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I, Sherrie L. Topper, hereby submit this DNP Project scholarly document as part of the requirements for the degree Doctor of Nursing Practice in Population Health Leadership.

Title of DNP Project:

Medication Communication: An Interprofessional Intervention for Populations with Multiple Chronic Conditions

Student's Signature: [Signature]

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An Interprofessional Intervention for Populations with Multiple Chronic Conditions

A DNP project submitted to the

School of Nursing

in the

College of Professional Sciences

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in partial fulfillment of the

requirements for the degree of

Doctor of Nursing Practice in Population Health Leadership

by

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Abstract

Aims and Objectives: This performance improvement project was designed to increase patient’s knowledge of their medication purposes and side effects.

Background: A majority of older adults take anywhere from five to ten medications per day. With one in nine visits to the emergency department a direct result of drug related adverse events (ADEs), patients do not clearly understand their medications and side effects. Despite the increased focus on prevention of adverse medication events no one intervention has been successful in preventing ADEs.

Design: Institute for Healthcare Improvement’s (IHI) Performance Improvement Method as an intervention to prevent adverse medication events.

Methods: Nursing and pharmacy staff created a medication “time out” where medications were reviewed with patients on a medical-surgical unit in Hospital A, during the hospitalized patient’s stay in specific manner. When the patient was discharged home, random patients were contacted by phone to validate their knowledge of their medications and the effectiveness of the medication “time out” intervention.

Results: Implementation of medication “time outs” enabled patients to verify their medication’s purposes, special instructions, and taking their medication as prescribed. Results from the telephone interviews along with scores from the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) surveys regarding if the patients specifically recalled if hospital staff told them what their medication was for and described its side effects were used to evaluate the intervention.
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Chapter 1

In the past few years, there has been a growing awareness of the importance of patient’s understanding their medications. With a majority of older adults ingesting anywhere from five to ten medications daily (Jyrkka, 2011; Yetzer, Goetsch, & St. Paul, 2011), there are many medication-related hospital admissions. Most admissions, between one and two-thirds are the result of prescribed medications. Considering these facts, patients clearly do not understand their medications and side effects (Xu, Chomutare, & Iyengar, 2014). Additionally, as part of their reimbursement criteria, the Center for Medicare and Medicaid Services (CMS) require that hospitals measure patient’s perception of the quality of care provided by surveying them after discharge using the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey. HCAHPS data is publicly reported on the Hospital Compare Website and updated quarterly. According to the Hospital Compare website as of July 2016, only 65% of patients recently discharged from a U.S. hospital perceived that staff “always” explained the purpose of their medications and its side effects before administering them. This number is not indicative of patients’ understanding their medications and side effects. Care providers must do more to mitigate the risk to the health of the population by increasing patient’s knowledge of their medication purposes and side effects.

Problem Statement

Acute care patients currently receiving care in Hospital A’s medical surgical unit are not getting information about the purpose and side effects of their medications. Over the past year, Hospital’s A’s HCAHPS scores ranged from 50-75%.
Background of Problem

Medication error prevention has been an ongoing national focus for years as described in the Institute for Healthcare Improvement (IHI’s) landmark publication, Preventing Medication Errors (Bootman & Cronewett, 2006). One way to combat medication errors is to ensure that patients are aware of their medication regime, and understand the purposes and side effects of their medications (Phatak et al., 2016). Many variables contribute to patients not understanding their medications. Some of these variables include: decreased physical ability including changes in vision and hearing, non-compliance due to not understanding specifics of a complex regimen, and lack of quality nurse or pharmacist education regarding their medications. Population health management helps patients gain knowledgeable about the significant role their medications play and can lead to improved individual health outcomes, decrease hospital readmissions, and decrease healthcare costs.

A targeted population health program to educate patients in a clinical setting is necessary. This education can be begun in the hospital with interprofessional collaboration by bedside nursing staff, unit pharmacists and physicians working with the patient and their family to improve the patient’s understanding of their medications and side effects (Sirjwardena & Gillian, 2014; Conklin, Togami, Burnett, Dodd, & Ray, 2014; & Smith et al., 2015).

Problem for Nursing

When asking a group of nurses why they chose their profession one will hear repeatedly, because they desire to help people specifically for altruistic reasons (Marino, 2016). Patients are not objects; they are multifaceted and complex human beings. Nurses have the desire to care for patients while making a personal connection. Care providers strive to help them be the best version of themselves and to function at their highest level, regardless of what that level might
be. Nurses at the bedside are one of the best professionals to teach patients about their medications as they are the most trusted professional who is consistently seen in a positive light as a community helper (Sorrentino, Berger, Wadian, & Patrin, 2002).

