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Clarifying the Need for Inpatient Medication Education

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by

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Approval Page

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Abstract

Low health literacy is a problem for millions of Americans resulting in increased use of avoidable healthcare resources and poor health outcomes. Use of pharmaceutical regimens to manage acute and chronic health issues is the most common treatment modality. Unfortunately, people with low health literacy may have trouble understanding and following provider instructions; reading and following directions on medication bottles, either prescribed and/or over the counter; and identifying proper reasons for taking a medication. The purpose of this study was to increase patient self-agency for the treatment and management of acute and chronic health conditions through medication education. Providing medication education to the hospitalized patient may result in increased knowledge and self-management ability. Secondary rewards involve the increase in hospital reimbursement through increased patient satisfaction scores.

Keywords: health literacy, medication education, HCAHPS

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SECTION I

Introduction

Many effective treatment strategies for acute and chronic illness management include medication therapy. Although prescription medications have served as a primary treatment modality for decades, many patients are not as dedicated to the plan of care as their provider. According to Jones, Treiber, and Jones (2014), an integral element in poor health outcomes for the general public is non-adherence to medication regimens. This is a leading, contributing factor to the overall physical, mental, and financial status of our country where avoidable healthcare spending amounts to almost $300 million per year (Jones et al., 2014).

A key component to the effectiveness of illness management lies in the individual's level of health literacy. Health literacy is defined as the " degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions" (Ratzan & Parker, 2006, p.31) In addition to contributing to medication noncompliance, low health literacy also limits the self-management ability (SMA) of older adults. Self-management ability refers to an individual's cognitive and behavioural ability to manage resources to maintain or restore physical and social well-being. Sex, age, and living situations are factors contributing to SMA in addition to socioeconomic indicators of education level and income (Geboers, de Winter, Spoorenberg, Klaske, & Reijneveld, 2016).

Health literacy has been identified as a primary component of medication non-adherence (Jones et al., 2014). Millions of Americans are affected by limited health literacy contributing to the challenges of delivering high-quality healthcare. In addition, low health literacy is an important predictor of various negative health outcomes

including frequent hospitalizations, higher mortality rates, and lower well-being (Geboers et al., 2016). Additional shortfalls for individuals with decreased health literacy include reduced ability to interpret labels, including over the counter medications and health messages; limited ability to take medications appropriately; lower likelihood of receiving preventive care; and greater use of urgent or emergent care. Older adults are especially vulnerable due to their overall health status and higher mortality rate (Koh et al., 2012).

As part of the fight to improve patient outcomes, governmental and other nationally recognized organizations are taking steps to increase accountability for healthcare systems. The Joint Commission, an independent, not-for-profit accreditation organization, established the National Patient Safety Goals (NPSGs) program in 2002 to help accredited organizations address specific areas of concern in regard to patient safety. The 2016 National Patient Safety Goals for hospitals include using medications safely. Components of performance for NPSG.03.06.01 include recording and conveying correct information about a patient's medication. Three aspects of this goal include determining what medicines the patients is, or should be, taking and comparing those to new medications given to the patient; ensuring the patient knows which medicines are to be taken at home; and advising patients of the importance of bringing their current medication list whenever they visit a doctor (The Joint Commission, 2016).

Problem Recognition and Significance

The prevalence of chronic disease and reliance on medication therapy are increasing due to longevity and medical advances. Benefits include effective management of the illness/disease, slowed progression of the disease, and improved patient outcomes. As the primary intervention for most illnesses, patients receiving medication interventions are exposed to potential harm as well as anticipated benefits.

Harm from medications can arise from unintended consequences as well as from medication errors (Hughes & Blegen, 2008).

According to Koh et al., (2012), health literacy became a focus with federal policy initiatives such as the Affordable Care Act of 2010, Plain Writing Act of 2010, and the Department of Health and Human Services' National Action Plan to Improve Health Literacy. A major step in the path to improving health literacy includes the requirement for newly written publications, forms, and publicly distributed documents from the federal government to be written clearly, concisely, and in a well-organized manner (Koh et al., 2012). Navigating healthcare systems requires patients to possess and demonstrate multiple skills such as interacting with health professionals and applying health information to different situations in their lives. Patients have to use components of health literacy including reading and writing, listening and speaking, and understanding numbers. Unfortunately, only 12% of adults are proficient enough in health literacy to understand and use health information effectively. Some individuals may fail to understand important warnings found on over-the-counter medications, which are meant to be used safely without a prescription. Reading and understanding medical terminology on a healthcare document may be difficult for an adult with intermediate health literacy skills (Koh et al., 2012).

Historically, medication administration safety and patient compliance have troubled acute care facilities throughout the United States. According to Hughes and Blegen (2008), a medication error consists of a preventable event causing or leading to inappropriate medication use or patient harm during the time the medication is in the control of the healthcare professional, patient, or consumer. Events leading to medication errors may be related to professional practice, order communication, administration,

education, monitoring, and usage. Adverse events due to medication errors affect 2-3% of all patients admitted to hospitals. Many medication-related hospital admissions are attributed to patient non-adherence to medication regimens post hospitalization (McTier, Botti, & Duke, 2015). Patient participation in medication management during hospitalization is one suggestion to prevent medication errors and improve patient compliance after discharge from the hospital (McTier, Botti, & Duke, 2015).

In October 2012, the Centers for Medicare and Medicaid Services (CMS) reduced the base operating diagnosis-related group (DRG) reimbursement payments to hospitals for patient services to create an incentive fund. The incentive fund distribution of 30% was distributed to hospitals according to their performance based on patient perception. Patient perception of hospital experience was determined through the use of the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) patient satisfaction survey (Zusman, 2012). The HCAHPS survey is a national, standardized, and publicly reported survey of patients' perspectives of hospital care (CMS, 2014).

Problem Statement

The setting for this DNP project was a 119-bed community hospital located in the southeastern United States. The inpatient census varies with a large presentation of acute, chronic, and acute on chronic disease processes. The hospital offers traditional services including surgical, women's health, medical, telemetry, intensive care, and behavioral health, along with various diagnostic outpatient procedures. Lacking a designated pediatric unit, only a very small percentage of inpatient admissions are under the age of 18. Adults over the age of 65 represent the largest group of admitted patients. This group is also the one most affected by lower health literacy levels and medication non-adherence (Jones et al., 2014). This hospital utilizes Press Ganey Associates,

Incorporated to manage the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) data collection and reporting system to track facility results. Results can be viewed as desired by administration to identify areas maintaining acceptable and unacceptable standards of care. One of the areas consistently receiving ratings below the national average is "communication about medications" (Press Ganey Associates, 2016).

Beginning in April 2015, the hospital implemented a program entitled Med-In-A-Box in an effort to increase inpatient satisfaction scores. This program was largely based on a similar, successful program piloted by a larger southeastern hospital. The Med-In-A-Box program required nursing staff to educate patients on new medications initiated during the current hospitalization. When nursing accessed the electronic medication administration record, medications determined to be new were highlighted by pharmacy. A message written in red would prompt the nurse to document teaching on all new medications in the electronic teaching record (ETR) section. This message did not distinguish the difference between home medications or whether it was a first time administration during the current hospitalization. Due to computer software constraints, documentation could not occur during active medication administration, requiring the nurse to write down all of the new medications for later documentation. During medication administration, nurses were required to inform the patient of the name of the new medication, why the patient was receiving the medication, and potential side effects. During the next step in the process, nurses selected a color coded "MED" card and using a magnetic, metal clip, placed the card in a red square located on the communication whiteboard attached to the wall in each patient room. Additionally, nurses were to write the medication and potential side effects on the communication whiteboard for patients to review. There were five different colors of cards to select from which corresponded to a

medication "cheat sheet" developed by pharmacy. The sheet listed 70 different medications, most common reasons for use and side effects. These sheets were placed on all of the computerized workstations as a quick reference. Nurses were also provided a scaled down version of the "cheat sheet" on a laminated badge card designed to be attached to their employee identification badge for easy access. Nursing staff were to pass along the new medications to the next shift during change of shift report. This process was to take place for all "new" medications ordered by the provider.

