamwork Survey (Kalisch, Xie, & Ronis, 2013). The literature was searched to find articles that related to the project objectives. There were five major findings from the articles reviewed, namely inadequate nursing knowledge about PI prevention measures (Smith & Waugh, 2009), perceived barriers to PI prevention (Källman & Suserud, 2009), nursing attitude towards

PI prevention practice (Beeckman et al., 2011), nursing culture of care (Sving et al., 2012), and use of musical cues for two-hour patient turning (Yap et al., 2013). A critique of the articles was provided, including the strengths and limitations of each study; as well as how each finding supported the project.

Inadequate Nursing Knowledge about PI Prevention Measures

A descriptive cross-sectional quantitative study using a 47-item questionnaire was conducted in six hospitals and six clinics in Sweden to investigate how the knowledge and attitude of registered nurses [RN] (n=120) and nurse's assistants [NA] (n=120) impacted the performance of PI prevention and treatment (Källman & Suserud, 2009). With the assistance of unit managers of the six hospitals and clinics, subjects (n=240) were randomly selected and blind tested on a questionnaire. The researchers found that though respondents generally had adequate knowledge about PI prevention and treatment, their performance of PI prevention and treatment was inadequate. Furthermore, the subjects were not up-to-date with recent guidelines and research findings on PI prevention and treatment. Additionally, only 37% of the respondents said their units had adopted and used an evidence-based PI prevention strategy. By offering anonymity and confidentiality to subjects, the researchers reduced bias and misleading responses. The main limitation of the study might be the instrument used, as the researchers questioned its validity and admitted that some of the items were difficult to interpret (Källman & Suserud, 2009). Another weakness was since questionnaires were self-administered, the researchers had no way of knowing how truthful the responses were. These findings demonstrated that nursing knowledge about PI had to be translated

to practice to minimize the high PI incidence rate at the project agency. Implementing evidence-based PI prevention strategies and guidelines could significantly improve prevention and treatment of PI at the project site.

In a systematic review using seven studies, Waugh (2014) investigated the relationship between nursing knowledge and PU prevention and found that nursing knowledge was not significantly correlated with the application of adequate PI prevention. It was discovered that in units where nurses scored high on the knowledge score, there was a corresponding high application of PI preventive measures, indicating lack of knowledge transfer to practice. In some studies, highly educated nurses scored higher in knowledge scores while in other studies, there was no significant difference in knowledge scores for nurses with higher education (Waugh, 2014). There was positive correlation between in-service training and higher knowledge scores (Waugh, 2014). One limitation of the research was its failure to include certified nurse' assistants (CNAs) in the search. Thus, the findings and conclusions of the review would not apply to CNAs. The omission was important since CNAs provided a critical role in the prevention of PI under the supervision of RNs. The findings underscored the need to close the gap between research and practice. Continuing education was essential for minimizing the incidence rate of PI at the project facility.

In a review of the literature to investigate the relationship between nurses' knowledge and the use of risk assessment tools to prevent PIs, Joseph and Clifton (2013), concluded that the individual nurse's knowledge of PI, particularly risk assessment, was essential for timely and accurate assessment of PIs. Knowledge of PI etiology enhanced

best practices by facilitating nurses' understanding of how PIs developed. Comprehensive and accurate assessment was found to be essential for the timely implementation of preventive measures and treatment regimen (Joseph & Clifton, 2013). The use of risk assessment tools should complement clinical judgment and not replace it (Joseph & Clifton, 2013). These findings provided a strong support for nursing knowledge about PI and prevention measures for meeting the project goal of reducing PI incidence rate at the project agency. The findings also showed that nursing knowledge about PI prevention and treatment was essential for complying with treatment plan. Moreover, adequate knowledge and understanding of PI prevention and treatment would facilitate nurses-CNAs teamwork.

Nursing Attitude Towards PI Prevention Practice

Beeckman et al. (2011) conducted a cross-sectional study involving 553 nurses in 14 hospitals to determine the correlation between nurses' attitudes towards PI prevention` and the effective implementation of PI prevention in Belgian hospitals. Using clinical observations developed by the European Pressure Ulcer Advisory Panel (EPUAP), the researchers investigated the adequacy of nursing knowledge in and attitude towards PU prevention. Data was collected in five categories: "general data, patient data, risk assessment, skin observation, and prevention" (Beeckman et al., 2011; p. 168). Based on the results, Beeckman et al. (2011) concluded that the attitude of nurses towards PI prevention was generally poor, as only 50% of the nurses scored 75% or higher on the attitude score. The results also showed a significant correlation between nurses' attitude and PI prevention practice. Additionally, Beechman et al. (2011) found that only 13.9%

of at-risk patients received adequate PI prevention nursing care. The instrument used was adequately validated and the procedure and method had been considered robust (Vanderwee et al., 2007). Even though the motivation of the subjects could be questioned because they were randomly selected, the researchers took the necessary actions to minimize recruitment bias and ensured a representative sample. The researchers acknowledged the possibility of the subjects giving "socially desirable answers during the attitude assessment" (Beechman et al., 2011, p. 174). The findings showed little correlation between nurses' attitude and preventive services. Thus, the attitude of the nursing staff at the project agency could be investigated to determine if it contributes to the high PI rates at the facility.

In a descriptive cross-sectional study, the attitude of registered nurses (RNs) and enrolled nurses (ENs) [equivalent of licensed practical nurses] (n=144) in four intensive care units in Sweden regarding barriers to PU prevention were investigated using a 11-item Likert scale (Strand & Lindgren, 2010). Multiple choice and open-ended questions were used to assess nurses' knowledge, while open-ended questions were used to evaluate their attitude towards and perceived barriers to PI prevention. The researchers found that subjects considered PI prevention as an important component of overall quality nursing care. Strand and Lindgren (2010) also found that nurses, who had education in anesthesia or critical care, generally had better attitudes than those without that education.

The conclusions drawn from the Strand and Lindgren (2010) study appeared valid for three reasons. First, the authors utilized the appropriate method for achieving the goal

of the investigation. Cross-sectional study is usually used if the study is descriptive, involves a survey, seeks to examine the relationship between risk factors and an outcome (Sedgwick, 2014). Second, the measurement instrument used in the studies was credible and validated. Third, since a large randomized sample size was used, the results of the studies were representative of the population with minimal bias. Nursing attitude towards PI prevention is relevant to the project since there is a direct correlation between nurses' attitude and PI prevention practice. Moreover, since the project agency has a high PI incidence rate, it may be useful to investigate the attitude of nurses vis-à-vis PI prevention practice.

Perceived Barriers to PI Prevention

Nurses reported several barriers to PI prevention that included a: lack of continuity of care, time, and knowledge, as well as inadequate number of staff, work overload, physical condition of patients, and inadequate equipment or resources in two studies investigating perceived barriers to PU prevention (Källman & Suserud, 2009; Strand & Lindgren, 2010). The first investigation was a cross-sectional study of registered nurses (n=120) and nurse' assistants (n=120), to determine perceived barriers to PI prevention. The nurses cited "lack of time, the patients' condition and lack of resources or lack of equipment" as the major barriers to PI prevention (Källman and Suserud, 2009, p. 338). Staff shortage led to work overload and inadequate nursing time, which compromised nurses' inability to implement PI prevention measures (Källman & Suserud, 2009). Some nurses and CNAs also claimed that condition of patients, especially those with heavy weights hindered them from practicing PI prevention

measures such as two-hour turning, incontinent care, and applying barrier creams as scheduled (Källman & Suserud, 2009). Moreover, RNs and NAs perceived inadequate equipment and resources such as wedges, Hoyer lifts, barrier creams, and cushions as a hindrance to the implementation of PI prevention measures (Källman & Suserud, 2009). However, there was high attrition rate for part five of the questionnaire where subjects were asked to explain, in their own words, three perceived barriers to PI prevention. There might have been subject fatigue due to the length of the questionnaire. The findings in the study supported the project significantly because the perceived hindrances identified in the study were similar to the perceived barriers nurses at the project site noted such as staff shortage, pressure of work due to work overload, inadequate information sharing, and ineffective communication between nurses and CNAs. The nursing staff at the project agency could learn how to overcome these barriers from the experience of their counterparts in the literature studied.

Strand and Lindgren (2010) conducted a cross-sectional study involving 144 nurses in four ICUs in a hospital in Sweden to identify nurses' perceived barriers to PI prevention. Using open-ended questions on a 11-item Likert scale, the Strand and Lindgren (2010) study identified lack of time, severe morbidity, and staff shortage as the three leading barriers. Nurses also reported lack of knowledge, lack of adequate pressure relieving equipment and materials, and failure to participate in patient care as barriers to PI prevention. Other barriers to PI prevention identified in the study were failure to follow hospital-approved PI prevention strategies and patients' refusal to cooperate. The authors used an appropriate method, a validated instrument, and a representative sample

with minimal bias. The findings of the study would provide support to the project because the perceived barriers identified in the study aligned with the barriers nurses and CNAs at the project site had also identified.

Nursing Culture of Care

In a multi-mixed methods study of nine RNs working in three wards in an acute care hospital in Sweden using observation and review of the medical record to determine how nurses performed and documented PI prevention, Sving et al. (2012) discovered that nurses in one ward prioritized PI prevention whiles nurses in the other two wards delegated and entrusted PI care and intervention entirely to CNAs. In the ward where nurses prioritized PI prevention, there was low incidence rate, established routines, and culture of caring (Sving et al., 2012). The nurse leaders adopted and implemented evidence-based guidelines and held nurses accountable for the success of the guidelines (Sving et al., 2012). In contrast, in wards where nurses delegated PI care and intervention to CNAs, there were high PI incidence rates. Thus, the researchers found a direct relationship between PI prevention on one hand, and culture of caring and established routines on the other hand (Sving et al., 2012). The findings could not be generalized since the study involved only three wards in one hospital. Despite this limitation, the study highlighted the need for nurses to prioritize PI prevention and lead quality improvement interventions. The study also underscored the need to close the gap between evidence-based guidelines and clinical practice. The results of the study supported the project goal to improve nurse-CNA teamwork at the project agency.

In a multilevel cross-sectional study, the relationship between PIs and patient safety involving "1,056 patients at 84 somatic wards in 4 hospitals under a Regional Health Authority in Norway" was investigated (Bredesen et al., 2015, p. 1). The inclusion criterion was all health professionals in Norway, who were requested to complete an online questionnaire. The organizational variables included "type of ward, patient-to-nurse ratio, PI prevention implemented, and ward patient safety culture". The assessment of PI implementation was based on whether patients were repositioned, had support surfaces such as use of specialized mattress and heel cushion; and had their heels elevated. The culture of patient safety culture was measured using the 36-item Safety Attitudes Questionnaire (SAQ). Dimensions of patient safety culture measured on the SAQ were "teamwork, safety climate, and perceptions of management" (Bredesen et al., 2015, p. 3). Teamwork was measured by subjects' perceived quality of interpersonnel collaboration, safety climate by perceived organizational commitment to safety, and perception of management by approval of managerial actions. Bredesen et al. (2015) conducted further analysis of risk on patient risk levels on the Braden scale (below 17) and implementation of PI prevention. There was significant correlation between patient safety culture scores and the incidence of HAPI. Wards that had higher patient safety culture score had lower HAPI and vice versa (Bredesen et al., 2015). A limitation of the study was the use of a department data in one of the hospitals instead of a ward data, which might have impacted the accuracy of the results. Also, the fact that the study was conducted in a single district health authority decreases the generalizability of its results.

The study supported the project's goal to minimize PI rates by closing the gap between patient safety culture and PI prevalence.

Use of Musical Cues for Two-Hour Turning

The two-hour turning helps relieve pressure on the bony prominences of immobile individuals (AHRQ, 2014a). A qualitative observational study involving multiple focus groups was conducted in ten long-term facilities (LTF) to determine if the use of musical cues would remind nurses and CNAs to reposition residents every two hours to prevent new PIs from developing (Yap et al., 2013). The use of musical cues helped reduce PI incidence by 45%, and was also found to identify early-stage PIs (Yap et al., 2013). Despite the apparent success of the study, the authors admitted other LTFs, which wanted to use the intervention, would have to customize it to meet the unique needs of their residents and staff. The use of the intervention would complement and not be a substitute for frequent communication between nurses and CNAs. The intervention was simple and could be adopted in a home health care setting. This study highlighted the need to adopt creative approaches to implement PI prevent measures.

General Literature

This subsection discusses the AHRQ standard guidelines for PI prevention, cost of PI treatment, and cost effectiveness of PI prevention. The importance of PI prevention is discussed in terms of the adverse effects of the diseases on the patient and family, the health facility, and the health care system. A clear understanding of standard protocols for PI prevention is the first critical step in the fight against PI. Because of the complexity of PI prevention, it is helpful to think of the problem as a care bundle comprising a

combination of best practices to produce the desired outcomes. The AHRQ (2014) has recommended a three-step PI prevention care bundle comprising “comprehensive skin assessment, standardized PI risk assessment, and care planning and implementation to address areas of risk” (para.8).

Comprehensive Skin Assessment

The first critical step the AHRQ (2014) recommends for PI prevention is the performance of a head-to-toe skin examination of the patient for any abnormalities, taking note of the bony prominences. Comprehensive skin assessment must be done to identify the presence of PIs and other skin lesions that predispose to PI development, stratify risk, and gather data needed to calculate PI incidence rates (AHRQ, 2014). The NPUAP (2014) also recommends that comprehensive skin assessment must be done on admission and readmission, on transfer or discharge, and at least once daily. The AHRQ (2014a) also recommends that head-to-toe assessment must be conducted at the beginning of every shift, depending on the protocol of the health facility and the risk level of a patient. The bony prominences of high-risk patients must also be assessed, at least, every four hours (AHRQ, 2014a).

The two critical elements in a comprehensive skin assessment are inspection and palpation and as a minimum, the nurse must assess the five parameters of: temperature, color, moisture level, turgor, and skin integrity (Perry et al., 2012). To gain the most benefit from the comprehensive skin assessment, nurses must document the results in the patient’s health record and share them with other care providers (NPUAP, 2014). The AHRQ (2014) also recommends that each acute care unit or home health agency should

maintain a separate PI Log, which clearly shows the total number of patients on the unit or agency, the "number of PUs present, and the highest stage of the deepest PU" (para. 23). The PI Log is a critical piece of data for determining patients who have had a comprehensive assessment. The Log also helps measure the incidence and prevalence of PI in the unit or agency.

A review of nursing documentation at the project site revealed noncompliance with the AHRQ recommended comprehensive skin assessment. The nurses either did not comply with the agency protocol for skin assessment or did not document it, suggesting that skin assessment was not done. Failure of nurses at the project site to conduct comprehensive skin assessment, or to document it if they did, defeats the goal of the AHRQ guidelines, which is to ensure PI prevention through early detection of risk factors, information sharing, continuity of care and accountability. In the project site, the AHRQ recommended chain of care was broken, resulting in high PI incidence.

Standardized PI Risk Assessment

Pressure injury risk assessment is a standardized, multifaceted process to identify high-risk PI patients and quantify the risk in order to customize PI preventive plan for each at-risk patient (AHRQ, 2014). It is an essential process for making clinical decisions about at-risk patients, selectively targeting preventive interventions to ensure wise use of scarce resources, and facilitating care planning. Risk assessment also helps clinicians to focus on specific etiologic factors for PI development and facilitates communication among the interdisciplinary team (AHRQ, 2014; Perry, 2012). In acute care hospitals, it is recommended that pressure ulcer risk assessment be done on admission, then daily or

when there is significant change in condition (AHRQ, 2014a). However, in the home health care setting, PI risk assessment may be done on admission and then when there is significant change in condition (Bergquist-Beringer & Daley, 2011). All risk assessments must be documented in the patient's health records such as the daily patient flowsheets, the patient report, and the patient card or daily patient care worksheet and then shared with other health care professionals (AHRQ, 2011).