When patients are readmitted to the hospital or are unsuccessful at home, nurses feel a sense of responsibility (Ekman, Schueufelberger, Kjellgren, Swedberg & Granger, 2007). The nurses in Hospital A are no different. It has been recognized that nursing staff can have a positive impact in helping patients improve their medication adherence (Nurit, Bella, Gila & Revital, 2009). For this project, the nursing bedside staff will partner with the unit pharmacist to include a medication “time out” to ensure emphasis is placed on the importance of patients understanding their medication uses and side effects. The average length of stay for patients on this unit in Hospital A is four and one half days. As a result of this short stay, education is necessary from the beginning of their stay until the end. Teaching must include a focus on purpose, dosage, timing, and side effects to achieve the best results (Downes et al., 2015; Grant, 2012; Holloway, 1996; Pinto & Schub, 2016).

**Significance to the Organization**

Hospital A’s medical surgical unit HCAHPS scores related to the patient’s perceptions of staff explaining their medications to them ranged from 50-75% percent over the past year. In other words, these scores indicate that between 25 – 50% of the patients perceived they were not getting information about the purpose and side effects of their medications. Official HCAHPS data are utilized by CMS for reimbursement and publicly reported at sites such as Hospitals Compare.com. Hospital A’s HCAHPS survey is conducted by Press-Ganey. However, HCAHPS scores and CMS reimbursement are not the main factors driving implementation of a medication education program. With increased understanding, patients are better able to care for themselves,
stay out of the hospital and decrease their healthcare costs: all population health outcomes. However, avoiding readmissions does benefit the hospital since every patient that is readmitted within 30 days has the potential to reduce the hospital’s reimbursement from CMS. Additionally, patients experiencing undesirable outcomes will damage the reputation of the hospital, and could affect public opinion and decrease those presenting for care.

The population served on a medical surgical unit that is the setting for the DNP project is an acute care population with multiple chronic conditions. This project can improve the health of the population served if patients and families understand their medications and side effects. The knowledge gained can reduce adverse drug effects, and in turn, decrease re-admissions and healthcare costs to the patient.

**Population Health Management**

Population health was defined by Kindig and Stoddart in 2003 as “the health outcomes of a group of individuals, including the distribution of such outcomes within the group”. It is an approach to health that aims to improve the health of an entire human population.

“There are a number of challenges to shifting the focus of the healthcare delivery system toward a population health perspective. Clinical care is better understood (and subsequently more valued) by the public than are the broader notions of health and community health. Partly as a result, the aims of public health agencies (that focus on the health of communities) and health care organizations (that typically focus on individual patients) are not aligned, nor are the resources and political visibility associated with them comparable.” (IOM, 2014, p. 7). The health care delivery system is responsible for only a modest proportion of what makes and keeps Americans healthy (National Academies of Science, 2016).
However, more recently Kindig has acknowledged that since the term “population health” has been used in association with the Triple Aim (improving the individual experience of care, reducing per capita cost of care, and improving the health of populations) and in clinical settings, it has led to confusion (2015). He proposes that population health management be used to describe activities limited to clinical populations and a narrower set of health outcome determinants, while population health definition be reserved for geographic populations. Kindig (2015) also states that population health requires that a wide range of disciplines work together and learn from each other.

This DNP scholarly project used the population health management approach working with patients with multiple chronic diseases to better understand the purposes and side effects of their medications in order to maintain or improve their health.

**Affected Stake Holders**

The population served by Hospital A is affected by the proposed project’s efforts to increase medication understanding prior to discharge. The health of the community is influenced by many stakeholders in the surrounding area. Hospital A is part of a large academic health macrosystem that encompasses several facilities. The system’s main hospital is in southwestern Ohio and is associated with a large academic university. Other parts of this system include a long-term care facility, mental health facility, primary care physicians group and Hospital A. Hospital A consists of 148 beds in the fastest growing county in Ohio. This county has a population of 380,000 who have the option to choose any one of the 14 hospitals with in a 25-mile radius of Hospital A for care (Hospital Compare, 2016). The acute care population on the medical-surgical unit is considered the micro system, and consists of 36 medical surgical beds
that house a variety of acute care diagnosis patients. The top three diagnoses for this unit are respectively, pneumonia, sepsis, and kidney failure.

Due to the proximity of four nursing homes, the unit patient mix consists of a heavy geriatric population. Fifty-one percent out of the total number of patients admitted in the last year were greater than age 65. Gem City Healthcare, Hillandale Communities, the Council on Aging and the County Health Department all provide resources for Hospital A, and have a stake in the outcomes of Hospital A’s patients. The contributing agencies’ goals and values are important to the clients they serve. Medicare and Medicaid make up much of the payer sources for this medical surgical unit.

The other stakeholders to consider in this performance improvement project are the nurses, unit pharmacist, physicians, patients, and families. The nurses, unit pharmacist, and physicians are stakeholders because of their professional roles, and want to ensure positive patient relationships with effective teaching.