The HCAHPS scores for the month of April 2015 were reviewed for the beginning time of the Med-In-A-Box initiative. "Always" is considered the top box survey answer. Patients' survey results placed "communication about medicines" at 51.7%; "tell you what the new medicine was for" at 75.7%, and "staff describe medicine side effects" at 27.8%. Survey results in August 2015 revealed a 67.5% success rate for "communication about medicines" followed by a steep decline from September through November 2015. Scores peaked in December at 71.4% before declining and finishing the year at 56.7% in July 2016. The national average for "communication about medicines" is 63.40% (Press Ganey Associates, 2016). This information is illustrated in Figure 1. The data indicated that while the Med-In-A-Box initiative produced improved scores initially, the sustainability of those scores was not demonstrated. Also, there are only two nurses still employed on the nursing unit who received initial training for the Med-In-A-Box program.

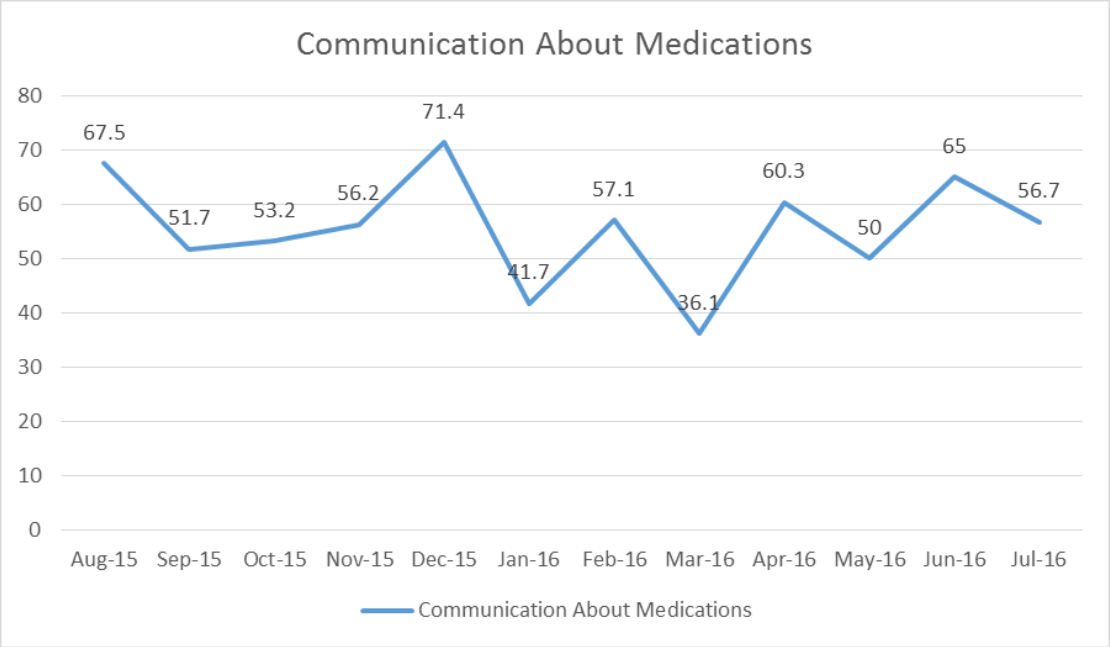

Figure 1. HCAHPS Scores for Communication about Medications (Press Ganey Associates, 2016)

In December 2016, hospital leadership remained keenly aware of the continued low HCAHPS scores for "communication about medicines" and appointed pharmacy to work with the nursing department to develop a new process. Once again, hospital staff met to begin developing and testing several process improvement procedures.

SECTION II

Literature Review

A review of the literature was conducted using the Cumulative Index to Nursing and Allied Health Literature (CINAHL), PubMed, and Nursing and Allied Health (ProQuest) Databases. Search keywords included nursing, medication adherence, health literacy, medication education, patient safety, and hospital reimbursement.

A step in the provision of safe and quality health care for Americans is accreditation by The Joint Commission. The Joint Commission is an independent, not-for-profit organization which accredits and certifies nearly 21,000 health care organizations and programs in the United States. Their accreditation and certification is recognized nationally as a symbol of quality reflecting an organization's commitment to meeting certain performance standards (The Joint Commission, 2016). In 2002, The Joint Commission established the National Patient Safety Goals (NPSGs) program to help accredited organizations address specific areas of concern in regard to patient safety. Yearly goals focus on specific problems in health care safety and ways to solve them (The Joint Commission, 2016). The 2016 National Patient Safety Goals for hospitals include using medications safely. Elements of performance for NPSG.03.06.01 include recording and conveyance of correct information about a patient's medications. Staff are to determine what medicines the patients is, or should be, taking and compare those to new medications given to the patient. Staff should ensure the patient knows which medicines are to be taken when they are at home. Patients should also be advised of the importance of bringing their current medication list whenever they visit a doctor (The Joint Commission, 2016).

Unfortunately, the prevalence of chronic disease and the amount of medications used for treatment are increasing. However, patients need to take their medications in order to achieve desired outcomes (King & Pryce, 2014). Former US Surgeon General C. Everett Koop has been credited with saying, "Drugs don't work if people don't take them." (Schneider, Hess, & Gosselin, 2011 p.141). According to Reeve and Wiese (2014), individuals with chronic disease and poor adherence to medication regimens have a significant increase in poor patient outcomes which contribute to the annual cost of $100 billion for drug-related hospital admissions. Non-adherence to medication recommendations may be unintentional, intentional, or a combination of the two. Factors linked with medication non-adherence include polypharmacy, medication cost, adverse drug reactions and a poor provider-patient relationship.

Due to the multifactorial problem of non-adherence, interventions to improve adherence require a multidisciplinary approach to address the issue. Patients with the lowest understanding of their medications have the highest rate of non-adherence. Interventions including an educational component have been found to have a positive effect on adherence for elderly patients with multiple chronic co-morbidities. Patients less concerned about harmful effects and more belief in positive benefits may have better medication adherence (Reeve & Wiese, 2014).

According to Jones et al. (2014), poor health literacy is another cause of non-adherence in the elderly. Health literacy is the application of reading, listening, analytical, and decision making skills in addition to reading ability. It allows people to understand prescription drug instructions, appointment slips, medical education brochures, directions and consent forms from doctors, and the intricacies of health care plans (Zhang, Terry, & McHorney, 2014). Unfortunately, complex medical verbiage can be found in all types of

documents such as insurance forms, educational materials, and even advertising. Nearly 40 million Americans cannot read complex medical texts and 90 million have difficulty understanding the same. Even those with strong literacy skills may have difficulty obtaining, understanding, and using health information (Selder & Ratzan, 2000). Navigating the healthcare system is hindered by the inability to fill out complex forms, locate providers, share personal health history with providers, and engage in self-care and chronic-disease management. Health literacy is also dependent on communication skills and knowledge of health topics of professionals and lay persons, culture, and situational demands (US Department of Health Resources and Service Administration (HRSA), n.d.) According to the Office of Disease Prevention and Health Promotion (2008), a health disparity is defined as a type of health difference closely linked to social, economic, and/or environmental disadvantage. Identification of health literacy as a health disparity may increase attention and formation of strategies to further increase medication adherence.