Nurses at the project site did not seem to understand the important role of risk assessment in PI prevention. Some of the nurses did not identify at-risk patients while others failed to stage PI correctly resulting in inadequate care. According to the literature, two critical things the nurse must look for during risk assessment are the presence of PIs and at-risk patients such as those in hypoperfusion states, or with non-perfusing vital organs, and peripheral vascular diseases and diabetes because they usually have limited blood supply to their legs (AHRQ, 2014). Review of the nursing documents showed that nurses at the project agency sometimes failed to identify the presence of PIs and at-risk patients.

Care Planning and Implementation

The major focus of the care planning and implementation phase of PI prevention is to utilize the risk assessment results to develop a plan and implement concrete actions to address the identified risks. For the care plan to be effective, all providers are expected to follow the same procedures and thus ensure consistency and continuity of care (AHRQ, 2014). As a legal document, the care plan must guide treatment, ensure the safety and comfort of the patient, and must be used as an education tool for patients and

families before discharge (NPUAP, 2014). The care plan must also document the patient's responses to treatment including refusal of care and the reason(s) for refusing care, the rationale for the treatment, and the alternative interventions presented (AHRQ, 2014).

The care plan has to incorporate all actions that must be performed and those that should not be performed (AHRQ, 2014). Nurses must ensure that all care plans are individualized to meet the unique needs of each patient (NPUAP, 2014). As much as possible, clinicians must develop a plan of care that incorporates all the patient's risk factors. The nurse has to modify the care plan to reflect any changes in the patient's risk status and the corresponding nursing interventions (AHRQ, 2014). Nurses at the project agency are required to conduct at-risk diagnosis and intervention after skin and risk assessment. To obtain patient response on treatment, nurses conduction patient evaluation. Nurses document the results of their care in the patient's health records and make them available to all relevant staff to utilize.

PI-Associated Costs

Direct costs. There are considerable costs associated with PIs. The annual direct cost of PIs treatment in the U.S. is estimated to be $9.1-$11.6 billion (AHRQ, 2014a). Most of the direct cost is due to hospital-acquired pressure injuries (HAPIs), resulting in prolonged hospital stay, increased chance of nosocomial infections, and other complications. Depending on the severity, the cost of treating one PI could range from $2,000 to 27,000 per ulcer (Braden, 2012). Per Pedula et al., (2011), the estimated total

daily cost of treatment of HAPI Stage 1/2 is $2,770.54 and HAPI Stage 3/4 is $44,983.80 based on an eight-days length of stay (Table 1).

Table 1

Estimated Daily Cost of Treatment for HAPI Stage 1/2

Intervention	Total Cost ($)
Support surfaces	148.56
Moisture/Incontinence	114.34
Repositioning	12.27
Chair cushion	.17
Nutrition	1.10
Risk assessment	2.55
Topical antibiotics	15.40
Inpatient costs	1,922.04
Unforeseen costs	544.11
Total costs	2,770.54

Note: From "Costs of Pressure Ulcer Prevention: Is It Really Cheaper Than Treatment?" by B. Braden, 2012, *National Pressure Ulcer Advisory Panel*, p. 13. Reprinted with permission.

At the project agency, nearly fifty-five percent or eighty-two patients received from acute care settings were admitted with a PI. About thirty percent or forty-five patients who had a Stage 3 PI recovered in one hundred days (M. Areh, personal communication, December 24, 2015). By extrapolation, one hundred and sixty-four patients with Stage 3 PI were treated in a year at an estimated cost of $7,377,343.20. Additionally, in a year, seventy-two patients were treated for Stage 1 PI at an estimated cost of $19,9440.00. Thus, an average of $7,576,783.20 in direct treatment cost could be saved each year if the project agency could prevent PIs.

Indirect costs. In addition to direct financial cost, there are indirect PIs-related costs in the form of patient quality of life, government penalties, litigation, and impact on quality metrics (Lyder et al., 2012). Pressure injuries have significant impact on patient quality of life, morbidity, and mortality (Braden, 2012). People living with PIs experience decreased functionality and significant pain. In the literature reviewed, the majority of PI patients described their pain as "'sore', 'stabbing', 'burning', 'throbbing' or 'stinging'" (Gorecki et al., 2010). Each year, more than 60,000 of people die as a direct result of PIs (AHRQ, 2014a). Other indirect costs to patients are time lost from work, forced early retirement, impact on patient's families, and other expenses associated with morbidity and mortality (Lyder et al., 2012). People living with PIs also experience secondary complications such as "depression, local infection, osteomyelitis, anemia, sepsis, gas gangrene, necrotizing fasciitis, and death" (Braden, 2012, p. 6). The patients in the project site living with PIs did experience these indirect costs to varying degrees.

Another indirect implication of PI incidence is litigation cost. Ranked second to wrongful death lawsuits, HAPI is the cause of more than seventeen thousand lawsuits each year (AHRQ, 2014a). Pressure injury malpractice lawsuit averages $250,000 per settlement, with the settlement favoring patients 87% of the cases (Brem et al., 2010). Furthermore, effective in 2008, the Centers for Medicare and Medicaid Services (CMS) do not reimburse hospitals for HAPIs. Apart from the financial component of the CMS penalty, the rate of Medicare reimbursement is a quality metric for most health care organizations since it is directly linked to patient satisfaction (Lyder et al, 2012). To its credit, the project agency had not been involved in any PI-related litigation.

Cost-Benefit Analysis

Evidence shows that PI preventive care is cost effective and more effective in terms of quality-adjusted life years than standard treatment (Braden, 2012). In a semi-Markov study to compare the cost effectiveness of preventive care with standard care of HAPI, Pedula et al. (2011), found that preventive PI care lowered the average cost per patient by $1,200" (p. 390). Mortality rate also reduced by almost half and the probability of patient discharge increased by 14.4% when PI preventive care was implemented (Pedula et al., 2011; Table 2). The accuracy of the results was compromised by the fact that some of the data were not nationally representative, and some diabetic ulcer data were mixed with PI data. The findings of the study support the need to implement prevention measures to minimize the incidence of PI, reduce hospitalizations, and lower the PI-related cost at the project agency.

Table 2

Per Hospitalization Preventive Care Versus Standard Care

Intervention	Cost	Effectiveness	Mortality	Probability of Discharge
Preventive Care	$7,267.35	11.2 QALYs	15.1%	84.9%
Standard Care	$10,053.95	9.342 QALYs	29.5%	70.5%

Note: From "Costs of Pressure Ulcer Prevention: Is It Really Cheaper Than Treatment?" by B. Braden, 2012, *National Pressure Ulcer Advisory Panel*, p. 14. Reprinted with permission.

Theoretical and Conceptual Framework

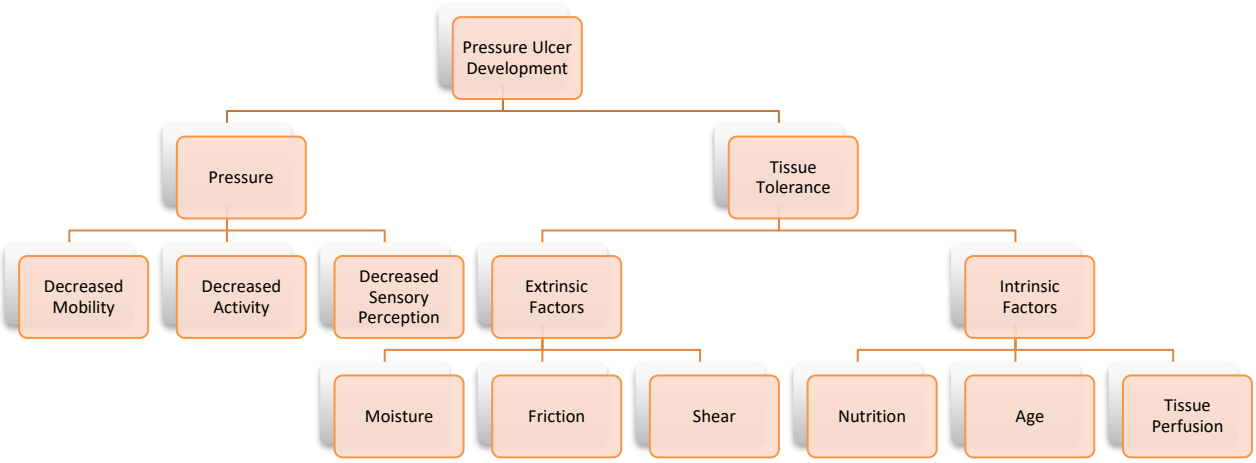
The Braden-Bergstrom Conceptual Framework

The Braden-Bergstrom conceptual framework effectively explains the etiology and progression of PI. According to the Braden-Bergstrom conceptual framework, the primary determinants of PI development are pressure and tissue tolerance (Smeltzer et al., 2008). The main risk factors for pressure are limited mobility, decreased activity, and sensory loss (Coleman et al., 2014). The majority of home health care patients, such as those at the project agency, have decreased mobility, which imposes unrelieved pressure on their bony prominences such as the elbow and heels, causing the blood vessels to become ischemic and increasing the chance of PI development (Smelter et al., 2008). Many of the patients at the project site had impaired sensation due to spinal cord injury and neurological impairment. As a result, they had lost their sense of discomfort, which increased their risk for developing PIs (Smeltzer et al., 2008).

The risk factors for tissue tolerance could be extrinsic such as moisture, friction, and shear or intrinsic such as nutrition, age, and arteriolar pressure (Centers for Disease Control and Prevention, 2009). Moisture from urine incontinence and sweat soften the connective tissues and facilitates skin breakdown (CDC, 2009). Similarly, fecal incontinence releases bacteria and enzymes, which increases the patient's risk for infection (CDC, 2009). Poor nutrition decreases the patient's immune system, increases infection risk, and exposes the bony prominences of the body to various forms of pressure (Smeltzer et al., 2008). Aging also increases the chance of skin breakdown because as one ages, the skin becomes thinner, more fragile, and susceptible to skin tears

(CDC, 2009). The patients at the project are highly susceptible to both intrinsic and extrinsic factors due to their severe medically compromised conditions. The etiology of the Braden-Bergstrom conceptual framework is illustrated in Figure 1.

Figure1. Schema of Etiology of Skin Breakdown in a Pressure Injury Patient.



Smeltzer, S. C., Bare, B. G., Hinkle, J. L., & Cheever, K. H. (2008). *Brunner & Suddarth's textbook of medical-surgical nursing* (11th ed.). Philadelphia, PA: Lippincott Williams & Wilkins. Reprinted with permission.

Lewin's Change Theory

Lewin's Change Theory was used to promote behavioral change in the nursing team, which was necessary for effective implementation of PI prevention interventions in the project site (Pasmore, 2011). The theory comprises three concepts: equilibrium, driving forces, and restraining forces. Driving forces refer to the factors that push people in the direction that brings change. In the project, driving forces were factors such as clarity of shared vision and team goals, effective communication, and institutional support that moved nurses and CNAs in the desired direction and thus facilitated change

(Matthews, 2014). In contrast, restraining forces were all factors that opposed the driving forces.

With respect to the project, restraining forces were factors such as ineffective communication, lack of conflict management skills, and insufficient resources that impeded teamwork and PI prevention (Marquis & Huston, 2014). When the sum of the driving forces was equal to the sum of the restraining forces, then equilibrium was achieved (Marquis & Huston, 2014). Lewin compared human behavior to a static equilibrium supported by driving and restraining forces, and argued that for a change to occur, the equilibrium had to be disturbed (unfrozen), old behavior undone (change), and new behavior learned (refreeze) (Marquis & Huston, 2014).

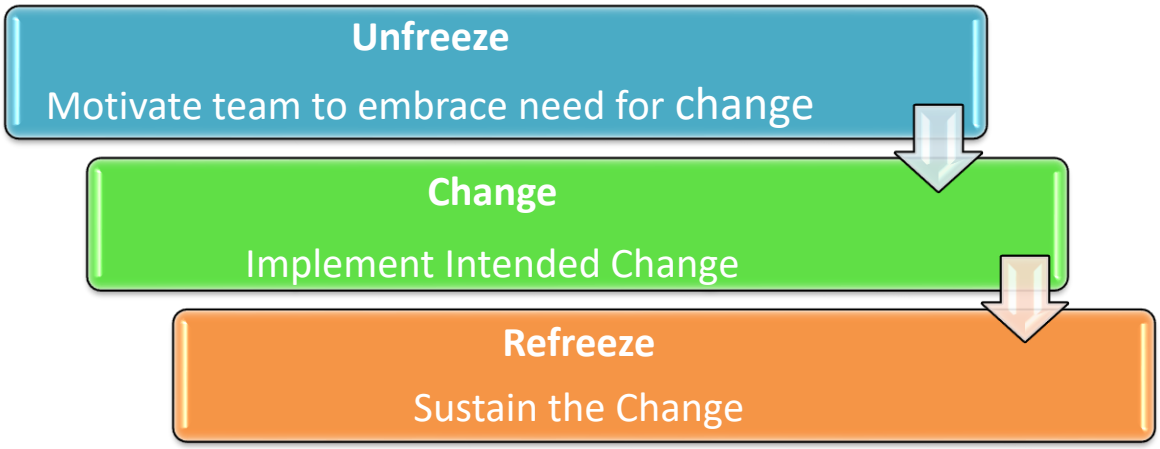
Unfreeze Stage

In the unfreeze stage, the need for the change was stated and what needed to be changed was identified and clearly communicated to the team (Lewin, 2011). The team was challenged to re-examine current practices, assumptions, and organizational culture including beliefs, values, behaviors, and attitudes that drove the culture (Marquis & Huston, 2014). In the project agency, empirical data and stories of patients showing what was not working were used to challenge the team to acknowledge the need for the change. The goal of the unfreeze phase was to create a controlled crisis that forced team members to feel uncomfortable about current practices and to create a new equilibrium by increasing the driving forces and decreasing the restraining forces (Pasmore, 2011).

Change Stage

In the change stage, team members were encouraged to embrace the shift in equilibrium and to accept the need for the change. The team leader encouraged active involvement of all members in the process, empowered members to act proactively, and addressed members' concerns (Marquis & Huston, 2014). The success of the change stage at the project site depended on time and communication. Nurses and CNAs needed time to understand and adjust to the process of teamwork and the PI prevention interventions being implemented (Lewin, 2011). Frequent communication was needed to ensure team members stayed focused on team objectives (Marquis & Huston, 2014).

Figure 2. Schematic Illustration of Lewin's Change Theory.



Adapted from *Leadership roles and management functions in nursing: Theory and application* (p. 169), B. L. Marquis & C. J. Huston, 2014, Philadelphia, PA: Lippincott Williams Wilkins. Copy 2014 by Lippincott Williams Wilkins. Reprinted with permission.

Refreeze

In the refreeze phase, the change was consolidated and members translated the change into the corporate culture. Strategies for sustaining the change were developed. Support and training were provided and every individual and team success were

celebrated to encourage the team to work harder (Lewin, 2011). At the project agency, visible signs of refreeze included reduced rates of PI and infection, and increased patient satisfaction (Marquis & Huston, 2014). The Lewin's Change Theory is illustrated in figure 2.

Summary

Pressure injuries are a preventable adverse health condition that continue to inflict significant pain and life-threatening infections on millions of people in America. The disease is costly to treat and is the cause of many litigations and reimbursement issues. The review of literature revealed that even though most nurses had adequate knowledge of prevention strategies, PI incidence rates remained high. There seemed to be a disconnect between nursing PI prevention knowledge and preventive care. Some of the barriers nurses reported for failing to implement PI prevention measures included work overload, understaffing, heavy weights of patients, and unavailability of equipment. Pressure injuries cost patients, hospitals, and the health care system huge sums of money. Additionally, PIs imposed indirect costs on patients in terms of decreased functionality, pain, loss of dignity, and depression. Health care organizations might also loss reputation and patronage if their PI prevention care was abysmal. Preventive care was found to be more cost effective than standard PI treatment (Pedula et al., 2011). Hospitals and other health care organizations could save millions of dollars on treatment, litigation, and penalty costs by implementing PI preventive care. Implementation of PI prevention interventions would also improve quality metrics and improve overall patient outcomes.