**Purpose of Project**

The purpose of this scholarly performance improvement project is to determine if an interprofessional bedside teaching plan can increase the acute care patient’s knowledge of their medications and side effects on a medical surgical unit in Hospital A.

**Specific Aim**

The specific aim of the project is to develop an interprofessional bedside teaching plan to impact the acute care population’s knowledge of their medication and their side effects. The goal will be to increase patient’s understanding of their medications by inclusion of a bedside medication “time out”, and validated by discharge phone call confirmation and HCAHPS scores. The goal of this performance improvement project is to increase patients’ perceptions of
medication education explanations by interprofessional staff members by five percent over a 60-day time-period.

To accomplish this specific aim, the following will need to occur:

- All unit nurses and the unit pharmacist will work together to increase patient’s knowledge about their medications and side effects by implementing bedside “time out” teaching session incorporating evidence–based practices.
- Nurse champions on the medical surgical unit will develop and implement a medication “time out” tool.
- Nurse champions will determine a discharge phone call questionnaire, and calls will be conducted by unit nurses to validate patient knowledge and understanding of medications and side effects.
- This acute care population’s perceptions of medication education will be validated through HCAHPS scores and phone calls to these patients after discharge.
Chapter 2 - Literature Review and Theoretical Framework

A review of the literature related to the key concepts in medication communication and the relationship-based care model are discussed in this chapter. The key concepts in this geriatric acute care population are medication errors, side effects, medication time out and HCAHPS scores.

Medication Errors

Medication errors are defined as any preventable instance which leads to the misuse of the drug, or injury to the patient while taking the drug when under the care of the health team or within the patient’s control (Saghafi & Zargarzadeh, 2014). Frequently, patients are hospitalized as a result of medication errors. Errors could be omission, overuse, or in tandem with other medications causing negative outcomes. Adverse drug events are an injury incurred as a direct result of the use of a drug (Wilson, Greer & Weeks, 2014). While adverse drug events can occur from medication errors such as forgetting to take a drug, or taking the wrong dose, they can also occur due to side effects of their prescribed medication taken correctly (Gabe et al., 2011). Not understanding the side effects assigned to a prescribed medication puts patients at increased risk for experiencing unwanted outcomes (Ahrens & Wirge, 2013). The greater number of medications a person takes the more likely they are to experience unwanted side effects (Saghafi & Zargarzadeh, 2014).

Medication Time Out

A medication “time out” is a new term created for this interprofessional performance improvement project. A “time out” is defined in this project as a specific time during the course of hospitalization that a member of the interdisciplinary team (RN or Pharmacist) sets aside to discuss the medication purposes and their potential side effects with the patient. The purpose of
this ‘time out’ is to ensure patient understanding and assess comprehension. This “time out” can occur verbally, enhanced with printed medication materials or with aid of the bedside tablet. The bedside tablet is an I-pad that is assigned to the patient upon admission to help them keep track of their medications, and allow them to review purposes and side effects specific to their medication listing. The bedside RN can utilize this tool as a teaching vehicle with the patient to aid in medication understanding (Neafsey, Strickler, Shellman, & Padula, 2001). Numerous studies have shown that patient education is an effective means to help patients gain confidence in managing their care (Gabe et al., 2011; Yehle & Plake, 2010). At the present time, there has not been one intervention that has shown positive results in the hospital setting to increase patient’s medication understanding (Nieuwlatt et al, 2014; Ryan et al, 2014). Instead, the greater number of medication education interventions provided, the more likely the patients will experience positive outcomes (Xu, Chomutare & Iyengar, 2014).

**Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS)**

The Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) is a national, standardized survey that allows patients to rate their healthcare experiences based on their perceptions. HCAHPS is a CMS driven process that was initiated in 2006 (Jaquis et al., 2011) In 2012, CMS mandated the use of HCAHPS quality measures utilizing survey methodology. Patients were asked to rate their hospital stay. Their responses can impact CMS reimbursement to the hospital for that inpatient stay. (Zusman, 2012). This standardized survey consists of 32-item specific questions regarding overall hospital ratings, experience with doctors, experience with nurses, medication questions and environment of care questions. Public reporting of HCAHPS results creates incentives for hospitals to improve quality of care and enhances accountability in health care by increasing transparency of the quality of hospital care provided in return for the public investment. HCAHPS question results can be viewed at hospital compare.com
to allow for consumer comparison and transparency. Hospital A’s vendor for conducting the HCAHPS survey is Press Ganey. Press Ganey has been in the business of surveying patients for the past 30 years, and for the past five years, based on set guidelines established by CMS for reimbursement (HCAHPS Fact Sheet, 2015). The goal for each unit is survey returns of 30-50 depending on the unit’s size. Press Ganey houses and compares results whenever seven or greater surveys are received. Press Ganey does not release the internal statistical calculations and goals of its surveys. Independent review is necessary. At present, HCAHPS is the chosen satisfaction vehicle for reimbursement from CMS. This is the reason why it was chosen to assess outcomes for this performance improvement project.