Beginning in 2002, the Centers for Medicare and Medicaid (CMS) partnered with the Agency for Healthcare Research and Quality (AHRQ) in response to the Health and Human Services' (HHS) Hospital Quality Initiative which sought to improve quality through accountability and public disclosure. Hospitals are required to survey patients throughout each month of the year using four different survey methods; mail, telephone, mail with telephone follow-up, or active interactive voice recognition (IVR). Hospitals can use the HCAHPS survey alone, or include additional questions after the core HCAHPS items. Information collected through HCAHPS is publicly reported, with voluntary participation in HCAHPS guided by the Hospital Quality Alliance (CMS.gov, 2014).

The HCAHPS survey asked discharged patients 27 questions about their recent hospital stay. The survey contained 18 core questions about critical aspects of patients' hospital experiences (communication with nurses and doctors, the responsiveness of hospital staff, the cleanliness and quietness of the hospital environment, pain management, communication about medicines, discharge information, overall rating of the hospital, and would they recommend the hospital).

The purpose of this project was to increase patient self-agency in the management of acute and chronic health-related problems by providing education on new medicines to the hospitalized patient. As a direct result of this education, it is hoped that HCAHPS scores for the medical/surgical/telemetry unit will improve to meet national standards. Consequently, as HCAHPS scores increase, hospital reimbursement rates will increase, resulting in positive outcomes for staff and patients alike.

Summary of Problem Recognition

Acute care facilities are assigned the task of decreasing money spent on potentially avoidable inpatient admissions. In order to accomplish this, multiple issues have to be addressed, one of which is increasing self-agency in the adult population, especially those over 65 years of age. Incorporating medication education into the daily routines of nursing staff increases the amount of exposure to important information regarding patient medication regimens. According to Polster (2015), nurses should seek additional resources to increase their teaching ability especially because literature suggests a correlation between improved nurse knowledge and increased patient knowledge.

Medical professionals, cognizant of the link between health literacy and health outcomes, can be strong advocates for the importance of relevant public policy action,

such as educational improvement, funding for adult literacy services, and simplified public aid forms (Sentell, Zhang, Davis, Baker, & Braun, 2013). As the primary provider for medication administration and patient education, nurses should be advocates in the battle to increase health literacy. One responsibility of the acute care nurse is to uphold professional standards of care during patient encounters. The acute care nurse remains a patient advocate through provision of individualized medication education to the patient and/or family. These encounters provide the opportunity to increase self-agency as well as improve HCAHPS scores.

Literature Review Related to Project Implementation

While patients are admitted to the hospital, they and their family members experience a wide variety of emotions which may make it difficult for them to concentrate and remember the medication instructions nurses provide. However, healthcare staff have the responsibility to fully engage patients and explain the medication plan while in the hospital and after discharge. Improving nurses' ability to communicate necessary details about medications and their side effects to patients and family members is one way to ensure patient safety (Polster, 2015). Nursing, as the most trusted profession, is strategically placed to impact the health and wellbeing of the community (Frietas & Leonard, 2011). Nurses are taught to develop a trusting relationship with their patients and/or family members from the onset of nursing education. It is through this relationship that nurses can directly impart knowledge to increase self-agency in their patients. Daily workload demands for nursing are not likely to decrease; however, patient education and well-being promotion remain an integral and expected part of clinical nursing. The instinctive awareness of nurses is an invaluable

complement to the care of patients, providing structure to the promotion of professionalism and trust (Hayes, 2016).

Knowles' Adult Learning Theory surmises that adult learners are independent and self-directed, and use prior experiences as learning resources. Furthermore, immediate application of learning is desired and their motivation to learn is internally driven (Toole, Stichler, Ecoff, & Kath, 2013). Basic knowledge of these principles can enable nursing during the process of teaching patients about medications. By acting as facilitator, nursing can breach the gap between ignorance and knowledge, thereby increasing patient self-agency.

Most people are visual learners so the use of educational visual aids enhance understanding and encourage adherence to a treatment plan. Visual aids with animation, large font, colorful pictures, adequate white space on the page, and bulleted key points are essential components. Other options include non-printed educational material such as demonstrations, videos, and pictograms (Polster, 2015). When using handouts, circling or highlighting can bring attention to the most important parts (Agency for Healthcare Research and Quality (AHRQ), 2015). The AHRQ recommends using the teach back method as it provides opportunities to engage patients in their own care in addition to reiterating important information regarding their medications. The Studer Group (2012) recommends hardwiring the use of communication whiteboards in each patient room. These erasable whiteboards provide visual communication for patients and their family members and should be updated regularly and maintained for accuracy.

In one telemetry unit in California, staff members developed a staff teaching protocol in order to improve patient satisfaction scores regarding communication about medications. They formed a multidisciplinary team comprised of clinical nurses,

pharmacists, and managers from three departments. A handout template was developed and included drug classification and action, common medications (generic/brand name), and the top five side effects for the drug classification. Individual patient handouts were kept in patient education trays at the bedside. When a new medication was ordered, nurses retrieved the handout and highlighted the drug class, medication name, and side effects for the new medication; then, they discussed the information with the patient. Teach back was done to determine the patient's level of understanding. Reminders for this new practice were posted in various locations in the unit. Patients' rooms had signs to prompt patients to ask nurses why they were taking medications and potential side effects (AHRQ, 2015). After this new process was implemented, their satisfaction scores increased to above the fiftieth percentile (Ingles & Rossillo, 2015).

At another hospital, the average score regarding the post-discharge survey questions involving medication and side effects was 58. Nurses and a pharmacist from various units started monthly meetings to brainstorm methods for improvement and to identify barriers. They selected a clear, easy to read patient medication handout source and made the link available on their intranet page as well as in nursing documentation. They also revised their patient discharge instruction sheet to prompt distribution of medication handouts at discharge as well as the post-discharge phone call sheet to prompt nurses to ask patients about their medications. They charged a pilot unit with determining their most commonly used medications and prepared patient handouts with the "indication" and "side effects" sections pre-highlighted. Special patient medication folders were labeled "Medications: Purpose and Side Effect Information" and were used for patients to store their handouts. During the monitoring process, the two units designated as pilots noted an upward trend on the HCAHPS scores regarding

"communication about medicines". As the results were reflecting positively, procedure instructions were sent to all nurse managers after the information was presented at the nurse manager meeting. A story board was created and rotated throughout all units. Although the specifics are not listed, this hospital implemented some functionality of the GetWell Network. Results were noted to continue to be varied, but trends showed slow, consistent progress (Siegel, 2012).

In this evolution of new healthcare modalities seemingly at every turn, quality improvement activities aligned with professional nursing values can be a major force in implementation of change. Nursing professionals are self-regulators with an ethical responsibility to achieve and maintain high standards in the provision of care (Izumi, 2012). Implementing ways to increase medication education for patients begins by combining basic health literacy and learning strategies into basic, efficient tools for nursing. Strategic objectives are not in place just because they are presented to key players. Implementation, refining, and teamwork are what will ultimately bring the strategy to life and achieve sustainability (Edinger, 2012).