Section 3: Methodology

Introduction

The design of a project initiative plays a vital role in the planning, implementation, and evaluation of a project. Its main purpose is to describe the methodology and resources needed to achieve the project goals and thus bring about the intended change. The project design also provides a framework for data collection and analysis, and ensures that the evidence adduced from the study answers the research question clearly and is effective in evaluating the study (Grove, Burns, & Gray, 2013). The design for this PI prevention initiative was a cross-sectional design. The method of data collection were questionnaire and document review and analysis. Section 3 provides a comprehensive description of the method/design of the study initiative, population and sampling including project setting and target and target population, and data collection regarding instruments used, protection of human subjects, anticipated benefits, and potential risks. Also, discussed in Section 3 are data analysis, a description of the project evaluation plan, and section summary.

Project Design/Methods

The purpose of this DNP project was to evaluate nursing compliance with PI prevention measures and determine the level of teamwork among nurses and CNAs at a home health care agency in Atlanta, Georgia. Evidence shows that the rate of PI incidence could be minimized significantly if there is effective nursing teamwork and compliance with standard PI preventive measures such as regular skin assessment, moisture management, and two-hour patient repositioning (Bergstrom et al., 2013;

Kalisch, Xie, & Ronis, 2013). Three surveys and review of nursing documentation were conducted to collect PI prevention data pre-test and post-test for comparison. A brief PowerPoint Presentation on PI prevention education was administered to the nursing staff as the intervention. Data for nursing compliance with PI prevention measures were collected pre-test and post-test using the Nursing MISSCARE Survey, while data for nurses-CNAs teamwork were collected using the Nursing Teamwork Survey. Similarly, data for compliance with screening for PI risk using the Braden scale, establishment of PI care plan and implementation using the AHRQ checklists, and treatment plan pre-test and post were collected from the review of nursing documentation. The collected data were analyzed to determine whether the proposed evidence-based interventions reduced the rate of PI incidence at the home health care center.

Population and Sampling

Setting

The project site was a 150-patient, skilled nursing private home health care agency in the Atlanta Metropolis. The majority of the patients in the agency were medically comprised and needed wound, post-surgical, and diabetic care. More than half of the agency's patients were received from acute care settings who already had a PI or at high risk for developing one. An estimated 30% of the patients developed a PI after admission. In spite of the large population of patients who had a PI, the agency provided between seven to ten hours of PI-related nursing care per week to its patients due to limited resources. The agency depended on the clients' insurers to provide medical

supplies, which often arrived late. With a PI rate of 13.3%, the project agency's PI incidence rate was higher than the average national rate of 8.5% (AHRQ, 2012, p. 1).

The goal of this DNP project was to minimize the rate of PIs in the project agency from 13.3% to 5.0% in thirty weeks through effective teamwork and adherence to evidenced-based PI prevention measures. This time frame was chosen based on five weeks for administering surveys and adequate time for nursing staff to adapt the desired prevention measures. Since the prevention of PIs is an important indicator of quality of care, the project goal would help the agency to achieve its mission of providing high quality health care to patients in a safe home environment. The project also aimed to improve patient satisfaction and customer rating.

Target Population

The target population of the PI prevention intervention comprised the nurses and CNAs in the project agency. The inclusion criteria were all registered nurses, (n=20), licensed practical nurses, (n=10), and certified nurse's aides, (n=40) providing direct care and working full-time, part-time, and per diem at the project agency. Online surveys were administered to all nursing staff (n=70), who are 80% female and 20% male. The highest educational level of the participants was high school (n=19), associate degree (n=7), and baccalaureate (n=44).

Data Collection

The Institutional Review Board (IRB) approval from Walden University was obtained prior to the initiation of data. Permission was sought and obtained from the Executive Director of the project agency for the use of the facility, nursing staff, and

documentation (Appendix A). Data were collected from an agency-wide project over a period of thirty weeks. The time frame was chosen based on the amount of time needed to achieve the project goal. The source of data was electronic surveying of all nurses and CNAs using the MISSCARE survey (Appendix B), the Nursing Teamwork Survey [NTS] (Appendix C), and the AHRQ assessment checklists (Appendixes D).

The data collection process followed five steps. The project director emailed an invitation letter to all nurses and CNAs (Appendix E), formally asking them to participate in the project initiative and briefly explaining to them when to expect the questionnaires, how long each survey will take, duration for responding to a survey, and how to return the completed survey. A second letter was emailed to all nurses and CNAs three days prior to the start of the first survey, reminding them of the upcoming survey and providing a link to SurveyMonkey, an online survey software and questionnaire tool. Second, the project director emailed the pre-test questionnaires (Appendixes B, C, and D) to the participants in three successive weeks. The participants were given seven days to respond to each survey anonymously and returned the completed questionnaires to the project director electronically via SurveyMonkey. The project director retrieved participants' responses by signing in to SurveyMonkey. Responses were collated and analyzed using the analytical tools in the SurveyMonkey and the Statistical Package for the Social Sciences (SPPS) version 23.

Third, the project director requested for nursing PI care plans (Appendix F), skin assessment flow sheets (Appendix G), preliminary risk assessment chart (Appendix H), daily repositioning skin inspection chart (Appendix I), and CNA home care flow sheets

(Appendix J) from the Executive Directive of the Agency. Twenty nurses' charts (Appendixes F, G, H, and I) were randomly selected, reviewed, and documented on the Data Collection Sheet (Appendix K) pre-test to determine whether nurses performed and documented head-to-toe skin assessment and PU risk assessment using the Braden Scale on admission and if the patient condition deteriorated, developed care plan to address identified risk, and implemented the care plan. The project director also randomly selected and reviewed twenty-five CNA home care flow sheets (Appendix J) and documented the findings on the Data Collection Sheet (Appendix L) to determine whether CNAs checked the skin each time the patient was repositioned, or cleaned, or bed was changed; reported any skin changes to the nurse, turned or repositioned the patient as ordered, offered patient liquids each time in room, and kept the skin clean and reapplied protective skin barrier as scheduled/needed, and applied lotion, cream, and skin sealant as needed.

Fourth, a twenty-minute educational PowerPoint presentation on PI prevention (Appendix M) was emailed to the participants to study. Using statistics from the agency, the NPUAP, and the AHRQ, the PowerPoint presentation was used to educate nurses and CNAs about PU prevention measures and teamwork. This educational material served as the test. Finally, post-test surveys (Appendixes B, C, and E) were anonymously administered to participants via SurveyMonkey and a post-test review of nursing documentation (Appendixes F, G, H, I, and J) was conducted. The participants were given seven days to respond to each survey and returned the completed questionnaires to the project director electronically via SurveyMonkey. The project director retrieved

participants' responses from SurveyMonkey and collated and analyzed participants' responses using the analytical tools in SurveyMonkey and SPPS version 23. The results of the surveys and documentation review pre-test were compared with those of the post-test to determine the impact of the initiative on nursing care with respect to PI prevention.

Instruments

Three instruments were used to assess the project, namely the MISSCARE Nursing Survey, the NTS, and the AHRQ assessment checklists. The MISSCARE Survey was used to assess nursing compliance with PI prevention measures while the NTS was used to determine the level of teamwork between nurses and CNAs. The AHRQ facility checklists was also used to assess nursing compliance with screening for PI risk using the Braden scale and development of PI care plan and implementation. Permission was sought for the use of the MISSCARE Nursing Survey and the NTS (Appendix . The AHRQ assessment checklists were in the public domain.

Reliability and Validity of Instruments

To ensure the credibility of the study, each of the instruments had to be reliable and valid (Sullivan, 2011). A reliable assessment instrument had to "give the same results in the same setting with the same type of subjects" (Sullivan, 2011, p. 119). On the other hand, an assessment instrument was considered valid if it accurately answered the study questions (Polit & Beck, 2008; Sullivan, 2011). Therefore, reliability meant consistency or dependability while validity meant accuracy of measurement (Sullivan, 2011).

The main statistical tool used to measure or test internal consistency was the Cronbach alpha. Developed in 1951 by Lee Cronbach, the Cronbach alpha measures how

closely related a set of items are within a group on the assessment instrument and ranges from 0 to 1 (Tavokol & Dennick, 2011). Generally, a Cronbach alpha coefficient or reliability coefficient of 0.7 or higher is considered acceptable (Tavoka & Dennick, 2011). A high Cronbach alpha coefficient such as 0.848 indicates that the set of items in a group are closely related and, therefore, the instrument consistently measures what it is intended to measure (Polit & Beck, 2008). Similarly, a low Cronbach alpha value such as 0.265 means the set of items in the group are not closely related, or the instrument has low internal consistency or is unreliable to measure what it is intended to measure (Tavokol & Dennick, 2011).

The MISSCARE nursing survey. The MISSCARE Nursing Survey is a psychometric, quality improvement tool comprising a two part, 24-item quantitative survey on elements of nursing care and a 2-item qualitative survey and was used to assess missed nursing care and the reasons for missed nursing care (Kalisch & Lee, 2011). In Part A of the quantitative survey, participants were asked to check all the elements of nursing care that staff at the agency (including themselves) missed by scoring on a four-point Likert scale with the anchors “rarely missed” (1), “occasionally missed (2)”, “frequently missed (3)”, or “always missed (4)”. In Part B of the quantitative survey, participants were asked to rate the provided reasons for missed care using the scale “significant factor” (1), moderate factor” (2), “minor factor” (3), or “not a factor for missed care (4)”. In the qualitative survey part, however, subjects were asked to provide a list of all missed care during their last shift, and reasons for the missed care. Both the quantitative and qualitative parts had the same demographical questions.

The reliability and validity of the MISSCARE Nursing Survey were assessed using the Cronbach's alpha. With Cronbach alpha of 0.88, the MISSCARE Nursing Survey had a high reliability. It thus consistently measured what it was intended to measure (Kalisch & Lee, 2011). The MISSCARE Nursing Survey also had high content validity (Kalisch & Williams, 2011), meaning it accurately assessed the quality of nursing care as it is supposed to do.

The Nursing Teamwork Survey (NTS). The NTS was used to assess the perception of the nursing staff about the level of teamwork between nurses and CNAs at the project agency. Though the 33-item Likert scale NTS was originally designed for use in an acute care inpatient setting, the items on the scale were suitable for the needs of the home health care setting (Kalisch & Williams, 2009). The mean scores and frequencies of demographics and the five subscales work schedules (such as shift and hours worked), perceptions about staffing levels, satisfaction with current position, and satisfaction with occupation were calculated and documented (Kalisch & Lee, 2011). Responses were made on a Likert scale with anchors "very dissatisfied" [1], "dissatisfied" [2], "neither satisfied nor dissatisfied" [3], "satisfied [4], and "very satisfied" [5] (Appendix C). Based on the analyses of the results of all the surveys and review of nursing documentation, a framework was outlined to design and implement the PI prevention initiative. The action plan was used to guide the implementation process. The reliability and validity of the NTS were assessed using the Cronbach's alpha. The NTS is known to have a high Cronbach alpha value of 0.94, meaning it has high reliability (Kalisch & Williams, 2011).

It also has high validity index of 0.89, which means it accurately measures the degree of nursing teamwork (Kalisch & Williams, 2011).

The AHRQ PI assessment checklists. The AHRQ PI assessment checklists is a comprehensive toolkit, which provides step-by step guidelines for improving quality of nursing care in the use of relevant tools. The checklists were used to assess nursing knowledge of PI prevention, "analyze patient care processes to identify where there are risks to patient skin integrity", and implement care plans for at-risk patients (AHRQ, 2014). The AHRQ checklists were also used to assess patient progress by tracking, evaluating, and reporting PI incidence in the facility within a specific timeframe. Since the Norton and Braden scales, which are utilized in the AHRQ assessment checklists have high reliability and validity, it could be inferred that the checklists also had high reliability and validity (AHRQ, 2014c).

The PU policy assessment checklist. The PI policy assessment checklist is a worksheet used to determine whether a health care organization has a process to prevent and manage PIs, and to identify areas that need improvement. Components of the checklist include the facility's commitment to prevent and manage PIs, protocol for assessing PI risk and for identifying at-risk patients, and policy for reassessing all patients for PI risk upon admission and/or transfer, and when there is a change in condition (AHRQ, 2014). Other components of the PI policy assessment checklist are skin assessment of all patients at risk of PI upon admission, daily, and on transfer; policy for monitoring and evaluating the effectiveness of a PI program, goals of PI management, and policy on what to do if a PI is not healing (AHRQ, 2014). Participants were required

to answer “Yes” or “No”, provided a brief comment on the answer, and wrote the name of the person responsible for the policy.

The assessment of screening for PI risk checklist. The assessment of screening for PI checklist was used to determine whether the agency had a process to screen patients for PI risk and assessed adherence to the process, if it had one. The results of the assessment were used to identify areas that needed improvement and developed goals for PI prevention. Components of the tool were whether the agency had a process for screening patients on admission, readmission, and when conditions changed; planned for rescreening at regular intervals, and used a PI risk assessment tool such as Norton or Braden scale (AHRQ, 2014c).

The assessment of PI care plan checklist. The assessment of PI care plan tool, which was developed by the AHRQ, was used to determine whether the agency had a process for establishing and implementing a PI care plan for patients who had been identified to have a PI or at-risk of developing one. The checklist was widely cited in the literature. The results of the assessment were used to identify issues that needed to be addressed and to develop goals for PI prevention and treatment (AHRQ, 2014c).

The Pieper PI knowledge test. The 47-item Pieper PI knowledge test was used to assess nurses’ knowledge of PI prevention, staging, and wound description. The mean scores on the test and test results was analyzed (AHRQ, 2014c). Any gaps in knowledge were noted for redress. The Pieper PI knowledge test had a high Cronbach alpha of 0.8, meaning it had high reliability. It also had high content validity for PI risk assessment, staging, and wound description (Pieper & Zulkowski, 2014).

Protection of Human Subjects

The project was initiated only after approval had been received from the Walden University IRB. Permission to use the project agency was sought and received from the Executive Director of the agency. The project involved surveys and review of nursing records. All data were collected anonymously to ensure the confidentiality and privacy of the participants. In the conduct of any study, it was imperative to ensure the protection of human subjects in terms of privacy, confidentiality, autonomy, nonmaleficence, and beneficence (Grove, Burns, & Gray, 2013). Anonymous consent procedures were designed to completely protect the identity of the participants even from the researcher. The study involved only adults at the agency and excluded vulnerable groups. As per the Health Insurance Portability and Accountability Act (HIPPA) guidelines, hard copies of all questionnaires and data collected for the project were kept in a secured file cabinet in the researcher's home. Also, all project-related electronic data and information were stored, encrypted, and protected by a password and kept in a locked file cabinet to protect the identity of the participants and the agency. Protective software such as firewall, antivirus, and malware were installed on the computer to prevent data loss, or modification, or unauthorized access to data. All peer review discussion was confidential and could only be used within the agency.

Anticipated Benefits

The project was expected to improve the knowledge and understanding of nurses and CNAs about PIs and prevention measures such as comprehensive skin assessment, screening of patients for PI risk, and care planning and implementation to address

identified PI risk. It was also anticipated that the project would help the nursing staff to translate their knowledge of PIs to clinical practice and thus close the gap between theory and practice. Additionally, it was expected that the project would provide the nursing staff at the agency the tools they needed to work together as a team. The project was also expected to significantly reduce the high incidence rate of PIs at the agency, increase patient safety and satisfaction, and improve the overall quality of care at the agency.