**Synthesis of Evidence**

Medication errors are a serious threat to the health of the population. In the Institute of Medicine’s (IOM) 1999 landmark publication, *To Err is Human*, it was estimated that 44,000-98,000 Americans die because of medical errors each year. In the IOM’s follow up article in 2006, they continued to report in their *Preventing Medication Errors Update*, that as many as 400,000 preventable drug related injuries occur each year. These landmark reports indicate that medication misuse is a definite threat to the health of the nation, requiring population health management. The IOM’s findings included medical errors that harm at least 1.5 million Americans every year and are associated with staggering healthcare costs to treat drug related injuries (Polzien, 2007). The most common medical mishaps can be attributed to patients not knowing their medications, and the anticipated side effect of a medication (Phatak et al., 2016).

For the past 20 years, the healthcare industry has known that medication errors pose a serious threat, and yet, they were not always taken seriously (Reilly, Barile & Stuben, 2012, & Ryan et al., 2014). With 91% of all adults ages 57-85 utilizing at least one medication daily, ensuring patient knowledge about their medications and side effects is paramount to safety
(Reilly, Barile & Stuben, 2012). Smith et al, 2015, reported that as many as 27.8% errors were found during medication reconciliation of home medications upon admission to the hospital. This number means that patients are not aware of their medications, purposes and side effects. Despite this increased knowledge about the number of medication errors, errors are still a serious threat to the health of patients (Saghaﬁ & Zargarzadeh, 2014).

Ineffective medication management can be exacerbated in those with illness or recent hospitalization. To decrease errors and adverse drug events, and to increase adherence to medication regimens, interventions are required while a patient is hospitalized to help them achieve optimal health care goals.

**Best Practices to Improve Medication Communication**

In preparation for the performance improvement medication education project, the literature was reviewed to reveal best practices to enhance patients’ medication knowledge. As a part of this literature search, the databases CINAHL, MEDLINE and Cochrane Library were utilized. Refer to Table 2.1. Data Base/Keywords Table for Comprehensive Literature Review, for a breakdown of completed searches and articles studied. The keywords, medication education, medication teaching, and interventions for medication were searched. The results yielded many articles. To further focus the search, qualifiers were added for medication teaching and education such as; acute care, geriatrics, patient satisfaction, interventions for medication adherence, and medication adherence acute care. The search was limited from 1996 to present day as information in healthcare changes rapidly, and it is desirable to find the most up to date research findings. Many of the original articles were found to be duplicates. In total, 53 articles were included as appropriate for the goals of this project.
### Table 2.1. Data Base/Keywords Table for Comprehensive Literature Review

<table>
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<th>Database Results/Key Words</th>
<th>CINAHL</th>
<th>MEDLINE</th>
<th>Cochrane Library</th>
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<tr>
<td>Medication Education</td>
<td>973</td>
<td>1328</td>
<td>0</td>
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<tr>
<td>Medication Teaching</td>
<td>146</td>
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<td>Medication Acute Care</td>
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<td>Medication Geriatrics</td>
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<tr>
<td>Medications Patient Satisfaction</td>
<td>56</td>
<td>82</td>
<td>0</td>
</tr>
<tr>
<td>Interventions for Medication Adherence</td>
<td>59</td>
<td>43</td>
<td>107 RCT’s*</td>
</tr>
<tr>
<td>Medication Adherence Acute Care</td>
<td>22</td>
<td>80</td>
<td>75 RCT’s</td>
</tr>
</tbody>
</table>

*=randomized clinical trials

After reviewing 53 pertinent articles, patient education was clearly identified as a key nursing activity. Bedside nurses in the acute care setting are in a prime spot to ensure patients understand their medication and manage their health (Kimbell et al, 2010). The data were explicit that not one intervention is successful in improving patient adherence or decreasing adverse drug events (ADEs) (Nieuwlatt et al., 2014; Ryan et al, 2014; Shah, Desai, Gajjar & Shah, 2013). Successful education tactics identified included:

- Nursing and pharmacist working together
- Nursing creating time for bedside education
- Verbal and written information or bedside tablet
- Patient-centered initiatives
- Social support
- Teach-back method
• Discharge phone calls

**Interprofessional Medication Education**

Previous research suggests that nurse and pharmacist interaction is essential in providing discharge teaching to decrease errors and adverse drug events (Calbrese et al., 2003; Phatak et al., 2016). In addition, when pharmacists teach about high risk medications and develop practical, affordable regimens, it increased patients understanding of their disease management (Gilmore et al., 2015; Smith et al., 2015) During interdisciplinary rounds it is the perfect time for RN-pharmacist communication about what teaching activities need to be completed with the patient, and by which discipline (Penderson, Schneider & Scheckelhoff, 2010; Reilly, Barile & Reuben, 2012). When interpreting the literature, it is easy to extrapolate a medication education program that is required by pharmacy and the bedside RN. Each discipline needs to be aware of the others’ actions in the acute care setting to decrease adverse drug events, and ensure patients are aware of their medications and their side effects. Population health requires that a wide range of disciplines work together and learn from each other (Kindig, 2015).