Impact of the Problem on the Target Population

The healthcare industry has a vested interest to advance health literacy in consumers. Successful chronic disease management is hindered by poor medication adherence. Non-adherence hinders a patient's ability to reach and maintain clinical goals which may result in disease progression, suboptimal outcomes, and increased mortality risk. Healthcare costs rise due to the increased risk of hospitalization and lack of sufficient reimbursement under pay-for-performance guidelines. In the United States, up to $300 billion annually is the cost of non-adherence related to unnecessary outpatient

visits, hospitalizations, emergency department visits, admissions to long term care, and diagnostic testing (Zhang et al., 2014).

A serious threat to the overall physical, mental, and economic health of Americans is non-adherence to medication regimens. Poor medication adherence can have adverse outcomes ranging from acute exacerbations of disease to premature death. Avoidable, increased utilization of healthcare resources in the form of emergency department visits, hospitalizations, and nursing home placements can be directly related to non-adherence (Zhang et al., 2014). According to the National Council on Patient Information and Education (NCPIE) (NCPIE, 2007), the relationship between health literacy and medication adherence has been found to significantly affect a patient's ability to follow treatment regimens. Although it affects consumers of all ages and both genders, of particular concern are those aged 65 and over. Senior adults have more long-term chronic illnesses, purchase 30% of all prescription medicines, and often combine multiple medications over the course of a day. Poor medication adherence is also just as likely to involve higher-income, well-educated people as those at lower socioeconomic levels, regardless of age and sex (NCPIE, 2007).

DNP Project PICOT Statement

In order to increase patient education regarding medications, all inpatient clients received education regarding new medications during their hospitalization. Before this objective could be met, all nursing staff needed to be educated regarding the importance of patient education, improving patient outcomes, and hospital reimbursement methods. Nursing staff received education on the importance of patient education and the relationship to improving health outcomes, reducing acute care hospitalizations, and increasing health literacy. In-service education meetings were provided in a manner

accommodating all shifts and employees on the inpatient units. The next step in assisting nursing staff to engage in active teaching was one-on-one guidance during actual practice.

For the hospital, improved HCAHPS scores directly related to patient education have the potential to increase reimbursement rates from CMS. Additionally, hospital ratings regarding actual patient experience, which are available for public viewing, will reflect a more positive reputation. This objective was, and will continue to be, evaluated by reviewing the inpatient hospital scores (HCAHPS) collected and released by Press Ganey on a weekly basis.

PICOT

P – All licensed nurses currently working on the medical/surgical/telemetry unit.

I – Active participation in providing medication education to hospitalized patients on the medical/surgical/telemetry unit.

C – HCAHPS scores prior to and following new medication education process implementation

O – HCAHPS scores increase after implementation of new procedure for providing new medication education for inpatients.

T – January through July, 2017

PICOT question. Will HCAHPS scores for the medical/surgical/telemetry unit at a hospital in the southeastern United States increase after implementation of a program addressing nursing communication regarding medications?

Organizational Assessment (SWOT Analysis)

The facility for this project is part of a larger healthcare organization, and has many resources available to reach inpatient clients with medication education. Recently,

smart televisions were installed in every inpatient room on the medical/surgical/telemetry unit. The GetWell Network operates and services the televisions including programming, patient education, and patient specific medical information. Television services include common cable stations, preloaded current movies, internet accessibility, serenity videos, and gaming options. Patients have access to disease specific educational videos, active patient specific medication lists, and opportunities to ask providers questions via this network. Each room is equipped with a hand held remote and a keyboard for network access. The hand held remote is also the nurse call system. Once a patient is assigned and registered to an inpatient room, all of the information becomes patient specific. The television screen will display a greeting including the patient's name upon initialization. Daily, timed messages and questions appear on the screens which patients/family members are persuaded to answer. Answer choices are "Great", "Fair", and "Not Great". These messages contain questions relative to the patient's experience such as cleanliness of hospital, nighttime noise level, preparation for discharge, staff's ability to meet patient needs, and if staff described medication side effects. Questions are presented in Table 1. Questions are not the same as those on the HCAHPS survey, but can be linked to one of the HCAHPS domains. Messages will remain on the television screen until a response is made using the remote or laptop device. Whenever a patient answers a question with a less than acceptable response (Fair or Not Great), notification can be sent directly to the charge nurse via electronic messages if the facility desires this component.

Table 1

Patient Experience Perception (PxP) (personal communication Meghan Scannell, GetWell Network, 2017)

HCAHPS Domain	Question	Complete	Notifies Charge Nurse
Nurse Communication	How are the nurses doing listening and explaining things to you?	Great	Fair and Not Great
Doctor Communication	How are the doctors doing listening and explaining things to you?	Great	Fair and Not Great
Staff Responsiveness	How is the staff doing answering the call light?	Great	Fair and Not Great
Pain Management	How is the staff doing controlling your pain?	Great	Fair and Not Great
Medication Teaching	How is the hospital staff doing teaching you about your medications and side effects?	Great	Fair and Not Great
Discharge Information	How is the hospital staff doing helping get you ready to leave the hospital and recover at home?	Great	Fair and Not Great
Quiet at Night	Have you been bothered by noise outside your room at night? How is your night's sleep?	Great	Fair and Not Great
Room Cleanliness	How is the staff doing keeping your room clean?	Great	Fair and Not Great

Another effort for improving communication between hospital staff and inpatients is the use of communication boards. Dry erase boards are strategically attached to the wall in each room allowing for best visibility for the patient. Information commonly found on the communication boards includes discharge planning, staff names and phone numbers, and any other pertinent information for staff and/or patient.

Opportunities include increased patient satisfaction scores reflected on the survey results, increased interdisciplinary team management of patient care, and increased patient medication understanding to increase adherence and decrease adverse outcomes from poor medication compliance. As the weaknesses have a direct impact on the strengths, so do the threats on the opportunities. Lack of nursing and pharmacy follow through directly impacts the success of patient education to promote adherence. Negative response from either professional discipline may distract the patient/family from realizing the importance of personal knowledge in regards to post hospitalization health maintenance. The SWOT analysis is presented in Table 2.

Table 2

SWOT Diagram

SWOT Diagram	
Strengths	Weaknesses
Part of a larger healthcare system with vast resources- GetWell Network Leadership/Pharmacy buy in for increasing scores	High staff turnover rates Lack of nursing interest Poor HCAHPS scores Lack of patient participation
Opportunities	Threats
Increasing HCHAPS scores Increasing patient/family knowledge Pilot program for other facilities Increased patient medication adherence Decreased use of outpatient resources Decreased drain on economic resources	High staff turnover rate Lack of nursing interest Lack of facility buy in

SECTION III

Goals, Objectives, and Mission Statement

Goals

The most important goal of this project was to increase knowledge and self-agency by providing medication education on new medicines to the hospitalized patient. The second goal was to increase nursing staff understanding of the relationship between patient education and better patient outcomes. As a consequence of successful training and staff compliance, the hospital will achieve acceptable levels of patient satisfaction scores and potentially increase insurance reimbursement rates.