Potential Risks

The risk of exposing the identity of participants was very minimal since all data were kept anonymous and participants' identification could not be tracked. All the participants were allowed ample time to answer the questionnaires either in the agency offices or in the privacy of their homes. Though physical, administrative, and technical safeguards were maintained to ensure the security of information collected, the possibility of human error such as leaving hard copies or the computer unattended could not be completely ruled out.

Data Analysis

The project was directed by two practice-focus questions. The first question was "What percentage of nurses complied with PI preventive measures such as screening patients for PI risk and assessing patients for PI care planning and implementation using the Braden scale and AHRQ facility assessment checklist?" To address this question, three surveys and a review of nursing documentation were conducted to collect PI prevention data pre-test and post-test for comparison. Nursing compliance with PI prevention measures were evaluated pre-test and post-test using the Nursing MISSCARE

Survey and compliance with screening for PI risk using the Braden scale, development of PI care plan and implementation, and treatment plan pre-test and post were assessed using the AHRQ checklists and from the review of nursing documentation. The collected data were analyzed to determine whether the proposed evidence-based interventions reduced the rate of PI incidence at the home health care center. The second question was "What was the level of nurses-CNAs teamwork as measured by the Nursing Teamwork Survey [NTS] (Kalisch, Xie, & Ronis, 2013)?" The plan for addressing the second question was to administer the NTS to the nurses and CNAs at the agency and analyzing the results.

Data collected from the surveys and review of documentation pre-test and post-test were cleaned by entering them into the SPSS version 23 program, including incomplete survey responses. Frequencies were calculated to evaluate the distribution of missed care, reasons for missed care, degree of teamwork, and compliance with PI prevention. The two major data that were cleaned and analyzed were nursing compliance with PI prevention measures pre-test and post-test and nursing teamwork. All elements of care scored "occasionally missed", "frequently missed", and "always missed" were considered as missed care. Blank responses were coded as 999 to ensure valid frequencies of the survey questions. Using the SPSS version 23, data frequencies were evaluated and variances analyzed. The characteristic data analyzed included education and experience, demographic characteristics (age, gender), work schedule, and hours per patient day (HPPD).

Analysis of the MISSCARE Nursing Survey

The data from the MISSCARE Nursing Survey were entered into the SPSS version 23 and analyzed. Using Pearson correlation coefficients, the association between missed nursing care and PI prevention were calculated. Since the MISSCARE Nursing Survey had a high content validity index, it accurately evaluated the elements of care in the questionnaire against the desired outcomes (Kalisch & Williams, 2011). It also had a high internal consistency (Kalisch & Lee, 2011). In the original test-retest, the MISSCARE Nursing Survey had a high reliability of 0.88, meaning the MISSCARE Nursing Survey consistently measured what it was intended to measure (Kalisch & Lee, 2011).

Analysis of the Nursing Teamwork Survey

The internal consistency of the Nursing Teamwork Survey (NTS) was determined using Cronbach's alpha. In the original test and retesting, the NTS was found to have a very high reliability of 0.94 (Kalisch & Williams, 2011), higher than average range of 0.74-0.85 for its subscales (Kalisch & Lee, 2011). The Cronbach alpha was also found to have a high validity index of 0.89, and a high correlation with other existing instruments (Kalisch & Williams, 2011).

Analysis of the AHRQ Facility Assessment Checklists

The number of correct responses for all the forty-seven items on the Pieper pressure injury knowledge test (PIKT) was tallied and used to compute the scores for PI prevention items, PI assessment and staging, and total score. The percentage of correct responses for each item on the PIKT was calculated for the number of nurses and CNAs who answered that item. All unanswered items or "Don't know" responses were scored

as incorrect. Descriptive statistics was used for all demographic characteristics and a t-test was used to investigate group differences. All data were analyzed using the SPSS statistical software version 23. The reliability of the Pieper PIKT and its subscales were known to be high on Cronbach's alpha (Pieper & Zulkowski, 2014).

Analytical Techniques to Answer Guiding Questions

The data from the MISSCARE Nursing Survey, review of nursing documentation, and the AHRQ checklists pre-test and post-test were used to assess nursing compliance with PI preventive measures and the percentage of nurses and CNAs that were compliant. Similarly, the Nursing Teamwork Survey (NTS) were used to determine the level of teamwork between the nursing staff (Kalisch, Xie, & Ronis, 2013). A descriptive analysis was done to assess the nursing knowledge of PI preventive measures. Any gaps between knowledge and practice were documented.

Two types of PI measures were monitored: PI incidence and PI prevalence. Pressure injury incidence referred to the percentage of patients that developed a new PI while at the agency. Mathematically, PI incidence was expressed as:

$$\text{Incidence Rate} = \frac{\text{The number of patients at the agency with new pressure injury}}{\text{The number of patients at the agency during that period}} \times 100$$

The measure of the number of patients that had a PI at a certain point or period at the agency was called prevalence. Mathematically, prevalence was expressed as:

$$\text{Prevalence Rate} = \frac{\text{The number of patients at the agency with any pressure injury}}{\text{The number of patients at the agency during that period}} \times 100$$

Prevalence might be assessed at a given time (point prevalence) and/or over a period of time (period prevalence). Both point and period prevalence were important because they reflected PIs observed at admission and/or acquired at the agency.

Project Evaluation Plan

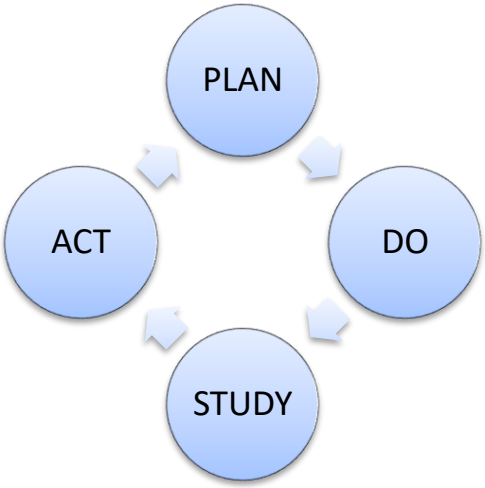
Project evaluation was used as learning and evaluation tools. As a learning tool, the evaluation process provided vital information for minimizing the development of pressure injuries, and as an accountability tool, evaluation was used to measure the effectiveness of the project and determine its value. Evaluation of this project was also done to determine whether it achieved its desired goals and identified areas that needed improvement (Hodges & Videto, 2011; Kettner, Moroney, & Martin, 2013).

A simple but effective evaluation model used for evaluating this project was the Plan-Do-Study-Act (PDSA) Model. The PDSA Model comprised small-scale worksheets of planned actions, assessment, and plan improvement (Moule, Evans, & Pollard, 2013). The PDSA Model had many strengths. It tested the effectiveness of the evidence-based intervention quickly on a small scale and at low cost (Hodges & Videto, 2011). The PDSA Model also identified problem areas to avoid and successes to implement during large scale implementation. Based on the experiences and feedback gained from the small-scale testing, improvement could be done in clinical practice (Moule et al., 2013). Finally, small scale testing and constant improvement could improve staff buy-in (Kettner et al., 2013).

Under the PLAN column, all planned activities, what the plan hoped to achieve, and the steps that needed to execute the plan were listed (Moule et al., 2013). All

observations made were listed under DO (Figure 3). Under STUDY, all lessons learned and information about goals met were recorded (Hodges & Videto, 2011). Data from the PLAN, DO and STUDY steps were used to assess the effectiveness of the initiative (Figure 3; Kettner et al., 2013). Based on the information gathered, the entire process were revised to improve the quality of care in the next cycle (Moule et al., 2013).

Figure 3. A diagram illustrating PDSA Model Cycle.



Adapted from *Institute for Health Improvement Plan-Do-Study-Act (PDSA) worksheet* (para. 3), by Institute for Healthcare Improvement. Retrieved from http://www.ihi.org/resources/Pages/Tools/PlanDoStudyActWorksheet.aspx. Copyright 2017 by Institute for Health Improvement. Adapted with permission.

Summary

The purpose of this DNP project was to evaluate nursing compliance with pressure injury (PI) prevention measures and determine the level of teamwork among nurses and CNAs at the project site. Data for nursing compliance with PI prevention measures were collected pre-test and post-test using the MISSCARE Nursing Survey and review of nursing notes. Similarly, data for nursing teamwork were collected using the

Nursing Teamwork Survey (NTS). The data collected were cleaned and analyzed using the SPSS version 23. The reliability and validity of the MISSCARE Nursing Survey and the NTS instruments were analyzed using Cronbach's alpha. In conformity with Health Insurance Portability and Accountability Act (HIPPA) guidelines for protecting subjects' privacy and confidentiality, data were collected anonymously and stored on a password protected computer kept in a secured locker in the researcher's home. All electronic data and information were secured with antivirus to prevent unauthorized access to data or data loss. Thus, the risks of exposing subjects' information were minimized. Finally, the project helped improve the understanding and knowledge of the nursing staff about PI prevention and empowered all nurses and CNAs to translate their knowledge of PI prevention to practice by working as a team.

Section 4: Findings, Discussion, and Implications

Introduction

In the context of high incidence rates of pressure injuries (PIs) in home health care facilities and a lack of nursing teamwork to prevent them, the project assessed nursing compliance with pressure injury prevention measures and the degree of teamwork between nurses and CNAs. The project was conducted at a home health care agency in Atlanta and comprised a review of PI-related nursing documentation (Appendices F, G, H, and I), assessment of three surveys (Appendices B, C, and D), and an education intervention (Appendix M). Nursing documentation reviewed was collected by the project agency between November 2016 and April 2017. Prevention of PI were assessed using the MISSCARE Nursing Survey and a review of nursing documentation, while the level of nursing teamwork was evaluated using the Nursing Teamwork Survey (NTS) (Appendix C). Using the AHRQ facility checklists (Appendix D), nursing compliance with PI risk assessment, development of PI care plan, and implementation of PI care plan were assessed. Section 4 is a presentation of the summary of the findings, discussion of the findings in the context of literature, implications of the findings, strengths and limitations of the study, and analysis of self.

Summary of Results

The purpose of the project initiative was to evaluate nursing compliance with PI prevention measures and determine the level of teamwork among nursing staff at a home health agency in Atlanta, GA. The goal was to minimize the rate of PIs in the project agency from 13.3% to 5.0% in 30 weeks through effective teamwork and adherence to

evidenced-based PI prevention measures. The following practice-focused questions were used to address the nursing practice gap:

1. What percentages of nurses a) screen their clients for pressure injury risk using the AHRQ facility assessment checklists; b) assess their clients for pressure injury care planning using the AHRQ facility assessment checklists; c) apply pressure ulcer preventive measures using the Pieper pressure injury knowledge test; and, d) comply with treatment plan as ordered by clients' physicians?
2. What is the level of nurses-CNAs teamwork as measured by the Nursing Teamwork Survey [NTS]?

To address the practice-focused questions three objectives were developed. The first objective was to determine whether nurses used the Braden scale and the AHRQ facility assessment checklists to screen patients for PI risk. Nursing compliance with PI prevention measures such as performing skin and PI risk assessment at admission and shift change; documenting existing wound(s) on admission, and establishing treatment goals for high-risk patients were assessed by reviewing nursing documentation. The second objective was to determine nursing compliance with PI treatment plans, such as referring at-risk patients and patients with wounds to their primary care physicians for specialized wound care; and following the facility protocol for PI prevention including pressure relief, moisture management, and skin inspection once each shift. The third objective was to measure the degree of teamwork between nurses and CNAs as measured by the Nursing Teamwork Survey. Teamwork and collaboration between nurses and CNAs are critical components for the early detection and treatment of PIs.

Demographics

The demographical data of the project participants (N=70) is shown in Table 3. Using the descriptive statistical tools in SurveyMonkey and the SPSS Version 23, the ages, gender, highest level of education, job title, and experience in current position were analyzed and recorded nominally with the corresponding frequencies and percentages. Most of the participants were female and their ages varied from less than 25 years to more than 55 years, with the majority of them being between 25 years and 34 years (Table 3). The education level of the participants ranged from high school to baccalaureate but the majority of them had a baccalaureate degree. Most of the participants worked more than 30 hours per week in 8- or 12- hour shifts. Work experience of the participants at their current positions varied widely from 6 months to more than 10 years, with most of them reporting 6 months to 2 years.

Table 3

Demographic Characteristics

Variable	Level	Frequencies	Percentages
Age			
	< 25 years	8	11.43%
	25-34 years	25	35.71%
	35-44 years	17	24.29%
	45-54 years	16	22.86%
	≥ 55 years	4	5.71%
Highest Education			
	Baccalaureate degree	44	62.86%
	Associate degree	7	10.00%
	High school diploma	19	27.14%
Job Title			
	Registered nurse	10	14.29%
	Licensed practical nurse	20	28.57%
	Certified nurse assistant	40	57.14%

Hours Worked per Week			
	< 30 hours	12	17.14%
	≥ 30 hours	58	82.86%
Shift Worked			
	8-hour shift	25	35.71%
	12-hour shift	30	42.86%
	8 & 12 rotating shift	15	21.43%

Objective 1: To determine nursing compliance with PI risk screening using the Braden scale and the AHRQ facility assessment checklists.

The first objective was addressed by analyzing the results of the MISSCARE Nursing Survey and reviewing twenty randomly selected nursing PI care plans (Appendix F), skin assessment flow sheets (Appendix G), preliminary risk assessment chart (Appendix H), daily repositioning and skin inspection chart (Appendix I), and twenty CNA home care flow sheets (Appendix J). The results pre-test was compared with the results post-test (Table 4). Nursing documentation prior to the evidence-based intervention revealed that three out of four of the nurses performed skin assessment and PI risk assessment using the Braden Scale and AHRQ checklists on admission and when the patient's condition changed (Table 4). Also, about 70% of the nurses developed and implemented care plans to address identified PIs. Factors addressed in the nurses' care plan included impaired mobility, pressure relief, and skin condition check (Table 4).

Prior to the implementation of the evidence-based intervention, the majority of the CNAs checked the skin each time the patient was repositioned, cleaned, or changed. Most of the CNAs reported skin changes to the nurse, turned the patient every two hours or as ordered, and offered liquids each time they were in the patient's room (Table 4).

Moreover, most of the CNAs kept the skin clean and reapplied protective skin barrier as scheduled or needed, and applied lotion, cream, and skin sealant as needed (Table 4).

Table 4
Results of the Review of Nursing Documentation Pretest and Posttest.

Variable	Pretest	Posttest
Risk assessment	75%	90%
Care plan	72%	92%
Factors Addressed in Nurses' Care Plan		
Impaired mobility	82%	91%
Pressure relief	81%	90%
Skin condition check	75%	92%
Urinary incontinence	85%	95%
Fecal incontinence	84%	94%
Factors Addressed in CNAs' Care Plan		
Skin care	81%	93%
Reported skin changes	85%	95%
2-hour turning	89%	91%
Offered liquids	78%	80%
Applied skin barrier	87%	89%
Applied lotion	88%	92%
PI Treatment		
Comprehensive skin assessment	85%	91%
Categorization of PI	78%	89%
Reassessment	70%	87%
Wound care	89%	96%
Medication administration	90%	96%
Patient education	91%	97%

The results of the MISSCARE Nursing Survey pretest showed that the most frequently missed care was "ambulation three times a day or as ordered" (Table 5). The next three components of nursing care that were always, frequently, or occasionally missed were turning the patient every two hours, mouth care, and feeding the patient when food is still warm (Table 5). Hand washing, wound care, assessment of vital signs as ordered, and bedside glucose monitoring as ordered were the least frequently missed

nursing care in that order (Table 5). The complete results of the MISSCARE Nursing Survey pretest are shown in Appendix P.