**Making Time for Education**

Busy shifts are the norm in the daily routine of the bedside RN. Often teaching patients about medication comes after the more immediate responsibilities of administering medications and answering call lights (Smith & Zsohar, 2013). The RN is required to focus on carving out the time to make medication education a priority. This “time out” is not intended to take place just before discharge, as patients have been shown to not retain as much information than if they are taught throughout the stay (Banning, 2004; Cox-Curry, Walker, Hogstel & Burns, 2005; Hayes, 2005). Patients may even retain more information if nurses reinforce their teaching at
other times, such as during medication passes or with other care activities (Nieuwlatt et al., 2014; Smith & Zsohar, 2013).

**Use of Written Instructions During Education**

In addition to establishing a specific time for instruction, benefits have been shown when materials are presented in a written format (Grant, 2012; Hayes, 2005; Sorrentino, Berger, Wardian & Pattrin, 2002). The written format can aide the RN by actively engaging the patient presenting the information in an easy to understand format for patients and their families, providing an organized approach for discussions, and allowing patients to ask clarification questions on the spot (Grant, 2012). The written instructions can be the catalyst for proposing other open-ended questions to assess knowledge or learning deficits (Reyes, 2010).

**Patient-Centered Care**

Providing patient-centered care during medication education is essential. Patient-centered care is defined as the extent to which nurses select and deliver interventions that are respectful of and responsive to the needs and values of individual patients (Poochikian-Sakissian, Sidani, Ferguson-Pare and Doran 2010). Patient-centered care mandates the nurse to assess the needs of the patient without bias or judgement, and tailor their teaching to meet these needs so patients will respond positively (Smith & Zsohar, 2013).

**Social Support**

An important part of patient-centered care is to consider and evaluate the patient’s available social support. Social support is defined as: respecting, knowing, believing in, sharing information with, and doing things for another person (Pinto, Strayer, Schub & Pravikoff, 2016). Having social support and family cohesiveness are strong predictors of patient adherence, and
can help the patient gain confidence in their treatment plans (Yasin, Barghouti, Irshaid & Suleiman, 2012; Hyrkas & Wiggins, 2014).

**Teach-Back Method**

One of the recommended methods for effective teaching is the “teach-back” method. As teaching, has become increasingly complex, ensuring patients and caregivers understand their regimen is a necessary interdisciplinary task. Both the National Quality Forum and the Joint Commission recommend this method to ensure the patient understands their medication instructions (NQF, 2009, TJC, 2007). The “teach-back” technique is prompted by the nurse to have the patient “teach–back” or repeat to nurse the information presented to ensure patient comprehension (Griffey et al, 2015). Patients educated in this manner are able to better manage their medications, fully participate in their treatment plans and follow protocols to achieve care goals (Tamura-Lis, 2013). This method takes health literacy levels into account and ensures that information is presented at the level of the individual patient which is recommended for all learners regardless of education (Jager & Wynia, 2012).

**Discharge Follow-up Telephone Calls**

Another evidence-based recommendation to ensure patients medication knowledge is use of the discharge phone call. Post discharge calls to patients can be utilized to ensure educational interventions were successful in the inpatient setting (Calabrese et al., 2003). Asking a set of targeted questions can successfully verify medication education specifics were retained by the patient after discharge. Validation is required to ensure implemented teaching tactics at the interprofessional level were successful.
Theoretical Framework

Relationship-Based Care Model

The chosen theoretical framework for this unit project is the relationship-based care (RBC) model (Koloroutis, 2004). The relationship-based care model is a culture transformation model, and an operational framework that improves safety, quality, patient satisfaction, and staff satisfaction by improving every relationship within an organization (Tanner, 2006). Good outcomes must be defined in terms of what is meaningful and valuable to the individual patient (Epstein & Street, 2011). Nursing can impact the outcomes of the patient through their professional relationship with the patient. Nursing education needs to be more than instructions and information. Health care providers must to be able to assess patient needs and communicate clearly. The success of patient education depends largely on how well the RN assess patient's needs, concerns, readiness to learn, preferences, support, barriers and limitations (Grant, 2012). Because of this, the RBC model is effectively aligned with a teaching project that is initiated by the bedside nurse and floor pharmacist.