Objectives

In order to increase patient education regarding medications, all inpatients received education regarding new medications during their hospitalization. Before this objective could be met, all nursing staff needed to be educated regarding the importance of patient education, improving patient outcomes, and hospital reimbursement methods. Nursing staff received education on the importance of patient education and the relationship to improving health outcomes, reducing acute care hospitalizations, and increasing self-agency. In-service education meetings were provided in a manner accommodating all shifts and employees on the inpatient unit.

For the hospital, improved HCAHPS scores directly related to patient education have the potential to increase reimbursement rates from the Centers for Medicare and Medicaid Services. Additionally, hospital ratings regarding actual patient experience, which are available for public viewing, will reflect a more positive representation. This objective will be evaluated by reviewing the inpatient hospital scores collected and released by Press Ganey Company.

Mission Statement

This project was intended to provide a fundamental, educational framework for those clinical nurses working in an acute, inpatient care setting. By instituting a simplistic method for increasing patient self-agency, these same nurses are enabled to incorporate medication education into daily routines with minimal time investment. In a direct correlation to increased medication education provided to the hospitalized patient, patient satisfaction scores will increase.

SECTION IV

Theoretical Framework

Dorothea Orem's Self-Care Deficit Theory of Nursing (SCDTN) conveys that nursing practice situations embrace both theory of self-care and self-care deficits (Orem & Taylor, 2011). According to Orem and Taylor (2011), the structure of self-care agency is the acquired capability of individuals to meet their personal requirements for self-care based on knowledge that people already engage in self-care judgments and decision-making. It is important for these same individuals to develop skills and habits necessary for continuing engagement in self-care.

Orem's Self-Care Deficit Theory guides nursing in the closing of self-care informational gaps for patients. According to Rigdon (2010), self-care theory contends humans have a therapeutic need for self-care. Self-Care Deficit Theory proposes that people may be unable to perform self-care because of lack of knowledge or ability. This is where nursing intervention is needed with the intention of moving patients in the direction of independence. As patients see their healthcare situation from their own perspective, nurses should identify and implement approaches specifically tailored to their needs. Achievement of health results is largely based on the capability and motivation of nursing staff (Orem, 1991).

Self-care agency is the individual's potential to engage in self-care via personal judgments and decision making throughout life. Self-care is a goal-seeking action and persons engaged in such actions must possess the capability for self-care requirements. (Orem & Taylor, 2011). A self-care deficit is the relationship between a "person's therapeutic self-care demands and their ability to engage in self-care agency when agency is not equal to knowing and meeting their therapeutic self-care demand" (Orem & Taylor,

2011, p. 37). Craam et al. (2013) identified social, cognitive, and physical functioning correlate directly with self-management abilities and well-being. Individuals of particular concern include those elderly with low levels of social, cognitive, and physical functioning.

Orem considers self-care to be an essential form of health care due to its designation as a human regulatory function. Considered a goal-seeking action, individuals deliberately perform actions for their own sake. Results related to health include primary prevention, treatment, and rehabilitation. Powers and capabilities developed by the individuals must be protected and regulated to prevent harm and nurture personal development and self-agency. However, it is essential for persons engaged in these behaviors to have the capacity to meet individual requirements of self-care (Orem & Taylor, 2011).

SECTION V

Best Practice Project Implementation

All nurses assigned to work on the medical/surgical/telemetry unit were invited to attend in-service education regarding implementation of a new process to increase medication education for the hospitalized patient. Prior to implementation, mass notification was sent to all nursing staff on the facility's group email. Additionally, flyers listing dates, times, and presentation locations were posted throughout the unit on staff bulletin boards, main nursing unit areas, break areas, and staff bathrooms. Prior to presentation start times, on-site unit visits were made to give verbal reminders and encourage attendance.

Project implementation began with initial in-services scheduled every 30 minutes from five until nine in the evening every day for two weeks. Start times were adjusted to accommodate teammates who were actively working at the time of attendance. The majority of the presentations were held in the medical/surgical/telemetry staff break area. Other in-service locations included unoccupied patient rooms on the unit to accommodate staff requests. Pre-presentation surveys designed to discern years of nursing experience, level of nursing education, and individual practices regarding patient education during medication administration were handed out and collected directly before start of the in-service. A PowerPoint presentation including identifying health literacy and its relationship to patient self-agency; the relationship between nursing, medication education, and hospital reimbursement; and ways to incorporate medication education into daily routines was presented. The importance of project sustainability through the clinical advancement program for those interested was also included.

A Common Medication Side Effects sheet was available for nursing staff to use as a quick reference. Seventy common medications were separated into 16 categories and the most common side effects were listed. According to commonality of side effects, categories were color coded to enhance identification and provide visual enhancement. This information was further condensed onto a three by four inch laminated card given to each employee which was intended to be worn on the employee badge holder and could be utilized as a quick medication use and side effects reference. The Common Medication Side Effects sheets include the disclaimer that patients should also see discharge instructions for more information about medications and side effects. Patients are also encouraged to notify nursing if any of the side effects were experienced.

The medication education sheets were placed on the communication whiteboards using magnetic clips in unoccupied rooms in anticipation of new patient room assignments. Plastic pocket folders labeled “Med ed sheets for new patients” containing several copies of the medication sheets were placed in each mobile computer workstation used by nursing. Additional copies were placed in a labeled, plastic folder in a wall pocket located at the main nursing station directly above the nursing cell phone charging station. Four by six brief instructional, laminated “cue cards” were attached to each mobile workstation using metal book rings for easy reminders as well. These cue cards provided directions for use on one side and a pictorial example on the other. In an attempt to capture those who did not attend, an instructional guide for the new process was placed in the mandatory education notebook located at the main nursing station. The instructional guide was also given to the nursing supervisor for placement in the new staff orientation manual.

The new process for providing medication education was developed over a period of several months. Simply stated, nurses give each new admission a Common Medication Side Effects sheet for later reference. After informing the patient and/or family member the purpose of the sheet, it is to be placed in either the patient's white plastic hospital information notebook which is provided to each patient upon admission, on the communication whiteboard, or a patient preferred location. Placement on the whiteboard is optimal as it is in direct view of the patient and staff members. As nursing begins the medication administration process, medications identified as new by pharmacy staff will be brought to their attention via the electronic medication administration record (eMAR). A recent process improvement by pharmacy allows for the differentiation between actual "new" and previous home medications. This ensures nursing is truly addressing new medications and eliminates redundancy. Before administration of the med, nursing will state "This is your _____ to treat your _____ and a possible side effect may be _____". Using the Common Medication Side Effects sheet, nursing will mark the identified medication, use, and side effect for the patient. Placing the sheet in an easily accessible area in the patient's room provides a visual reminder for both the patient and nursing staff. The same sheet can be utilized by all nurses during the hospitalization. Another process improvement occurred just prior to implementation. When a new medication is flagged for nursing, a link to the education teaching record (ETR) appears. This is a big time saver allowing nursing to document at the point of care instead of writing down the names of the medications for documentation later; which may be forgotten or omitted. Nurses were also encouraged to use the evidence-based teaching method teach-back to involve the patient and/or primary caregiver in the teaching

process. It asks the learner to restate the information taught to them in their own words as a method to assess understanding of the material.

After completion of the presentations, unit rounding and staff support was provided. Nurses were asked how the process was working during medication rounding. Assistance was provided during peak and non-routine medication times. It was determined that the discharge process was also an excellent time to address new medication education with patients. Assistance with the discharge process was also provided. Nursing comments ranged from "I love doing this" to "I usually only give the reason". Copies of the medication education sheets were placed on the communication boards in empty patient rooms, replaced in folders on the mobile workstations and at the main nursing station.