Table 5

The Most- and Least- Frequent Elements of Missed Nursing Care Pretest

Variable	Always Missed	Frequently Missed	Occasionally Missed	Rarely Missed	Never Missed
Ambulation three times per day or as ordered.	27.24%	45.48%	18.19%	9.08%	0.00%
Turning patient every two hours.	0.00%	38.90%	32.52%	21.43%	7.14%
Mouth care	9.09%	27.47%	29.07%	25.27%	9.09%
Feeding patient when the food is still warm.	0.00%	35.33%	23.00%	25.00%	16.67%
Hand washing	0.00%	0.00%	20.18%	43.45%	36.37%
Skin/wound care	0.00%	5.23%	29.27%	56.41%	9.09%
Vital signs assessed as ordered.	0.00%	6.25%	0.00%	55.29%	38.46%
Bedside glucose monitoring as ordered.	0.00%	6.50%	1.50%	63.64%	36.36%

Note: Kalisch, B. J. (2009). *The MISSCARE Nursing Survey*. Used with permission.

The trend of the review of nursing documentation posttest was similar to the review of nursing documentation pretest with significant improvements in all the PI

prevention measures such as PI risk assessment, development of care plan for at-risk patients, and implementation of the care plan (Table 4). The results of the MISSCARE Nursing Survey posttest also depicted a similar trend as the pretest results with improvements in the posttest variables. Ambulation three times a day or as ordered, 2-hour patient turning, mouth care, and feeding the patient when food is still warm were the most frequently missed nursing care in that order. Again, hand washing, wound care, assessment of vital signs as ordered, and monitoring of bedside glucose as ordered were the least frequently missed nursing care in that order.

Table 6

The Most- and Least- Frequent Elements of Missed Nursing Care Posttest

Variable	Always Missed	Frequently Missed	Occasionally Missed	Rarely Missed	Never Missed
Ambulation three times per day or as ordered.	20.25%	40.50%	23.34%	15.91%	0.00%
Turning patient every two hours.	0.00%	18.50%	38.58%	36.36%	6.56%
Mouth care	5.69%	15.00%	35.55%	35.90%	7.86%
Feeding patient when the food is still warm.	0.00%	15.35%	32.00%	34.15%	18.50%
Hand washing	0.00%	0.00%	12.45%	40.88%	46.67%
Skin/wound care	0.00%	3.89%	29.27%	51.05%	15.79%

Vital signs assessed as ordered.	0.00%	2.65%	1.60%	52.95%	42.80%
Bedside glucose monitoring as ordered.	0.00%	1.70%	6.50%	44.80%	47.00%

Note: Kalisch, B. J. (2009). *The MISSCARE Nursing Survey*. Used with permission.

The most significant reported reasons for missed nursing care pretest and posttest were patient volume and/or acuity, supplies/equipment not available when needed, and inadequate number of staff (Appendix P). Other significant reasons for missed nursing care were lack of back up support from team members, lack of or inadequate communication between nurses and CNAs, condition of patients, and supplies and/or equipment not functioning when needed (Appendix P). The complete results of the MISSCARE Nursing Survey posttest is shown in Appendix P.

Objective 2: To determine nursing compliance with PI treatment plan.

To achieve the second objective, twenty nursing PI care plans (Appendix F) and twenty CNA home health care flow sheets (Appendix J) were randomly selected, reviewed, and documented on the Data Collection Sheet (Appendix K) pre-test and post-test. The review of nursing documentation pretest showed a significant improvement in the number of the nurses who developed and implemented care plans to address identified risk posttest (Table 4). Other elements of PI prevention and treatment which improved after the implementation of the evidence-based intervention included comprehensive PI assessment, reassessment of the patient, PI, and care plan if the PI did

not show signs of healing as expected; wound care, 2-hour turning, administration of antibiotics and other medicines as ordered, and patient and family education (Table 4).

Objective 3: To measure the Degree of Teamwork between Nurses and CNAs.

The third objective was measured by administering the Nursing Teamwork Survey (NTS) to the nurses and CNAs at the project agency and analyzing the results. The results of the NTS pretest and posttest showed that most of the respondents had no plans of leaving their present position even though most of the participants felt the agency was not adequately staffed 75% of the time and about a third of them were not satisfied with their current position (Appendix Q). The pretest showed that less than half of the respondents felt satisfied in their current positions but the number increased significantly posttest (Table 7). The number of the respondents who expressed satisfaction in their professional roles posttest was slightly more than those who did so pretest. More than half of the respondents reported dissatisfaction with the level of teamwork between nurses and CNAs in the pretest but after the implementation of the evidence-based intervention, the percentage of staff dissatisfaction with the level of nursing teamwork reduced by nearly 18%.

Less than half of the respondents believed team members understood their responsibilities in the pretest, but the number of those who believed so posttest increased by nearly 24%. The number of the respondents who believed that teamwork was needed to ensure quality job in the pretest doubled after the implementation of the evidence-based intervention (Table 7). Additionally, the number of the respondents who believed team members respected one another in the pretest increased by nearly 20% posttest

(Table 7). The complete results of the Nursing Teamwork Survey are depicted in Appendix Q.

Table 7

Respondents' Perceived Satisfaction with Nursing Teamwork

Variable	Satisfied (75% of the time)		Dissatisfied (75% of the time)	
	Pretest	Posttest	Pretest	Posttest
How satisfied are you in your current position?	45.00%	63.09%	53.50%	30.75%
Independent of your current job, how satisfied are you being a nurse or a nurse assistant?	63.64%	65.50%	21.80%	19.78%
How satisfied are you with the level of teamwork in your unit?	50.00%	66.09%	25.00%	15.05%
All team members understand their responsibilities.	45.45%	69.40%	54.55%	30.60%
My team believes teamwork is needed to ensure quality job.	36.36%	72.00%	63.64%	28.00%
Team members respect one another.	54.50%	73.35%	45.50%	26.65%

Note: Kalisch, B. J. (2011). *Nursing Teamwork Survey*. Used with permission.

Discussion of Results in the Context of Literature

The implementation of the evidence-based intervention led to remarkable improvement in all the project quality indicators except ambulation three times a day or as ordered because more than 50% of the patients at the agency were medically compromised and therefore could not be ambulated. There was significant improvement in nursing documentation of PI prevention measures posttest, skin and risk assessment and development of care plans for at-risk patients (Table 4). There was 15%

improvement in skin and risk assessment and 20% increase in the development and implementation of care plans (Table 4). Additionally, there was steady decline in monthly PI incidence rates at the agency during the period of the project from 13.6% to 5.1% (Figure 4). Thus, the goal of the project was met.

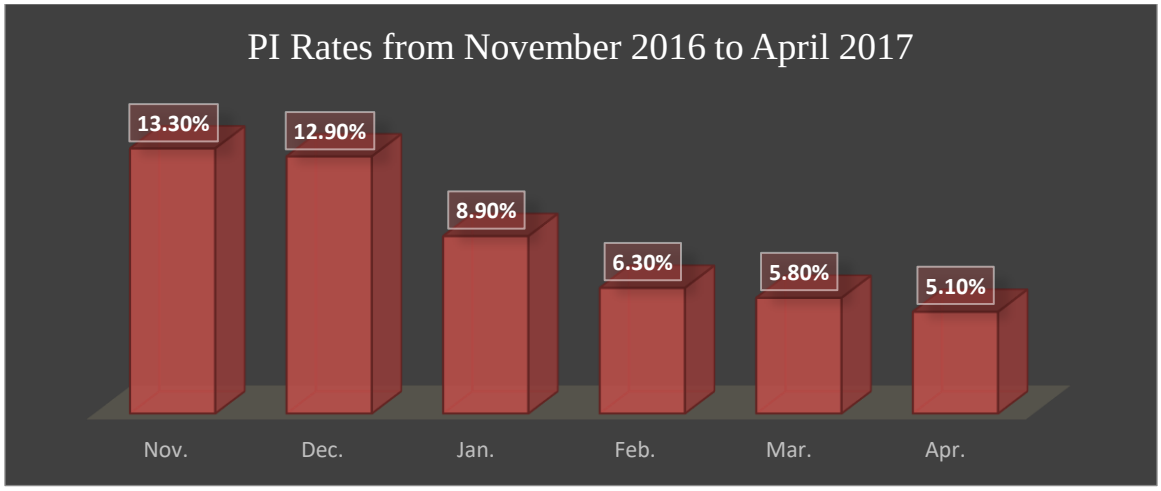


Figure 4. Monthly PI Incidence Rates from November 2016 to April 2017.

Literature is replete with evidence that consistent implementation of PI prevention measures, such as skin and risk assessment, and development and implementation of care plan for at-risk patients, would lead to early detection and treatment of PIs. Evidence shows that pressure injuries (PIs) can be minimized by early detection of PI risk and implementation of appropriate PI preventive measures such as skin and risk assessment on admission and shift change, scheduled skin inspection for at-risk patients, and two-hour client repositioning (AHRQ, 2014c; Cooper, 2013; NPUAP, 2014). Preventing PIs in home health care requires team effort and collaboration between nurses and CNAs (Bergstrom et al., 2013; Kalisch, Xie, & Ronis, 2013). Kalisch, Weaver, and Salas (2009) found that teamwork could improve communication between nurses and CNAs, reduce

work overload, and the level of stress and burnout among nurses and CNAs. Teamwork could also reduce nurse-related errors, and improve efficiency of patient care and safety (Stone, Mooney-Kane, Larson, Horan, Glance, Zwanziger, & Dick (2007).

Implications

Policy

Nursing policy making should be based on the most current and best available evidence. Policies on prevention of PIs are constantly undergoing review to ensure that definitions of terminologies used are apt and are consistent with evidence. For example, in 2016, the National Pressure Ulcer Advisory Panel [NPUAP] changed the term "pressure ulcer (PU)" to "pressure injury (PI)", revised PI-related definitions, and updated its injury staging system to reflect current and best available evidence (NPUAP, 2016). The findings of this DNP project initiative could contribute to PI policy-making since there is little literature on PI prevention in the home health care setting. Since most home health care agencies lack adequate resources, the project findings would guide policy makers to formulate policies that are designed to meet the specific needs of home health care agencies, particularly policies that would incentivize implementation of PI prevention and provide material support.

Practice

Evidence supports improved patient care when nursing staff work as a team and implement PI prevention measures (AHRQ, 2014b; Kalisch, Weaver, & Salas, 2009). The findings of the project would significantly transform the culture of the agency to improve team effort, improve communication between nurses and CNAs, improve care,

and minimize PI incidence in the agency. Minimizing PI rates in the agency would save patients unnecessary pain and suffering, and "reduce healthcare costs by millions of dollars" (Brem et al, 2010, p. 474). The findings of the project would also improve the health conditions and social status of thousands of patients by eliminating PU-related stigma, and restore their self-worth, dignity, and functionality.

Another way the findings of the project will impact practice is it will help the nursing team to provide higher quality care to prevent and treat PIs. The project findings will also increase staff satisfaction as they develop better understanding and relationships between themselves (Kalisch, Xie, & Ronis, 2013). Furthermore, the findings will improve nurses-CNAs communication, reduce work overload, and minimize the level of stress and burnout among nurses and CNAs (Kalisch, Weaver, & Salas, 2009).

Research

The majority of research related to PI prevention and implementation focus on inpatient settings, thus, there is lack of data on how clinical PI prevention guidelines are being implemented in the home health care setting ((Bergquist-Beringer & Daley 2011). The findings of this project will add to the current body of knowledge and help future researchers to understand the unique interventions nurses in home health care have adapted including "assessment of patients' economic and insured status to determine implementation options, assessment of caregivers' ability to manage PI prevention, and community partnership to obtain PI prevention supplies" (Bergquist-Beringer & Daley 2011, p. 145). The PI educational intervention could be adapted in other home health care agencies to determine its effectiveness. Thus, the project will serve as a useful resource

for future project development in home health care, especially those related to PIs (Hughes, 2008).

Social Change

Prior to the evidence-based intervention, there was high missed essential PI-related nursing care such as at-admission skin assessment, PI risk screening, incontinent care, and 2-hour turning; precipitating the development of PIs shortly after admission. Findings from the pretest indicated that nurses and CNAs preferred to work incommunicado. Lack of teamwork and noncompliance of clinical PI prevention guidelines resulted in high incidence rates of PI at the agency. The implementation of the evidence-based educational intervention had significant positive social impact on the agency, its patients, and nursing staff. Evidence shows a direct correlation between increased nursing knowledge about and positive attitude towards PI prevention measures and improved patient care (Beechman et al., 2011; Waugh, 2014). The intervention has created a culture of teamwork, collaboration, and understanding among the nursing staff. According to Kalisch, Xie, and Ronis (2013), cordial nurses-CNAs work relationship is essential for effective implementation of a patient care initiative such as this PI prevention intervention. The project resulted in higher quality nursing care as reflected in improved documentation of PI prevention and treatment. Staff satisfaction also increased as shown in the posttest survey results (Table 5).

Project Strengths and Limitations

Project Strengths

The project had three main strengths. The Braden-Bergstrom conceptual framework was useful in identifying the primary determinants of PI development, explaining the risk factors of pressure and tolerance, and describing the etiology of skin breakdown in PI patients. The Lewin Change Model also provided a helpful framework for understanding the dynamics of change, for promoting behavioral change, and for managing the change initiative successfully. The third strength of the project was that all the instruments used had high validity and reliability values on the Cronbach alpha.

Limitations

The project had four main limitations. First, the information and data used in the project were collected from a single home health care agency. The information in this project, therefore, does not necessarily represent all home health care agencies. Second, a small convenience sample participants was used since participation in the project was voluntary. Thus, it would be hard to generalize the results of the project. The third limitation of the project was the staffing shortage at the agency which limited the size of the population from which to select the project sample. Finally, relying on the agency for some of the data and documentation limited my ability to authenticate all the data used in the project.

Recommendations for Remediation of Limitations in Future Work

It is highly recommended that future project directors utilize data collected from two or more agencies to better represent the home health care sector and increase the target population from which to choose the study sample (Mason, 2010). Additionally, it is recommended that a larger sample size in the correct proportion be used to ensure

generalizability of the project findings (Leug, 2015). Moreover, since research has shown association between lower nursing staffing levels and poorer patient outcomes (Dunton, Gajewski, Klaus, Person, 2007), the staffing shortage needs to be addressed to reduce work overload and inadequate nursing, and to minimize the high rates of PI incidence in the home health care setting (Källman & Suserud, 2009; Sochalski, J., 2016). Finally, if researchers must use data collected by the agencies, they should ensure the instruments used have high reliability and validity values to ensure credibility of the results (Sullivan, 2011).

Analysis of Self

The increasing complexity of care and the demands for quality health care requires nurses with the most advanced knowledge, skills, and competencies to lead the different specialties of practice (AACN, 2015). Evidence shows direct correlation between higher nursing education and quality care (IOM, 2010). The Doctor of Nursing Practice (DNP) program is designed to equip nurses with the highest knowledge, leadership and communication skills, and the ability to translate evidence into practice (AACN, 2015). The DNP program, therefore, prepares nurses to be scholars, practitioners, and project developers.

As Scholar

The project has broadened my intellectual capacity and increased my nursing knowledge to improve practice and patient outcomes. It has honed my skills in nursing, leadership, communication, and management. It has also helped me develop a curious mind, eager to use the big picture in the discussion of issues. Leading the nursing team to

plan and implement the evidence-based initiative has inculcated in me team-building, conflict management, and advanced critical thinking skills (AACN, 2015; Zaccagnini & White, 2011). Additionally, the project initiative has improved my writing and presentation skills, and enhanced my ability to translate evidence into practice in the pursuit of nursing excellence. It has also provided me with the advanced educational credential and increased confidence I need as a nurse educator.