In relationship-based care, decision making is shared. When staff members are clear about their roles, responsibilities, authority, and accountability they gain confidence in their own judgements, and are willing to take ownership for activities at the point of care (Koloroutis, 2004). Hospital A’s professional practice model is the relationship-based care. A schematic version of this hospital’s relationship based care model can be viewed in Appendix A. The tree schematic depicts the relationships between, staff, patients and families. The roots represent the foundation. This is where leadership, shared governance, and strategic information are operational concepts. The trunk or structure supports values and aligns practice with the mission and vision. The branches or processes place the patient in the center of all interventions, and
support a comprehensive partnership towards holistic patient care. The leaves or outcomes are symbolic of outstanding people, quality, finance, growth, community involvement and healthcare excellence. When each employee understands, and puts into practice the principles of this model, they are empowered to partner with the patient and their family to achieve the best patient care outcomes. This model was chosen because the patient is central to all concepts. The same can be stated about this performance improvement project. With patient-centered, relationship-based care the health of the population can be impacted in a positive manner.

**Population Health Management**

Population health management is the focus of this DNP Scholarly Project. A critical component of population health (and part of the Triple Aim), is the economic impact of interventions. If resources were unlimited we wouldn’t have to restrict choices, but they are limited (Kindig, 2015). This is important for clinical populations. The economic and emotional toll on patients and families who have been affected including requiring additional hospital admissions due to adverse drug events is astronomical as discussed earlier in this paper. Hospitals are also affected by denied reimbursements from CMS when patients are readmitted within 30 days of discharge.
Chapter 3 - Methodology

This chapter presents the methodology that was used to create a medication “time out” intervention for patients on a medical-surgical unit in Hospital A so they could be educated in a specific manner regarding their medications purposes and side effects. Evaluation criteria included patients accurately verbalizing how they took their prescribed medications, side effects of their medications, and improved HCAHPS survey scores. Data analysis methods are also described. This process improvement project used the PDSA cycle (plan, do, study and act). In the planning phase (P), the education presented to staff is outlined, reflecting the relationship based care model, as well as importance of improvements in HCAHPs survey scores. In the doing phase (D), review of aims, key drivers and RN champion meetings are discussed. In Chapter 4, the study phase (S) will be presented. Lastly, in Chapter 5, the act phase (A) or future requirements will be addressed to allow for continued process improvement through additional PDSA cycles.

Institute for Healthcare Improvement’s (IHI) Performance Improvement Method

This performance improvement project was designed to increase patient’s knowledge regarding their medication purposes and their side effects. The model utilized for improvement is the IHI’s performance improvement model. This model is a tool that helps accelerate change in a plan, do, study, act (PDSA) manner (Langley et al., 2009). The model also uses a key driver diagram as a visual of the project’s activities desirable to achieve the aim. In other words, a key driver diagram is a simple display of a structured improvement roadmap. It organizes the key drivers (the “what” you need to accomplish the aim) and the interventions (the “how”-change concepts; interventions) into a learning and communication framework. The key driver diagram for this performance improvement project can be viewed in Figure 3.1: Key Driver Diagram.
Figure 3.1. Key Driver Diagram

Aims:

Development of interprofessional bedside teaching plan to impact patient’s knowledge of their medications and their side effects. The goal will be to increase patients understanding of their medications by medication “time out” discharge phone call confirmation and HCAHPS scores increase for medication questions by 5% over 60-day time period.

Key Drivers:

Identification of nurse champions to determine best way to roll out “time out” process and which questions to include to allowing for buy in during process improvement.

Interventions:

2 RN champion group meetings to set stage for medication “time out” process.

Mtg 1: Development of specific questions for time out tracking tool.

Mtg 2: Development of questions for discharge phone calls and nursing call team.

Medication timeout sheet completed with patient once per stay in review of medications.

Staff meeting education with pharmacist to outline which medication items daily that are included in pharmacy rounds.

Outcomes Measures:

1. Increased HCAHPS scores for medication questions.
2. Increased verbalization of patient’s knowledge via discharge telephone calls.

Addition of medication “time out” when administering medications provided by nursing or pharmacy on the unit.

Collaboration between nursing and pharmacy to better understand the roles and identify which professional is best to teach.
The planning phase (P) for this performance improvement project looked at the synthesis of evidence and identified the best practices to improve medication communication in the literature; this was presented in Chapter 2. The doing phase (D) includes implementing the best practices researched in the literature reviewed in preparation for implementation.

Typically, PDSA cycles are repeated multiple times until the desired outcome is achieved. This performance improvement project took place during the 60-day period from December 19, 2016 until February 19, 2017. Therefore, for this scholarly project, only the first PDSA cycle is reported here. A performance improvement process of this magnitude would require at least a year of process improvement initiatives to realize a sustainable goal. With the timeframe for student work in mind, one cycle of the PDSA process was chosen as a small test of change, and as a guide for future work using additional PDSA cycles.

The PDSA model was chosen as it was developed by the Associates in Process Improvement and endorsed by the Institute for Healthcare Improvement (IHI) and has shown good results as an evidenced based intervention (Langley et al., 2009) The goal of this model is to answer three questions.