One barrier to the success of the project included staff nurse reluctance to attend the in-service offerings. At times, nurses would walk by the presentation area and proceed to clock out to go home. Others would state they did not have time or would attend later. Personal encouragement to attend resulted in several participants. Another barrier to success was the preconceived notion that there is insufficient time to provide this education to the patients. Twenty-four out of 41 or 58.5% of participants responded that time was the greatest barrier in providing medication education to their patients in their pre-presentation survey. However, all participants considered medication education to be an important component of medication administration.

SECTION VI

Project Evaluation

Interpretation of Project Outcomes

Forty-one nursing staff members attended the project presentation. Of those attending, six were certified nursing assistants, three were licensed practical nurses, 19 were associate degree nurses, 12 had a bachelor's degree, and one was a diploma graduate. The majority, 51.4%, were considered novice nurses with less than five years of nursing experience. Nurses with six to ten years of experience represented the next largest group with nine, or 25.7%. After adjusting for non-licensed personnel, 78.7% of participants reported they told the patient the reason for medications at the time of administration. Of these, 63.6% reported they informed the patient about medication side effects.

Data collected and distributed by the Press Ganey Company is shown in Figure 2. Data revealed great fluctuations in patient perception for communication regarding medications from July 2016 through July 2017. This is response data for the HCAHPS survey questions in an attempt to determine if the patient received new medications, if staff told them what the medication was for, and if possible side effects were discussed before the administration of any new medication.

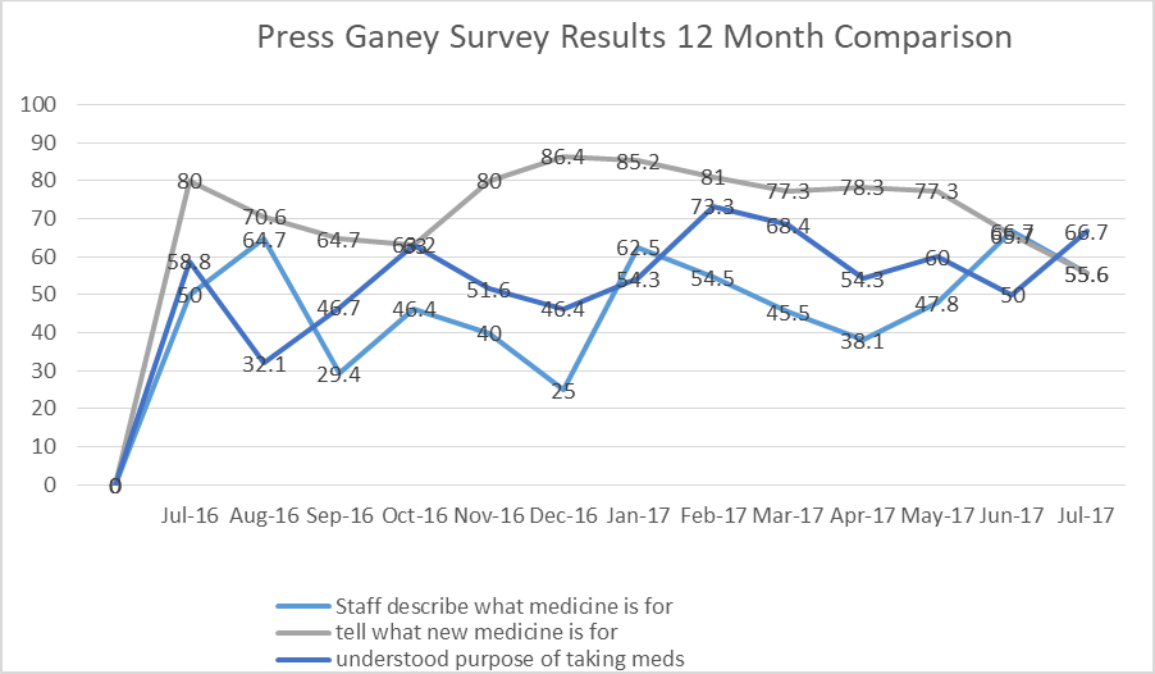

Figure 2. Press Ganey Survey Results: 12 Month Comparison (Press Ganey, 2017)

In the months directly preceding project implementation, overall scores regarding "communication about medicines" did not have a lot of variance with the highest score, 68.8%, occurring in May 2017. This is above the national average of 63.4%, which is the desired benchmark (Press Ganey, 2017). There was a decline noted for the months of June and July, 2017. Patient survey response regarding staff education for new medications declined in June and July. Some of the lowest overall response scores occurred for the question regarding side effects education. This information is shown in Figure 3.

The time of project conclusion occurred during the month of July, 2017. HCAHPS data following project conclusion was not yet available, since surveys are administered and returned post discharge. These scores will need to be tracked after hard-

wiring of the new process has had time to occur and patients have been educated using the new process.

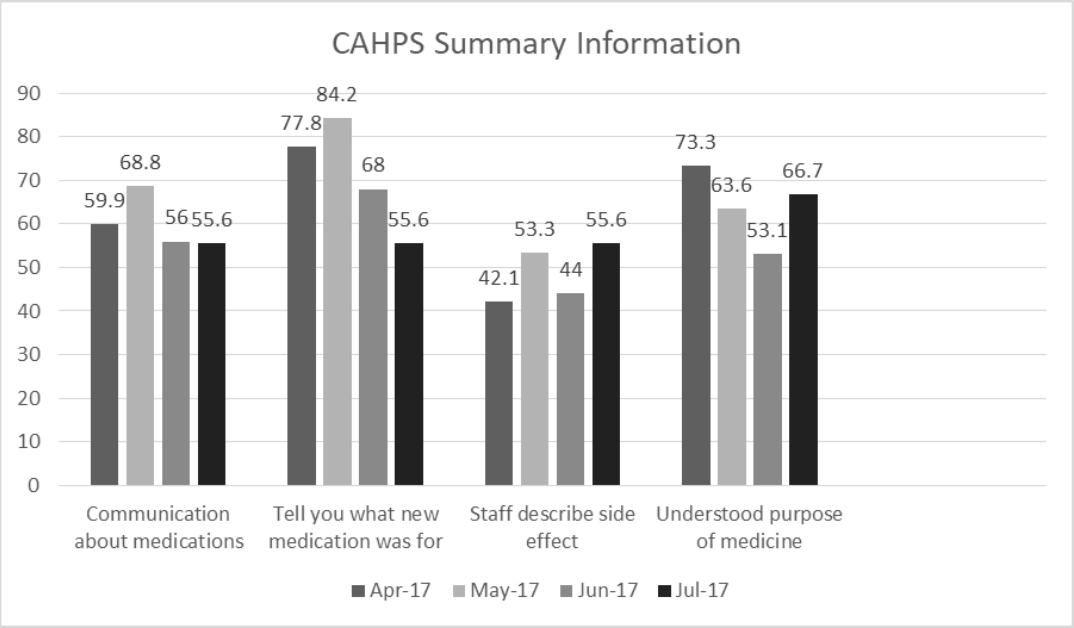

Figure 3. HCAHPS Summary Information for April-July, 2017 (Press Ganey, 2017)

The GetWell Network (GWN) also gathers and disseminates data based on a series of questions geared towards the HCAHPS domains. Participating facilities choose the patient experience perception (PxP) questions and timing most suited to their needs. At the project facility, three different questions appear on the television screen at 1:30 PM. The question targeting staff teaching about medications and side effects appears on day one of their hospital stay and is repeated every third day. A question will appear in the middle of the television screen. Although television shows are not disrupted, patients are unable to fully view previous programming. The question and response box will not disappear until a response has been generated. Patients are able to easily select an answer using the hand held remote or the keyboard assigned to the room. The GWN survey data

is received directly during the patient's hospitalization which reflects their current perception. However, due to their medical condition or ability to navigate the GWN, responses may not clearly reflect patient perception. GetWell Network data is reflected in Figure 4. The data will need to be tracked to determine trends after the new process has been in place.