As Practitioner

As a nurse clinician with advanced degree, the DNP project has created in me the awareness that I have the responsibility to ensure quality care delivery in terms of minimal infection rates, timely and patient-centered care, optimum patient outcomes, safety, equity, and efficiency (IOM, 2010). Developing and implementing the project has taught me the skills to identify practice problems and to initiate the appropriate evidence-based interventions to address them as specified in the DNP Essential III (AACN, 2015). Being the leader of the project initiative has facilitated the development of skills needed to collaborate with the interdisciplinary team in designing effective and efficient care for patients. It has also enhanced my ability to translate evidence into practice to improve care and ensure optimum patient outcomes (Zaccagnini & White, 2011).

As Project Developer

The various stages of the DNP project including the project premise, proposal, oral defense, and IRB approval, have sharpened my project development skills in a variety of ways. It has significantly improved my critical thinking, writing, and logic skills. My interactions with my Project Chair and Committee Members have broadened

my understanding of the various components of project development. The Walden University Institutional Review Board (IRB) has helped me to understand the different kinds of study and the corresponding routes for seeking approval. Moreover, the project has helped me to develop essential initiative leadership skills such as team leading, team management, and conflict resolution skills (Mullins, Constable, & Gregory, 2007). Through this project, I have also learned the skills of importing surveys to SurveyMonkey and protecting respondents' anonymity and confidentiality by using study codes, encrypting identifiable data, restricting access to identifiable information, and storing study data in a locked location. The project has also enhanced my statistical skills.

What This Project Means for Future Professional Development

The purpose of the DNP project was to assess nursing compliance with PI prevention guidelines and to determine the level of teamwork between nurses and CNAs. The goal was to reduce the incidence of PIs in the project agency from 13.3% to 5.0% in 30 weeks through effective teamwork and adherence to evidenced-based PI prevention measures. My rationale for conducting this DNP practice project in a home health care instead of the magnet hospital where I was working was to bring attention to the serious challenges home health agencies face in PI prevention and treatment such as insufficient resources and equipment, understaffing, the medically compromised condition of most of the patients, and late arrival of supplies from insurers (Bergquist-Beringer & Daley, 2011). Because of the profound impact the project has had on my professional growth, I would like to partner with Georgia Wound Care Association to institute continuing

education on PI prevention and treatment for home health care agencies in Atlanta Metropolis.

I would also play an advocacy role for home health care patients by presenting an educational White Paper on the gravity of PIs incidence in home health care to patients' insurers. As a DNP-prepared nurse, I have the skills to design, implement, and evaluate practice-related projects to benefit my community (AACN, 2015). In my advocacy role as nurse-clinician with advanced degree, I would encourage insurers to provide PI prevention and treatment supplies such as barriers creams, wedges, special mattresses to patients on time (American Nurses Association [ANA], (2015). Finally, if I have the chance to develop another practice-focused initiative, I would like to examine alternate treatment options such as early surgical operation for patients with stage 3 and 4 PIs and the effectiveness of barrier creams.

Summary and Conclusions

The goal of this DNP project was to minimize the rate of PIs in the project agency from 13.3% to 5.0% in 30 weeks through effective teamwork and adherence to evidenced-based PI prevention measures. To achieve this goal, three objectives were set: determine whether nurses screened patients for PI risk, assess nursing compliance with PI treatment plan, and measure the degree of teamwork between nurses and CNAs. The first objective was assessed by reviewing nursing documentation, the second objective was assessed using the MISSCARE Nursing Survey and review of nursing documentation, and the third objective was measured by the Nursing Teamwork Survey. Using the

statistical tools in SurveyMonkey and the SPSS, the demographical characteristics of survey respondents were analyzed and documented.

Analysis of the results identified “ambulation three times daily or as ordered” as the most frequently reported missed nursing care and “vital signs as ordered” as the least reported missed care. The most significant reported reasons for missed nursing care were patient acuity, unavailable supplies/equipment, staffing shortage, and lack of teamwork. The implementation of the evidence-based intervention produced significant improvement in nursing compliance with PI prevention and treatment measures, resulting in steadily reduction of PI incidence rate from 13.6% to 5.1%. during the period of the project

The findings of the project have significant implications in terms of policy, practice, research, and social change. Since there is very little literature on PI prevention in the home health care setting, the findings of the project could serve as a useful resource for PI policy-making. Home health care agencies could use the findings of the project to improve team effort, improve patient care, minimize PI incidence rates, and save millions of dollars per year in PI-related treatments and lawsuits. The findings of this project will also add to the current body of knowledge and help future researchers understand the uniqueness of the home health care setting as they plan their projects. The use of the Braden-Bergstrom and Lewin’s Change Model as conceptual framework and the use of assessment instruments with high validity and reliability values made the project strong. The project was, however limited by the use of data from a single home

health care agency, which impeded generalizability of findings, staffing shortage, and limited population size from which to select the project sample.

The DNP project has prepared me as a scholar, practitioner, and project developer. Leading the project team has enhanced my leadership, communication, and team building skills. The project has also increased my self-confidence as a nurse leader, administrator, educator, and community leader.

Section 5: Scholarly Product

Introduction

Academic projects are of very little value unless the findings are disseminated to the individuals and bodies that can benefit from them. There are many reasons for disseminating project findings. Project findings are important sources of information for clinical practice, research, and social change (World Health Organization [WHO], 2014). Disseminating results of a project also informs relevant persons and organizations about new findings, provides evidence-based guidelines for practice, and serves as an accounting requirement to funders (WHO, 2014). The findings of this DNP project will be disseminated to home health care agencies in the Atlanta metropolis, at Georgia Nurses Association seminars, and with members of Georgia Wound Nurses Association.

Projects may be disseminated using a variety of formats, including brochures, posters, PowerPoint slides presentations, and publication in a scholarly journal. The format chosen to disseminate the findings of this DNP project is a PowerPoint Poster. The poster provides a summary of the project including the practice problem, objectives, design and methods, data collection and analysis, results and findings, implications for social change, and the conclusion. The poster may be accessed by double clicking the icon below.

PowerPoint Poster

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Appendix A: Approval to Conduct Study

Hello Juliana,

Re: Request for Permission to Conduct

With reference to your letter requesting for permission to conduct your DNP project at Elite, I write to grant you permission to use our facilities, nursing charts, and to administer surveys to nurses and CNAs. I have asked the clinical director, administrative manager, and the clinical staff to give you every assistance you may need. Please feel free to contact my office if you need any further assistance.
Best wishes,

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140 Porcupine Court
Atlanta GA 30331
November 15, 2016

Dear Dr…..,

Request for Permission to Conduct Study

I wish to formally ask for permission to use your facility for my Doctor of Nursing Practice (DNP) project. The purpose of the project is to evaluate nursing compliance with pressure injury prevention measures and determine the level of teamwork among the nurses and CNAs at your home health care agency. I would be grateful if you could grant me access to the following nursing documentation: PI care plans, skin assessment flow sheets, preliminary risk assessment chart, daily repositioning skin inspection chart, and CNA flow sheets. As part of the study initiative, I would need permission to conduct surveys for nurses and CNAs and educational sessions for the clinical staff members.

I count on your cooperation and thank you in advance for your assistance.
Yours truly,

Juliana Baah, RN, MSN

Appendix B: MISSCARE Nursing Survey

ITEM	Always Missed	Frequently Missed	Occasionally Missed	Rarely Missed	Never Missed
1. Ambulation 3 times per day or as ordered					
2. Turning patient every 2 hours					
3. Feeding patient when the food is still warm					
4. Setting up meals for patients who feed themselves					
5. Medications administered within 30 minutes before or after scheduled time					
6. Vital signs assessed as ordered					
7. Monitoring intake/output					
8. Full documentation of all necessary data					
9. Patient teaching about procedures, tests, and other diagnostic studies					
10. Emotional support to patient and/or family					
11. Patient bathing/skin care					
12. Mouth care					
13. Hand washing					

14. Patient discharge planning and teaching					
15. Bedside glucose monitoring as ordered					
16. Patient assessments performed each shift					
17. Focused assessment according to patient condition					
18. IV/central line site care and assessments according to hospital policy					
19. Response to call light is initiated within 5 minutes					
20. PRN medication requests acted on within 15 minutes					
21. Assess effectiveness of medications					
22. Attend interdisciplinary care conference whenever held					
23. Assist with toileting needs within 5 minutes of request					
24. Skin/wound care					

Appendix C: Nursing Teamwork Survey

1. Name of your agency: _____
2. I spend the majority of my working time in this agency: _____ Yes _____ No
3. Highest education level:
    A. _____ Grade school
    B. _____ High School Graduate (or GED)
    C. _____ Associate degree graduate
    D. _____ Bachelor's degree graduate
    E. _____ Graduate degree
4. If you are a nurse, what is the highest degree:
    A. _____ LPN Diploma
    B. _____ RN Diploma
    C. _____ Associate's degree in nursing (ADN)
    D. _____ Bachelor's degree in nursing (BSN)
    E. _____ Bachelor's degree outside of nursing
    F. _____ Master's degree (MSN) or higher in nursing
    G. _____ Master's degree or higher outside of nursing
5. Gender: _____ Female _____ Male
6. Age:
    A. _____ Under 25 years old (<25)
    B. _____ 25 to 34 years old (25-34)
    C. _____ 35 to 44 years old (35-44)
    D. _____ 45 to 54 years old (45-54)
    E. _____ 55 to 64 years old (55-64)
    F. _____ Over 65 years old (65+)

7. Job Title/Role:
    A. _____ Staff Nurse (RN)
    B. _____ Staff Nurse (LPN)
    C. _____ Nursing Assistant (e.g., nurse aides/tech)
    D. _____ Nurse manager, assistant manager (e.g. administrators on the unit)
    E. _____ Unit Clerk/Secretary
    F. _____ Other [Please specify: _____]
8. Number of hours usually worked per week (check only one)
    A. _____ less than 30 hours per week
    B. _____ 30 hours or more per week
9. Work hours (check the one that is most descriptive of the hours you work)
    A. _____ Days (8 or 12-hour shift)

Please turn over to page 2

B. _____ Evenings (8 or12-hour shift)
C. _____ Nights (8 or 12-hour shift)
D. _____ Rotates between days, nights or evenings

10. Experience in your role:
A. _____ Up to 6 months
B. _____ Greater than 6 months to 2 years
C. _____ Greater than 2 years to 5 years
D. _____ Greater than 5 years to 10 years
E. _____ Greater than 10 years

11. Experience on your current patient care:
A. _____ Up to 6 months
B. _____ Greater than 6 months to 2 years
C. _____ Greater than 2 years to 5 years
D. _____ Greater than 5 years to 10 years
E. _____ Greater than 10 years

12. Which shift do you most often work?
A. _____ 8-hour shift
B. _____ 10-hour shift
C. _____ 12-hour shift
D. _____ 8-hour and 12-hour rotating shift
E. _____ Other [Please specify: _____]

13. In the past 3 months, how many hours of overtime did you work?
A. _____ None
B. _____ 1-12 hours
C. _____ More than 12 hours

14. In the past 3 months, how many days or shifts did you miss work due to illness, injury, extra rest etc. (exclusive of approved days off)?
A. _____ None
B. _____ 1 day or shift
C. _____ 2-3 days or shifts
D. _____ 4-6 days or shifts
E. _____ over 6 days or shifts

15. Do you plan to leave your current position?
A. _____ in the next 6 months
B. _____ in the next year
C. _____ no plans within the year

16. How often do you feel the unit staffing is adequate?
A. _____ 100% of the time
B. _____ 75% of the time
C. _____ 50% of the time
D. _____ 25% of the time
E. _____ 0% of the time

Please turn over to page 3

17. On the current or last shift you worked, how many patients did you care for? _____
    17-a. How many patient-admissions (including transfers) did you have? _____
    17-b. How many patient-discharges (including transfers) did you have? _____

For questions 18 – 20 in Table C1, please check one response only.

Table C1
Nursing Staff Satisfaction with Level of Teamwork

Item	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
18. How satisfied are you in your current position?					
19. Independent of your current job, how satisfied are you with being a nurse or a nurse assistant or a unit clerk/secretary?					
20. How satisfied are you with the level of teamwork on this unit?					

Please turn over to page 4

NURSING TEAMWORK SURVEY

Please fill in all the following items regarding YOUR TEAM. Team is defined as the group of people working on a patient care unit including nurses, nursing assistants/aides/techs and unit clerks/secretaries. It does NOT refer to individuals who visit the unit such as pharmacists, physicians, physical therapists etc.

Table C2
Measure of Nursing Teamwork

Item	Rarely	25% of the time	50% of the time	75% of the time	Always
1. All team members understand what their responsibilities are throughout the shift.					
2. The nurses who serve as charge nurses or team leaders monitor the progress of the staff members throughout the shift.					
3. Team members frequently know when another team member needs assistance before that person asks for it.					
4. Team members communicate clearly what their expectations are of others.					
5. Team members ignore many mistakes and annoying behavior of teammates rather than discussing these with them.					
6. When changes in the workload occur during the shift (admissions, discharges, patient's problems etc.), a plan is made to deal with these changes.					
7. Team members know that other members of their team follow through on their commitment.					

Please turn over to page 5

NURSING TEAMWORK SURVEY

Please fill in all the following items regarding YOUR TEAM.

Item	Rarely	25% of the time	50% of the time	75% of the time	Always
8. The nurses who serve as charge nurses or team leaders balance workload within the team.					
9. My team believes that to do a quality job, all of the members need to work together.					
10. The shift change reports contain the information needed to care for the patients.					
11. Some team members spend extra time on breaks.					
12. Team members respect one another.					
13. When a team member points out to another team member an area for improvement, the response is often defensive.					
14. Team members are aware of the strengths and weaknesses of other team members they work with most often.					
15. If the staff on one shift is unable to complete their work, the staff on the on-coming shift complains about it.					
16. Staff members with strong personalities dominate the decisions of the team.					

Please turn over to page 6

NURSING TEAMWORK SURVEY

Please fill in all the following items regarding YOUR TEAM. Team is defined as the group of people working on a patient care unit including nurses, nursing assistants/aides/techs and unit clerks/secretaries. It does NOT refer to individuals who visit the unit such as pharmacists, physicians, physical therapists etc.

17. Most team members tend to avoid conflict rather than dealing with it.					
18. Nursing assistants and nurses do not work well together as a team.					
19. The nurses who serve as charge nurses or team leaders are available and willing to assist team members throughout the shift.					
20. Team members notice when a member is falling behind in their work.					
21. When the workload becomes extremely heavy, team members pitch in and work together to get the work done.					
22. Feedback from team members is often judgmental rather than helpful					
23. My team readily engages in changes in order to make improvements and new methods of practice.					
24. Team members readily share ideas and information with each other.					
25. Team members clarify with one another what was said to be sure that what was heard is the same as the intended message.					

Please turn over to page 7

NURSING TEAMWORK SURVEY

Please fill in all the following items regarding YOUR TEAM. Team is defined as the group of people working on a patient care unit including nurses, nursing assistants/aides/techs and unit clerks/secretaries. It does NOT refer to individuals who visit the unit such as pharmacists, physicians, physical therapists etc.

26. Team members are more focused on their own work than working together to achieve the total work of the team.					
27. The nurses who serve as charge nurses or team leaders give clear and relevant directions as to what needs to be done and how to do it.					
28. Within our team, members are able to keep an eye out for each other without falling behind in our own individual work.					
29. Team members understand the role and responsibilities of each other.					
30. Team members willingly respond to patients other than their own when other team members are busy or overloaded.					
31. When someone does not report to work or someone is pulled to another unit, we reallocate responsibilities fairly among the remaining team members.					
32. Team members trust each other.					

THANK YOU FOR YOUR PARTICIPATION!!

Appendix D: The PI Assessment Checklists

A facility system assessment is a starting point for a quality improvement project. The checklists included in this booklet will be most useful if you take a critical look at your current practices.

Facility Assessment

A. Does your facility have initial and ongoing education on pressure ulcer prevention and management for both nursing and non-nursing staff?
   __ No. (If no, this is an area for improvement).
   __ This is an area we are working on.
   __ Yes.