1.) What are we trying to accomplish?

2.) What change can we make that will result in an improvement?

3.) How will we know a change is an improvement?

**Planning Phase (P)**

In the planning phase, one begins with the result in mind by proposing the answers of the three performance improvement questions:
1. **What are we trying to accomplish?** We are trying to improve medical surgical patients’ knowledge regarding their medications and side effects so that they accurately take their medications, and can prevent or identify if they are having an adverse drug effect.

2. **What changes can we make that will result in improvement?** We are going to implement a nursing and pharmacy medication “time out” in a specific manner during the patient’s hospitalization.

3. **How will we know this change has been an improvement?** Patients will be contacted at home by phone to validate their knowledge of their medications, and the effectiveness of the medication “time out” interventions. In addition, two specific HCAHPS survey questions scores regarding medications will be evaluated to determine if these scores increased as a result of this intervention. After reviewing the literature regarding best evidence to improve patients’ correctly taking their medications and avoiding adverse drug events, the planning phase (P) continued with an organizational assessment. An assessment of the health care system where the practice improvement project took place occurred in order to determine what would be permissible and workable in the organization, and if the project aligned with the organization’s goals and values.

**Organizational Assessment of Hospital A and the Medical Surgical Unit**

Hospital A is part of a large academic health care macrosystem that encompasses several facilities. The medical-surgical unit that is the site for this performance improvement project is the microsystem, and consists of 36-beds. While patients cared for in this unit have a variety of diagnosis, the top three are respectively, pneumonia, sepsis and kidney failure. Due to the proximity of four nursing homes, many geriatric patients make up the microsystem’s daily census. Most patients are on multiple medications; this is consistent with what was identified in
the literature review. Medication reconciliation is completed upon admission by the assigned physician provider, and verified by a pharmacist on duty in the hospital’s main pharmacy. A description of the medical surgical unit’s patient population can be found in Table 3.2. Patient Demographics on the Medical Surgical Unit.

### Table 3.2. Patient Demographics on the Medical Surgical Unit

<table>
<thead>
<tr>
<th>Patient Characteristics</th>
<th>April 1, 2015 - March 31, 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>42.7% N=1376</td>
</tr>
<tr>
<td>Females</td>
<td>42.7% N=1026</td>
</tr>
<tr>
<td>Unknown</td>
<td>0.04% N=1</td>
</tr>
<tr>
<td>Average length of stay</td>
<td>4.53 days</td>
</tr>
<tr>
<td>Range of length of stay</td>
<td>1 day thru 37 days</td>
</tr>
<tr>
<td><strong>Top diagnosis:</strong></td>
<td></td>
</tr>
<tr>
<td>Pneumonia, all types</td>
<td>200 cases</td>
</tr>
<tr>
<td>Sepsis, all types</td>
<td>146 cases</td>
</tr>
<tr>
<td>Acute Kidney Failure</td>
<td>137 cases</td>
</tr>
<tr>
<td>Urinary Tract Infections</td>
<td>101 cases</td>
</tr>
<tr>
<td>Average age of patients seen</td>
<td>63.5 years old</td>
</tr>
<tr>
<td>Total number of patients seen</td>
<td>2403</td>
</tr>
<tr>
<td><strong>Top ages:</strong></td>
<td></td>
</tr>
<tr>
<td>Under 65 years’ old</td>
<td>49%</td>
</tr>
<tr>
<td>65 Years old or greater</td>
<td>51%</td>
</tr>
<tr>
<td><strong>Admission Sources:</strong></td>
<td></td>
</tr>
<tr>
<td>Clinic referral</td>
<td>N=147</td>
</tr>
<tr>
<td>Hospice</td>
<td>N= 1</td>
</tr>
<tr>
<td>Physician Referral*</td>
<td>N=2220</td>
</tr>
<tr>
<td>Transfer from another hospital</td>
<td>N=22</td>
</tr>
<tr>
<td>Transfer from another skilled nursing facility</td>
<td>N=2</td>
</tr>
<tr>
<td>Grand total</td>
<td>N=2404</td>
</tr>
<tr>
<td>*Number includes those presenting through the emergency department</td>
<td></td>
</tr>
</tbody>
</table>

Source: Hospital A’s Electronic Medical record

Hospital A’s vision is to use the power of academic medicine to advance the science of discovery and transform the delivery of healthcare. In addition to this vision, the first of the six
hospital values are placing patients and families first. It is easy to extrapolate that the vision and values of Hospital A play an important role in this project, and on the chosen unit, since the vision and values are focused on aiding patients to achieve the best outcomes regarding their medications and overall health.