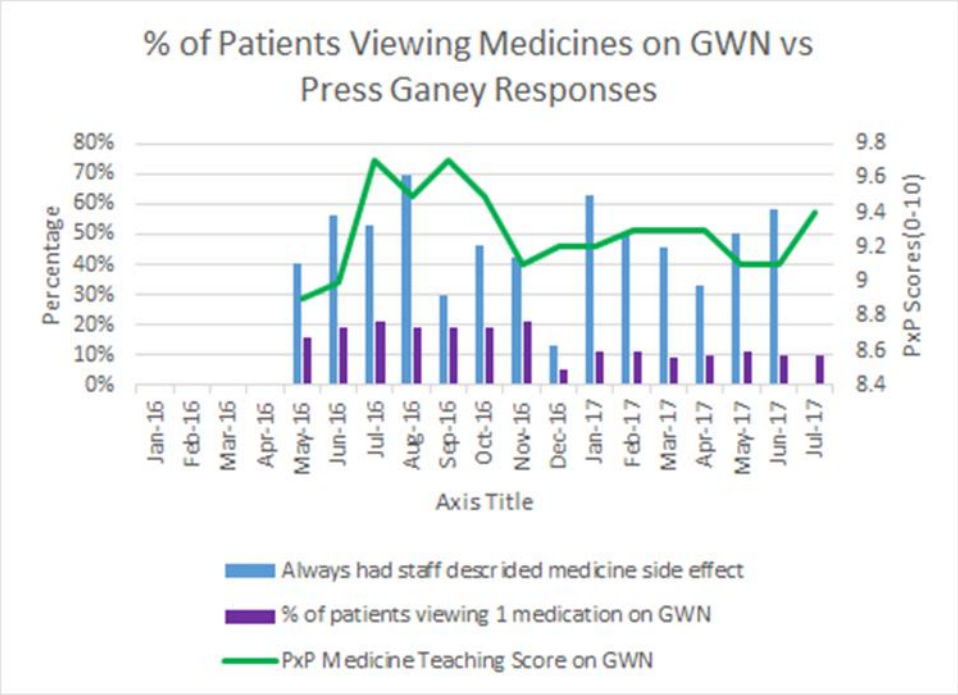

Figure 4. GetWell Network (personal communication Meghan Scannell, GetWell Network, 2017)

Limitations/Difficulties in Project Implementation

There are several limitations to this study. First, patient survey data is collected by the Press Ganey Company in a rolling, open format with an average of six weeks lapse time to receive surveys. The Press Ganey question "Always had staff describe the medicine side effect" is included in the mailed survey and at the conclusion of this

project, no patients from July have returned the survey. The GetWell Network questions appearing on inpatient television screens are not the same questions as those on the HCAHPS survey and are in no way connected to the Press Ganey surveys. However, questions are asked regarding medication teaching and patient responses are received in real time and can directly represent patient perceptions in a given time period. For this reason, data from both surveys needs to be tracked over time.

Project committee member retention was also a challenge. Initially one staff nurse, who was interested in clinical advancement, was assisting in pre implementation data gathering and planning. After several months, she withdrew from the project due to lack of financial reward. Although a staff pharmacist had been on the project planning committee since the beginning, the hospital administration changed leadership from nursing to pharmacy in December 2016. Intervention planning and proposals were developed, presented, and rejected by the pharmacy director. In April 2017, the staff pharmacist resigned. Nursing and pharmacy reverted back to a discipline-centered interventional focus. Additionally, there have been three different directors of nursing for the medical/surgical/telemetry unit from project conception until completion.

Nursing attendance was also problematic. The project presentations were not deemed mandatory to nursing staff, resulting in less than 100% participation. However, many nurses were interested and willing to attend when able. A new unit communication huddle during morning shift change was implemented beginning June, 2017. To decrease confusion, project presentations were scheduled from five o'clock until nine o'clock to capture staff from each 12 hour shift. This time frame also seemed to occur at the busiest times of each shift, which deterred nursing attendance. Several in-service presentation

times and locations were moved to accommodate nursing staff on each 12 hour shift resulting in additional participants.

Recommendations

In the future, projects directly impacting the workload of acute care nurses may need leadership influence to enhance compliance. In-service presentations could also be conducted at additional times and locations to capture the greatest portion of nursing staff. Use of a process map to guide development and implementation would add stability and ownership to the project. According to the US Department of Health Resources and Services Administration (HRSA) (2017), a process map provides a visual diagram for a sequence of events resulting in a particular outcome. Taking time to develop a complete process map would ensure a more continuous flow for project ideas. Development of an interdisciplinary team with committed members would likely enhance project evolution, implementation, and subsequent sustainability. HCAHPS survey scores will need to be tracked, allowing time for hard-wiring the new process and education of patients using the new process. Needed changes can then be implemented.

Conclusion

Process improvement projects can be very beneficial in the workplace. According to Studer (2014), individuals working in healthcare are intrinsically motivated and invested in knowing the reasons for the change in addition to the change itself. Successful process improvement can be lengthy and requires collaboration and empowerment through training and support. An interesting parallel between Orem's Self-Care Deficit Theory and process improvement is noted. As Orem seeks to guide nursing in closing the informational gaps for patients, process improvement projects seek to improve workflow

and close procedural gaps for employees. Additionally, Orem posits that achievement of results is based largely on the capability and motivation of nursing staff (Orem, 1991).

Process or quality improvement projects can be implemented in the workplace for any number of reasons. In this instance, it was used as a platform to meet several objectives. Although the main objective was to increase individual self-agency, it is hoped that this will also result in increased HCAHPS scores and the potential for increased hospital reimbursement.

References

Agency for Healthcare Research and Quality. (2015). Use health education material effectively: Tool #12. Retrieved from http://www.ahrq.gov/professionals/quality-patient-safety/quality-resources/tools/literacy-toolkit/healthlittoolkit2-tool12.htmln

Centers for Medicare and Medicaid. (2014). HCAHPS: Patients' perspectives of care survey. Retrieved from https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/HospitalQualityInits/HospitalHCAHPS.html

Cramm, J. M., Hartgerink, J. M., Steyerberg, E.W., Bakker, T. J., Mackenbach, J. P., & Nieboer, A. P. (2013). Understanding older patients' self-management abilities: Functional loss, self-management, and well-being. *Quality of Life Research 22*, 85–92. doi: 10.1007/s11136-012-0131-9

Edinger, S. (2012). How to Make a Strategy Succeed. Retrieved from https://www.forbes.com/sites/scottedinger/2012/10/26/how-to-make-a-strategy-succeed/#144c89bd88fb

Freitas, F. A., & Leonard, L. J. (2011). Maslow's hierarchy of needs and student academic success. *Teaching & Learning in Nursing, 6*(1), 9-13. doi:10.1016/j.teln.2010.07.004

Geboers, B., de Winter, A.F., Spoorenberg, S.L.W., Klaske, W., & Reijneveld, S. A. (2016). The association between health literacy and self-management abilities in adults aged 75 and older, and its moderators. *Quality of Life Research 25*(11) 2869-2877. doi:10.1007/s11136-016-1298-2

Hayes, C. (2016). Approaches to continuing professional development: putting theory into practice. *British Journal of Nursing*, *25*(15), 860-864.