B. Does your facility's education program for pressure injury prevention and management include the following components?

	Yes	No	Person Responsible
1. Are new staff assessed for their need for education on pressure injury prevention and management?	❑	❑	
2. Are current staff provided with ongoing education on the principles of pressure injury prevention and management?	❑	❑	
3. Does education of staff provide discipline-specific education for pressure injury prevention and management?	❑	❑	
4. Is there a designated clinical expert available at the facility to answer questions from all staff about pressure injury prevention and management?	❑	❑	
5. Is the education provided at the appropriate level for the learner (e.g., CNA vs. RN?)	❑	❑	
6. Does the education provided address risk assessment tools and procedures?	❑	❑	
7. Does the education include staff training on documentation methods related to pressure injuries (e.g., location, stage, size, depth, appearance, exudates, current treatment, effect on activities of daily living, pressure redistributing devices used, nutritional support)?	❑	❑	

Pressure Injury Assessment Checklists: Page 2

Pressure Injuries: Facility Assessment	Yes	No	In Progress
Does your facility have a process to screen residents for pressure injury risk? (page 2)	❑	❑	❑
Does your facility have a process to develop and implement care plans for residents who have been found to be at risk or have a pressure injury? (pages 3-4)	❑	❑	❑
Does your facility complete a comprehensive assessment for residents who are found to have pressure injuries upon screening or, if there is no screening process in place, another time? (page 5)	❑	❑	❑
For residents who have pressure injuries, does your facility have a process for monitoring treatment and prevention? (page 6)	❑	❑	❑
Does your facility have a policy for pressure injury prevention and management? (page 7)	❑	❑	❑
Does your facility have initial and ongoing education on pressure injury prevention and management for all relevant staff? (page 8)	❑	❑	❑

When completing each checklist on the following pages:

- If you answer "Yes" to all of the questions, the process is always complete and done so consistently. Continue to the next checklist.
- If you are not sure, or answer "No" to one of the questions, choose one or more elements on which to focus your quality improvement.
- If you answer "Needs Improvement" to one or more of the questions, the process is not always complete and/or not always done consistently.

Pressure Injury Assessment Checklists: Page 3

Pressure Injuries: Screening for Pressure Injury Risk

A screening assessment is a brief assessment or question that determines if the resident is at risk for pressure injuries. It does not include a thorough assessment of the pressure injury or what needs to be done if the resident is found to have a pressure injury upon screening.

Does your facility's screening process include the following components?

	Yes	No	Needs Improvement
Do you screen all residents for pressure injury risk at the following times?			
• Upon admission	❑	❑	❑
• Upon readmission	❑	❑	❑
• When condition changes	❑	❑	❑
If resident is not currently deemed at risk, is there a plan to rescreen at regular intervals?	❑	❑	❑
Do you use either the Norton or Braden pressure injury risk assessment tool? (If yes, STOP. If No, please continue to next question.) Note: Federal regulations (F-314) recommend the use of standardized risk assessment tools.	❑	❑	❑
If you are not using the Norton or Braden risk assessment, does your screening address the following areas?			
• **Impaired mobility**			
Bed	❑	❑	❑
Chair	❑	❑	❑
• **Incontinence**			
Urine	❑	❑	❑
Stool	❑	❑	❑
• **Nutrition**			
Malnutrition	❑	❑	❑
Feeding difficult	❑	❑	❑
• **Diagnosis of**			
Diabetes Mellitus	❑	❑	❑
Peripheral vascular disease	❑	❑	❑
• **Contractures**	❑	❑	❑
• **Hx of PUs**	❑	❑	❑

Pressure Injuries: Facility Assessment Checklists: Page 4

Pressure Injuries: Developing Care Plans

Does the resident care plan address the following interventions and risk factors (as they apply)?

	Yes	No	Needs Improvement
Impaired Mobility			
• Assist with turning, rising, position	❑	❑	❑
• Encourage ambulation	❑	❑	❑
• Limit static sitting to 1 hour at any one time	❑	❑	❑
Pressure Relief			
• Support surfaces - Bed	❑	❑	❑
• Support surfaces - Chair	❑	❑	❑
• Pressure relief devices	❑	❑	❑
• Repositioning	❑	❑	❑
Malnutrition Improvement			
• Supplements	❑	❑	❑
• Feeding assistance	❑	❑	❑
• Adequate fluid intake	❑	❑	❑
• Dietician consult as needed	❑	❑	❑
Urinary Incontinence			
• Cause identified and treated as appropriate	❑	❑	❑
• Toileting plan	❑	❑	❑
• Wet checks	❑	❑	❑
• Treat causes	❑	❑	❑
• Assist with hygiene	❑	❑	❑
Fecal Incontinence			
• Cause identified and treated as appropriate	❑	❑	❑
• Toileting plan	❑	❑	❑
• Soiled checks	❑	❑	❑
Skin Condition Check			
If resident is not currently deemed at risk, is there a plan to rescreen at regular intervals?	❑	❑	❑
Do you use either the Norton or Braden pressure ulcer risk assessment tool? (If yes, STOP. If No, please continue to next question.) Note: Federal regulations (F-314) recommend the use of standardized risk assessment tools.	❑	❑	❑
If you are not using the Norton or Braden risk assessment, does your screening address the following areas?			

Pressure Injuries: Facility Assessment Checklists: Page 5

Pressure Injuries: Developing Care Plans

	Yes	No	Needs Improvement
Treatment			
• Physician prescribed regimen	❑	❑	❑
• Appropriateness to wound staging	❑	❑	❑
• Treatment reassessment time frame	❑	❑	❑
Pain			
• Screen for pain related to ulcer	❑	❑	❑
• Choose appropriate pain med	❑	❑	❑
• Provide regular pain administration	❑	❑	❑
• Reassess the effectiveness of med	❑	❑	❑
• Assess/treat side effects			
• Change, increase, or decrease pain med as needed			
Infection			
• Dressing containment	❑	❑	❑
• Keep dressing dry/intact	❑	❑	❑
• Assess for s/sx infection	❑	❑	❑

Appendix E: Letter of Invitation to Nursing Staff

140 Porcupine Court
Atlanta GA 30331
November 15, 2016

The Executive Director
Elite Home Health Care Agency

Dear Nurses and CNAs,

Invitation to Participate in a PI Prevention Study

I wish to formally invite you to participate in the pressure injury (PI) prevention study I am initiating in your home health care agency. The purpose of this DNP project is to evaluate nursing compliance with PI prevention measures and determine the level of teamwork among nurses and CNAs at a home health care agency. The goal of the study initiative is to reduce the rate of pressure ulcers in the agency from 13.3% to 5.0% within six months through effective teamwork.

I would invite you to participate in three surveys pre-test and the same surveys post-test. The estimated duration of the surveys is 10-15 minutes each. You will be given five days to complete a survey electronically and return it to me electronically. The pre-test and post-test surveys will be sandwiched by an educational session, which will take the form of a free PowerPoint Presentation on PI prevention. It will take a maximum of 30 minutes. Each survey will have elaborate, self-explanatory instructions but if you have problems understanding any question, you may pause the survey, contact me for explanation, and continue later. Thank you in advance for your cooperation.

Yours Sincerely,

Juliana Baah, RN, MSN

Appendix F: Nursing Care Plan

Elite Home Health Care Agency

Client Name: _____ Date: _____

Nursing Care Plan			
Nursing Diagnosis	Goal	Intervention	Outcome
1.			
2			
3			
4			

Appendix G: Skin Assessment Flow Sheet

Circle Yes or No

SKIN COLOR		
Changes in skin tone	Yes	No
Difference in color between body parts	Yes	No
Discolored areas	Yes	No
Paleness	Yes	No
Flushing	Yes	No
Cyanosis	Yes	No
SKIN TEMPERATURE		
Coolness	Yes	No
Warm	Yes	No
SKIN Turgor		
Normal/abnormal	Yes	No
MOISTURE		
Wet/Dry/oily	Yes	No
SKIN INTEGRITY		
Intact /not intact	Yes	No
Bruising	Yes	No
Excoriations	Yes	No
Lesion	Yes	No
Redness	Yes	No

Comments

_____

_____

_____

_____

_____

Appendix H: Preliminary Pressure Injury Risk Assessment

Date: _____ Date of admission: _____
Admitted from: _____ LTC or SNF facility _____ Acute care hospital _____ Other

Points to Consider	Client Name: _____ Address: _____ _____ Sex: _____ CHI No. _____ DoB: _____
• Use within 6 hours of admission • Use daily if the person is identified to be "not at-risk" • People who are overweight may not be well nourished • Please sign after each check	

Mobility: Person is fully mobile without equipment/assistance
Continent: Person is fully continent
Nutrition: Person appears well nourished and is able to eat and drink

- Record your answer in the grid below Y=Yes and N=No
- If the answer is Yes to all statements, use the chart daily
- If the answer is NO to any statements, undertake a full PI risk assessment and consider any other relevant assessment

Date	Time	Mobility	Continence	Nutrition	Skin Inspected	Full PI Risk Assessment	Signature

Appendix I: Daily Repositioning & Skin Inspection Chart

Patient's Name:_____ Date: _____

- Inspect skin for evidence of change
- Reassess at every positional change and document below
- Reposition the patient/ client to reduce the risk of further damage, e.g. using the 30-degree tilt
- Use manual handling aids to minimise risk of friction and shear
- Patients/ clients on any form of pressure redistribution equipment still require skin inspection and regular repositioning
- Provide suitable seating including pressure redistribution cushions, if required, encourage repositioning/mobilisation where possible
- Acutely ill patients/ clients are seated out for no longer than 2 hours and returned to bed for no less than 1 hour

Time	**Repositioning (Using Codes)**		**Skin Inspection Comments**	**Action Taken**	**Initials**
	From	**To**			
E.g. 08.00	L	U	Left Hip Non- Blanching	Reassess at next positional change	

Code: L = left, R = right, B = back, P = prone (front), M = mobilized, U = up to sit

Appendix J: CNA Home Care Flow Sheet

Month: _____ Name: _____

Date of Care																												
Shift																												
I: Status																												
Bed bound																												
Ambulation-Assist																												
Transfers-Assist																												
W/C or Walker-Assist																												
II: ADLs																												
Eating																												
Toileting																												
Bathing (Bed/Tub/Sho.)																												
Peri-/Incontinent care																												
Skin care																												
Oral care																												
Shampoo/Shave																												
Fingernail C/F																												
Toenail C/F																												
Dressing																												
Meds (Pre-pour/Remind)																												
III: IADLs																												
Meal Preparation																												
Shopping																												
Laundry																												
Linen Change																												
Clean Living Area																												
Empty Garbage																												

Initial/Signature: _____ Date: _____

Appendix K: Data Collection Sheet for Reviewing Nurses' Documentation

CNA Code	Performed Head-to-toe assessment & risk assessment using the Braden Scale.	Developed care plan for at-risk patients.	Implemented care plan.	Referred at-risk patients to wound nurse and nutritionist.	Notified patient's physician of any skin problems.	Ensured two-hour turning, incontinent care, fluid intake as ordered.	Educated patient and family about risk factors.
001							
002							
003							
004							
005							
006							
007							
008							
009							
010							
011							
012							
013							
014							
015							
016							
017							
018							
019							
020							

Developed by: Juliana Baah

Appendix L: Data Collection Sheet for Reviewing CNA Documentation

CNA Code	Inspected skin when repositioning, cleaning, or making bed.	Reported any skin changes to nurse.	Repositioned or turned patient as ordered.	Offered patient liquids whenever in the room.	Kept skin clean and reapplied protective skin barrier.	Applied lotion, cream, or skin sealant as needed
001						
002						
003						
004						
005						
006						
007						
008						
009						
010						
011						
012						
013						
014						
015						
016						
017						
018						
019						
020						
021						
022						
023						
024						
025						
026						
027						
028						

Developed by: Juliana Baah

Appendix M: Evidence-Based Intervention: PowerPoint Education

Double click the icon to view the PowerPoint

EVIDENCE-BASED
INTERVENTION FOR F

Appendix N: Results of the MISSCARE Nursing Survey Pretest

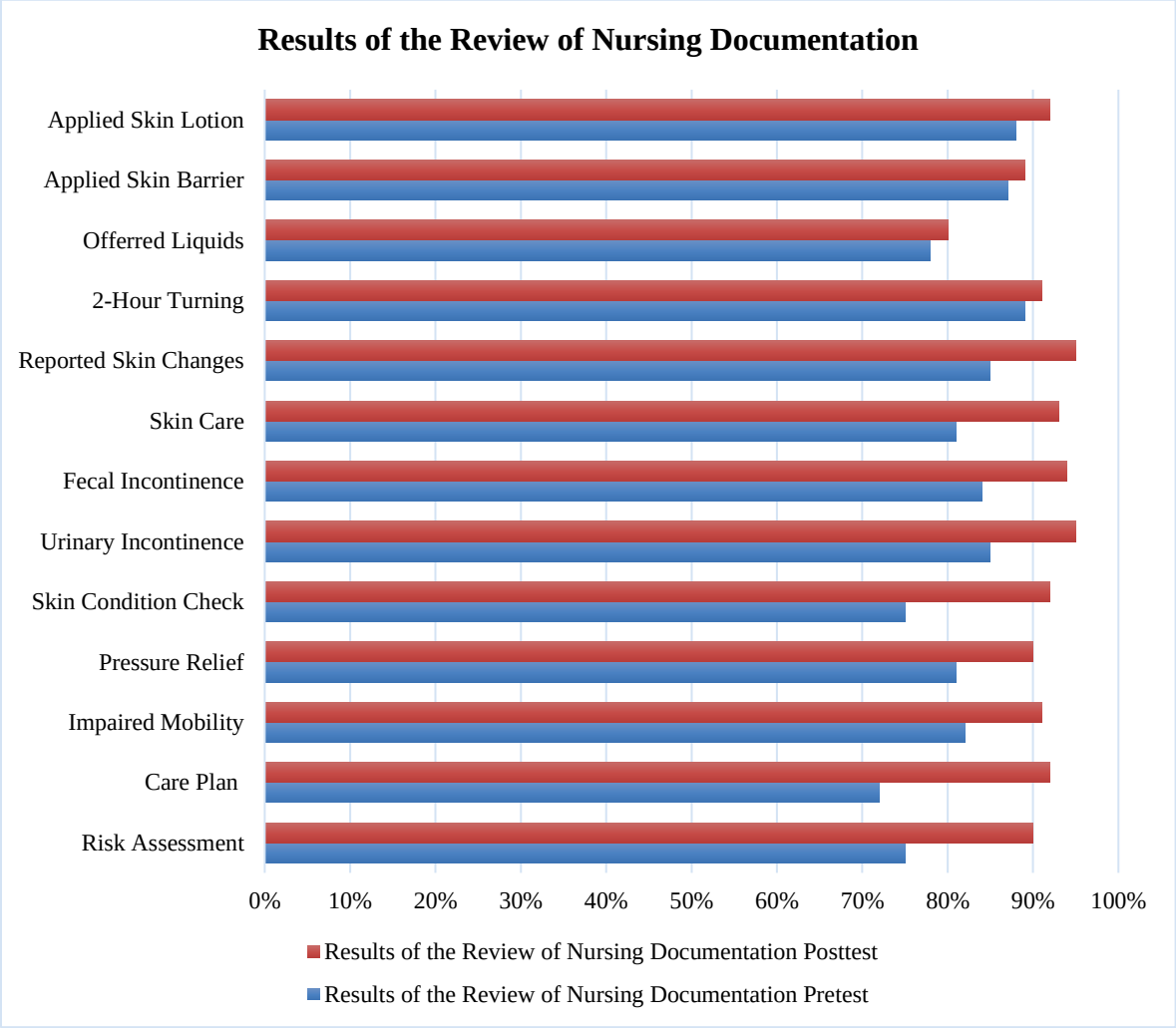
Variable	Always Missed	Frequently Missed	Occasionally Missed	Rarely Missed	Never Missed
Ambulation three times per day or as ordered.	27.24%	45.48%	18.19%	9.08%	0.00%
Turning patient every two hours.	0.00%	38.90%	32.52%	21.43%	7.14%
Feeding patient when the food is still warm.	0.00%	35.33%	23.00%	25.00%	16.67%
Setting up meals for patients who feeds themselves.	8.33%	16.67%	25.00%	41.67%	8.33%
Medications administered within 30 minutes before or after scheduled time.	0.00%	8.33%	41.67%	50.00%	0.00%
Vital signs assessed as ordered.	0.00%	6.25%	0.00%	55.29%	38.46%
Monitoring intake/output.	0.00%	23.08%	23.08%	46.15%	7.69%
Full documentation of all necessary data.	0.00%	10.00%	40.45%	22.27%	27.27%