HCAHPS Hospital Survey. (2017). Hospital Consumer Assessment of Healthcare Providers and Systems. Retrieved from http://www.hcahpsonline.org/surveyinstrument.aspx

Hughes R.G., & Blegen M. A. (2008). Medication Administration Safety. In: R. G. Hughes (Ed.), *Patient safety and quality: An evidence-based handbook for nurses*. (pp. 2-397-457) Rockville (MD): Agency for Healthcare Research and Quality (US). https://www.ncbi.nlm.nih.gov/books/NBK2656/

Ingles, A., & Rossillo, K. (2015). EB91 Medication side effects education tool improves patient satisfaction scores in a telemetry unit. *Critical Care Nurse*, *35*(2), e44-5.

Izumi, S. (2012). Quality Improvement in Nursing: Administrative Mandate or Professional Responsibility? 47(4): 260-267. doi:10.1111/j.1744-6198.2012.00283.x.

Jones, J.H., Treiber, L.A., & Jones, M.C. (2014). Intervening at the intersection of medication adherence and health literacy. *The Journal for Nurse Practitioners, 10(8) 535-53.*Retrieved from http://dx.doi.org.ezproxy.gardner-webb.edu/10.1016/j.nurpra.2014.06.014

King, M. A., & Pryce, R. L. (2014). Evidence for compliance with long-term medication: A systematic review of randomized controlled trials. *International Journal of Clinical Pharmacy, 36*(1), 128-35. doi: http://dx.doi.org.ezproxy.gardner-webb.edu/ 10.1007/s11096-013-9893-6

Koh, H. K., Berwick, D. M., Clancy, C. M., Baur, C., Brach, C., Harris, L. M., & Zerhusen, E. G. (2012). New federal policy initiatives to boost health literacy can help the nation move beyond the cycle of costly 'crisis care'. *Health Affairs, 31*(2), 434-43. Retrieved from http://ezproxy.gardner-webb.edu/login?url=http://search.proquest.com.ezproxy.gardner-webb.edu/docview/921992738?accountid=11041

McTier, L., Botti, M., & Duke, M. (2015). Patient participation in medication safety During an acute care admission. *Health Expectations*, *18*(5), 1744-1756. doi:10.1111/hex.12167

National Council on Patient Information and Education (NCPIE). (2007). *Enhancing Prescription medicine adherence: A national action plan.* Retrieved from http://www.talkaboutrx.org/documents/enhancing_prescription_medicine_adherence.pdf

Office of Disease Prevention and Health Promotion. (2008). Health literacy improvement Retrieved from https://health.gov/communication/literacy/?_ga=1.176853605.1957886678.1477184348

Orem, D.E. (1991). Nursing concepts of practice. (4th ed.). St. Louis, MI: Mosby-Year Book.

Orem, D. E., & Taylor, S.G. (2011). Reflections on nursing practice science: The nature, the structure, and the foundation of nursing sciences. *Nursing Science Quarterly 24*(1) 35–41DOI: 10.1177/0894318410389061

Press Ganey Associates. (2016). CAHPS Summary Information. Inpatient report.

Press Ganey. (2017). CAHPS Summary Information. Inpatient report.

Polster, D. (2015). Patient discharge information: Tools for success. p 43 Retrieved from www.Nursing2015.com

Ratzan, S. C., & Parker, R. M. (2006). Health literacy—Identification and response. *Journal of Health Communication*. 713-715. Retrieved from http://eds.b.ebscohost.com.ezproxy.gardner-webb.edu/eds/detail/detail?vid=2&sid=c9f6339f-07f1-4e98-8630-7f8631d668cd%40sessionmgr101&hid=119&bdata=JnNpdGU9ZWRzLWxpdmU%3d#AN=23519075&db=a9h

Reeve, E., & Wiese, M. D. (2014). Benefits of deprescribing on patients' adherence to medications. *International Journal of Clinical Pharmacy, 36*(1), 26-9. doi:http://dx.doi.org.ezproxy.gardner-webb.edu/10.1007/s11096-013-9871-z

Rigdon, A. S. (2010). Development of patient education for older adults receiving chemotherapy. *Clinical Journal of Oncology Nursing 14*(4), doi: 10.1188/10.CJON.433-441

Schneider, S.M., Hess, K., & Gosselin, T. (2011). Interventions to produce adherence with oral agents. Seminars in Oncology Nursing p 133-141, retrieved from http://dx.doi.org.ezproxy.gardner-webb.edu/10.1016/j.soncn.2011.02.005

Selder, C.R. & Ratzan, S.C. (2000).What is health literacy? In Selder, C.R., Zorn, M., Ratzan, S.C., & Parker, R.M. (Eds). A prescription to end confusion (pp. 31-58). Retrieved from https://www.nap.edu/read/10883/chapter/2

Sentell, T., Zhang, W., Davis, J., Baker, K.K., & Braun, K.L. (2013). The influence of community and individual health literacy in self-reported health status. *Journal of Internal Medicine 29*(2): 298-304. doi: 10.1007/s11606-013-2638-3

Siegel, L. (2012). HCAHPS Medication Safety Journey to Improvement. Retrieved from http://www.marylandpatientsafety.org/html/education/medsafe/2012/documents/Larry%20Siegel.pdf

Studor Group. (2012). A Focus on Nurse Communication: The Most Powerful Composite of All. Retrieved from https://www.studergroup.com/resources/articles-and-industry-updates/insights/may-2012/a-focus-on-nurse-communication-the-most-powerful-c

Studer, Q. (2014). Making process improvement 'stick'. *Hfm (Healthcare Financial Management)*, *68*(6), 90-96.

The Joint Commission. (2016). About the Joint Commission. Retrieved from https://www.jointcommission.org/about_us/about_the_joint_commission_main.aspx

Toole, B.M., Stichler, J.F., Ecoff, L., & Kath, L. (2013). Promoting nurses' knowledge in evidence-based Practice. Do educational methods matter? *Journal for Nurses in Professional Development* 29(4) www.jnpdonline.com

US Department of Health Resources and Services Administration. (n.d.). Health literacy. Retrieved from http://www.hrsa.gov/publichealth/healthliteracy/

US Department of Health Resources and Service Administration. (2017). Quality improvement. Retrieved from https://www.hrsa.gov/quality/toolbox/methodology/qualityimprovement/

Zhang, N.J., Terry, A., & McHorney, C.A. (2014). Impact of health literacy on medication adherence: A systematic review and meta-analysis. *Annals of Pharmacotherapy 48*(6) 741-751. doi: 10.1177/1060028014526562

Zusman, E. (2012). HCAHPS replaces press ganey survey as quality measure for patient hospital experience. *Science Times, 71*(2). Retrieved from http://www.aahs.org/medstaff/wp-content/uploads/HospitalSurvey2013.pdf