Patient teaching about illness, tests, and diagnostic studies.	0.00%	15.45%	18.18%	54.55%	18.18%
Emotional support to patient and/or family.	0.00%	14.70%	9.15%	48.88%	27.27%
Patient bathing/skin care	0.00%	9.09%	54.55%	27.27%	9.09%
Mouth care	9.09%	27.47%	29.07%	25.27%	9.09%
Hand washing	0.00%	0.00%	20.18%	43.45%	36.37%
Patient discharge planning and teaching.	0.00%	10.45%	9.09%	30.76%	49.70%
Bedside glucose monitoring as ordered.	0.00%	6.50%	1.50%	63.64%	36.36%
Patient assessments performed each shift	0.00%	12.60%	5.70%	23.76%	57.94%
Focused reassessments according to patient condition.	10.00%	6.34%	8.20%	30.01%	36.36%
IV/central line site care and assessments according	0.00%	9.09%	27.27%	27.27%	36.36%

within 5 minutes.					
Response to call light is initiated within 5 minutes.	0.00%	8.50%	32.34%	27.27%	31.89%
PRN medication requests acted on within 15 minutes.	0.00%	9.09%	18.18%	72.73%	0.00%
Assess effectiveness of medication.	0.00%	9.09%	20.54%	38.70%	31.67%
Attend interdisciplinary care conferences whenever held	0.00%	16.67%	33.33%	33.33%	16.67%
Assist with toileting needs within 5 minutes of request.	0.00%	9.09%	18.18%	27.27%	45.45%
Skin/wound care	0.00%	5.23%	29.27%	56.41%	9.09%

Note: Kalisch, B. J. (2009). *The MISSCARE Nursing Survey*. Used with permission.

Appendix O: Results of the Review of Nursing Documentation



Appendix P: Results of the MISSCARE Nursing Survey Posttest

Variable	Always Missed	Frequently Missed	Occasionally Missed	Rarely Missed	Never Missed
Ambulation three times per day or as ordered.	20.25%	40.50%	23.34%	15.91%	0.00%
Turning patient every two hours.	0.00%	18.50%	38.58%	36.36%	6.56%
Feeding patient when the food is still warm.	0.00%	15.35%	32.00%	34.15%	18.50%
Setting up meals for patients who feeds themselves.	4.90%	10.60%	20.00%	45.70%	18.80%
Medications administered within 30 minutes before or after scheduled time.	0.00%	5.00%	34.70%	52.80%	7.50%
Vital signs assessed as ordered.	0.00%	2.65%	1.60%	52.95%	42.80%
Monitoring intake/output.	0.00%	15.50%	20.00%	48.50%	16.16%
Full documentation of all necessary data.	0.00%	6.80%	38.45%	25.70%	29.05%
Patient teaching about illness,	0.00%	12.50%	16.40%	50.50%	120.60%

tests, and diagnostic studies.					
Emotional support to patient and/or family.	0.00%	10.70%	7.10%	46.80%	236..20%
Patient bathing/skin care	0.00%	7.75%	50.45%	25.20%	16.60%
Mouth care	5.69%	15.00%	35.55%	35.90%	7.86%
Hand washing	0.00%	0.00%	12.45%	40.88%	46.67%
Patient discharge planning and teaching.	0.00%	7.55%	8.00%	34.60%	49.85%
Bedside glucose monitoring as ordered.	0.00%	1.70%	6.50%	44.80%	47.00%
Patient assessments performed each shift	0.00%	8.50%	3.60%	28.70%	59.20%
Focused reassessments according to patient condition.	8.10%	5.40%	7.80%	34.56%	44.14%
IV/central line site care and assessments according within 5 minutes.	0.00%	7.00%	25.30%	30.00%	37.70%

Response to call light is initiated within 5 minutes.	0.00%	6.50%	30.31%	29.90%	33.29%
PRN medication requests acted on within 15 minutes.	0.00%	7.00%	16.89%	70.70%	5.41%
Assess effectiveness of medication.	0.00%	8.50%	18.89%	37.50%	35.11%
Attend interdisciplinary care conferences whenever held	0.00%	18.50%	30.40%	35.30%	15.80%
Assist with toileting needs within 5 minutes of request.	0.00%	7.09%	14. 56%	28.90%	49.45%
Skin/wound care	0.00%	3.89%	29.27%	51.05%	15.79%

Note: Kalisch, B. J. (2009). *The MISSCARE Nursing Survey*. Used with permission.

Appendix Q: Results of the Nursing Teamwork Survey Pretest

Table Q1
Nursing Staff Satisfaction with Level of Teamwork

Item	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
1. How satisfied are you in your current position?	3.00%	42.00%	23.00%	18.00%	14.00%
2. Independent of your current job, how satisfied are you with being a nurse or a nurse assistant or a unit clerk/secretary?	13.00%	50.64%	19.00%	14.36%	3.00%
3. How satisfied are you with the level of teamwork on this unit?	12.00%	38.00%	22.00%	18.00%	10.00%

Table Q2
Measure of Nursing Teamwork

Item	Rarely	25% of the time	50% of the time	75% of the time	Always
1. All team members understand what their responsibilities are throughout the shift.	0.00%	0.00%	27.05%	45.45%	27.50%
2. The nurses who serve as charge nurses or team leaders monitor the progress of the staff members throughout the shift.	0.00%	16.67%	16.90%	33.50%	32.93%
3. Team members frequently know when another team member needs assistance before that person asks for it.	18.80%	45.00%	9.00%	18.00%	9.20%
4. Team members communicate clearly what their expectations are of others.	27.27%	9.10%	30.00%	33.63%	0.00%
5. Team members ignore many mistakes and annoying behavior of teammates rather than discussing these with them.	9.00%	18.20%	36.00%	20.50%	16.30%
6. When changes in the workload occur during the shift (admissions, discharges, patient's problems etc.), a plan is made to deal with these changes.	36.36%	20.00%	0.00%	36.36%	7.28%
7. Team members know that other members of their team follow through on their commitment.	9.00%	9.45%	27.65%	45.90%	8.00%

Item	Rarely	25% of the time	50% of the time	75% of the time	Always
8. The nurses who serve as charge nurses or team leaders balance workload within the team.	9.10%	27.00%	20.00%	36.90%	7.00%
9. My team believes that to do a quality job, all of the members need to work together.	9.50%	0.00%	27.60%	36.36%	26.54%
10. The shift change reports contain the information needed to care for the patients.	0.00%	9.10%	9.00%	63.64%	18.26%
11. Some team members spend extra time on breaks.	9.10%	18.20%	27.70%	9.00%	36.00%
12. Team members respect one another.	0.00%	9.14%	36.36%	54.50%	0.00%
13. When a team member points out to another team member an area for improvement, the response is often defensive.	0.00%	20.00%	50.00%	20.00%	10.00%
14. Team members are aware of the strengths and weaknesses of other team members they work with most often.	9.50%	9.90%	27.50%	53.10%	0.00%
15. If the staff on one shift is unable to complete their work, the staff on the on-coming shift complains about it.	9.00%	9.00%	9.85%	45.50%	26.65%
16. Staff members with strong personalities dominate the decisions of the team.	9.90%	9.00%	36.36%	18.20%	26.54%

Item	Rarely	25% of the time	50% of the time	75% of the time	Always
17. Most team members tend to avoid conflict rather than dealing with it.	0.00%	0.00%	45.50%	45.40%	9.10%
18. Nursing assistants and nurses do not work well together as a team.	20.00%	10.00%	50.00%	20%	0.00%
19. The nurses who serve as charge nurses or team leaders are available and willing to assist team members throughout the shift.	0.00%	9.20%	18.00%	63.64%	9.16%
20. Team members notice when a member is falling behind in their work.	0.00%	19.00%	36.00%	20.00%	25.00%
21. When the workload becomes extremely heavy, team members pitch in and work together to get the work done.	9.20%	0.00%	36.36%	45.40%	9.04%
22. Feedback from team members is often judgmental rather than helpful	9.00%	9.50%	72.73%	8.77%	0.00%
23. My team readily engages in changes in order to make improvements and new methods of practice.	0.00%	20.00%	45.25%	34.75%	0.00%
24. Team members readily share ideas and information with each other.	9.50%	29.00%	27.50%	34.00%	0.00%
25. Team members clarify with one another what was said to be sure that what was heard is the same as the intended message.	6.70%	19.18%	27.50%	36.00%	8.32%

Item	Rarely	25% of the time	50% of the time	75% of the time	Always
26. Team members are more focused on their own work than working together to achieve the total work of the team.	0.00%	26.33%	28.27%	27.20%	18.20%
27. The nurses who serve as charge nurses or team leaders give clear and relevant directions as to what needs to be done and how to do it.	0.00%	9.00%	9.10%	72.73%	9.17%
28. Within our team, members are able to keep an eye out for each other without falling behind in our own individual work.	9.10%	36.70%	8.55%	45.65%	0.00%
29. Team members understand the role and responsibilities of each other.	0.00%	9.50%	9.00%	81.50%	0.00%
30. Team members willingly respond to patients other than their own when other team members are busy or overloaded.	0.00%	45.45%	0.00%	54.55%	0.00%
31. Team members value, seek, and give each other constructive feedback.	9.00%	18.80%	36.50%	26.70%	9.00%
32. When someone does not report to work or someone is pulled to another unit, we reallocate responsibilities fairly among the remaining team members.	0.00%	10.00%	27.30%	36.86%	25.84%
33. Team members trust each other.	0.00%	36.36%	9.05%	54.59%	0.00%

Note: Kalisch, B. J. (2011). *Nursing Teamwork Survey*. Used with permission.

Appendix R: Results of the Nursing Teamwork Survey Posttest

Table Q1
Nursing Staff Satisfaction with Level of Teamwork

Item	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
1. How satisfied are you in your current position?	10.00%	53.09%	6.19%	15.75	15.00%
2. Independent of your current job, how satisfied are you with being a nurse or a nurse assistant or a unit clerk/secretary?	15.00%	50.50%	14.72%	17.58%	2.20%
3. How satisfied are you with the level of teamwork on this unit?	17.09%	49.00%	18.86%	10.05%	5.00%

Table Q2
Measure of Nursing Teamwork

Item	Rarely	25% of the time	50% of the time	75% of the time	Always
1. All team members understand what their responsibilities are throughout the shift.	0.00%	0.00%	30.60%	69.40%	00.00%
2. The nurses who serve as charge nurses or team leaders monitor the progress of the staff members throughout the shift.	0.00%	10.70%	15.80%	52.50%	21.00%
3. Team members frequently know when another team member needs assistance before that person asks for it.	3.50%	15.00%	30.00%	45.60%	5.90%
4. Team members communicate clearly what their expectations are of others.	3.20%	5.50%	32.00%	59.30%	0.00%
5. Team members ignore many mistakes and annoying behavior of teammates rather than discussing these with them.	5.00%	40.50%	22.50%	20.50%	11.50%
6. When changes in the workload occur during the shift (admissions, discharges, patient's problems etc.), a plan is made to deal with these changes.	5.50%	5.00%	34.00%	45.50%	10.00%

Item	Rarely	25% of the time	50% of the time	75% of the time	Always
7. Team members know that other members of their team follow through on their commitment.	0.00%	1.90%	30.60%	55.50%	12.00%
8. The nurses who serve as charge nurses or team leaders balance workload within the team.	9.50%	25.00%	22.00%	38.50%	5.00%
9. My team believes that to do a quality job, all of the members need to work together.	3.00%	7.00%	3.00%	72.00%	15.00%
10. The shift change reports contain the information needed to care for the patients.	1.00%	9.00%	4.36%	63.64%	22.0%
11. Some team members spend extra time on breaks.	10.50%	23.50%	27.00%	33.00%	6.00%
12. Team members respect one another.	0.00%	8.20%	16.60%	**73.35%**	1.85%
13. When a team member points out to another team member an area for improvement, the response is often defensive.	10.00%	30.00%	40.00%	15.00%	5.00%
14. Team members are aware of the strengths and weaknesses of other team members they work with most often.	5.30%	6.00%	20.50%	58.20%	10.00%
15. If the staff on one shift is unable to complete their work, the staff on the on-coming shift complains about it.	24.50%	10.00%	10.00%	35.50%	20.0%
16. Staff members with strong personalities dominate the decisions of the team.	10.00%	25.00%	30.30%	34.80%	5..90%

Item	Rarely	25% of the time	50% of the time	75% of the time	Always
17. Most team members tend to avoid conflict rather than dealing with it.	8.00%	10.00%	35.50%	40.60%	5.90%
18. Nursing assistants and nurses do not work well together as a team.	25.00%	40.00%	30.00%	5.00%	0.00%
19. The nurses who serve as charge nurses or team leaders are available and willing to assist team members throughout the shift.	0.00%	2.90%	32.80%	62.00%	2.30%
20. Team members notice when a member is falling behind in their work.	0.00%	10.00%	46.00%	30.00%	14.00%
21. When the workload becomes extremely heavy, team members pitch in and work together to get the work done.	6.50%	10.00%	42.00%	40.50%	1.00%
22. Feedback from team members is often judgmental rather than helpful	40.00%	25.50%	22.00%	12.5%	0.00%
23. My team readily engages in changes in order to make improvements and new methods of practice.	10.00%	15.00%	30.50%	40.50%	4.00%
24. Team members readily share ideas and information with each other.	5.00%	20.00%	37.50%	37.50%	0.00%
25. Team members clarify with one another what was said to be sure that what was heard is the same as the intended message.	6.00%	22.40%	32.50%	38.00%	1.10%

Item	Rarely	25% of the time	50% of the time	75% of the time	Always
26. Team members are more focused on their own work than working together to achieve the total work of the team.	20.00%	30.5%	23.5%	18.00%	8.00%
27. The nurses who serve as charge nurses or team leaders give clear and relevant directions as to what needs to be done and how to do it.	4.00%	5.00%	15.60%	70.40%	5.00%
28. Within our team, members are able to keep an eye out for each other without falling behind in our own individual work.	15.00%	30.50%	25.50%	29.00%	0.00%
29. Team members understand the role and responsibilities of each other.	0.00%	2.50%	16.00%	81.50%	0.00%
30. Team members willingly respond to patients other than their own when other team members are busy or overloaded.	0.00%	25.50%	29.00%	45.50%	0.00%
31. Team members value, seek, and give each other constructive feedback.	5.00%	10.50%	40.50%	36.50%	7.50%
32. When someone does not report to work or someone is pulled to another unit, we reallocate responsibilities fairly among the remaining team members.	0.00%	15.00%	35.50%	45.50%	4.00%
33. Team members trust each other.	0.00%	9.50%	29.00%	56.50%	5.00%

Note: Kalisch, B. J. (2011). *Nursing Teamwork Survey*. Used with permission.

Appendix S: Curriculum Vitae

Include a copy of your curriculum vitae—your academic resume—here. The CV may be done in either basic outline form or full-sentence form. The CV must conform to the margin specifications of the rest of the document, be included in the pagination, and be listed in the TOC.