The staff on this medical surgical unit consists of 48 nurses, 34 patient care assistants and six health unit coordinators. Of the 48 RNs one is the nursing manager, one is the clinical coordinator and one is the unit educator. These three RNs make up a triad of the unit’s leadership (nurse manager, clinical coordinator and unit educator). Sixty-one percent of the remaining 45 RNs have less than five years’ experience. Additionally, the interprofessional staff includes respiratory therapists, occupational therapists, physical therapists, case managers, social workers, utilization review personnel and pharmacists. Their job is also to ensure patients are cared for daily and helping them achieve the best outcomes.

**Medication Education Process Prior to Improvement Project**

Prior to beginning this process improvement project, the unit’s medication teaching initiatives were not consistent, and depended largely on the individual nurse’s level of engagement. Some teaching did occur at the bedside throughout the patient’s stay. As well as prior to discharge by the patient’s registered nurses. During this teaching, the patients were given a folder with information regarding their medications purposes and side effects. At discharge, an updated medication list was placed in the folder. Only the bedside RN (not the pharmacist) was responsible for placing information in the patient’s folder.

The unit pharmacist was not responsible for medication reconciliation when the patient is first admitted to the hospital, as this task was assigned to a pharmacist in the hospital’s main pharmacy. The unit pharmacist was consulted when needs are identified during the patient’s
hospital stay. The unit pharmacist’s duties included checking each patient’s medication list daily. Specifically, the unit pharmacist ensured antibiotic stewardship, made sure the correct antibiotic was ordered based on culture results and worked with the provider to ensure antibiotics were not overused. In addition, they were utilized to recognize if the patient truly has the subjective and objective symptoms for urinary tract infection treatment. The unit pharmacist is a resource for providers and nursing, as well as to the patient. Per Hospital A’s protocols, the unit pharmacist is responsible for teaching patients about high risk anticoagulant medications at the bedside. As anticoagulants are high risk medications, with the potential for unwanted side effects, the pharmacist and RN were both teaching about these medications at the bedside. Often the patient’s RN was not aware of the medications the unit pharmacist reviewed on each patient, regardless if the patient was on an anti-coagulant or not.

Hospital A’s HCAHPS scores validated that the patients’ perceptions of medication administration education were an existing problem. A closer look was necessary to determine what was required to change.

**HCAHPS Survey Scores**

Over the past fiscal year, Hospital A’s HCAHPS scores regarding patient’s perception of being taught about their medications averaged 66%, which is lower than the state of Ohio’s ranking at 77% (HCAHPS online, 2016). Even worse, the HCAHPS scores for patients’ perceptions of medication education for the medical-surgical unit over the past fiscal year averaged 50% (HCAHPS online, 2016). Patients’ responses regarding staff informing them of the purpose of their medications ranged monthly from 52% to 78.8%. Questions regarding side effects of their medications ranged monthly from 32.1% to 60%. Figures 3.3 and 3.4 illustrate
the HCAHPS Scores for both Hospital A and the Medical-Surgical unit, as scores are related to quality outcomes publicly reported quarterly at Hospital Compare.com (Jaquis et al, 2011).

Figure 3.3. Hospital A Medication HCAHPS Scores Prior Process Improvement Project

(Press Ganey .com, 2016)
Relationship Based Care Model

By utilizing the patient relationship based care model and population health management as the theoretical frameworks for this improvement project, the interprofessional team on the medical surgical unit will uphold Hospital A’s vision and values, because this model includes shared decision making with the patient and their family. Successful outcomes for this improvement project entailed staff and patients partnering together, and staff members being clear about their roles and responsibilities. As identified in the assessment of the unit, nurses and pharmacists were not clear about each other’s roles and responsibilities regarding medication education. Ensuring all patients are aware of their medications and side effects is an important
population health goal. This is both because of the cost in terms of dollars, as well as patients’
inconvenience and potential harm due to adverse drug events, which can lead to readmissions.
This performance improvement project may transform the delivery of healthcare by preventing
medication related negative outcomes (Pasina et al., 2014).

Hospital A’s Support

While the vision and mission of Hospital A fits with this performance improvement
project, permission to implement the project was necessary. During the conception of this
performance improvement process, and after the defense of the project at Xavier University, a
presentation about the project was given to Hospital A’s senior leadership team during their
regular leadership meetings, as they are abreast of all performance improvements and research
efforts in the facility. This presentation time was specifically set aside to allow for leadership
buy-in and a question and answer session. As this group is aware of HCAHPS performance
concerning medication perceptions they were agreeable to the project. The same presentation
was given to the unit’s leadership team consisting of the nurse manager, clinical coordinator and
educator. As these three RNs are a vital part of the daily unit processes, their buy-in was
paramount to obtain in the planning phases. Both leadership groups could easily recognize the
value after viewing the previous calendar year’s HCAHPS scores, and were eager to approve and
be part of these improvement initiatives. Hospital A Medication HCAHPS Scores Prior Process
Improvement Project, (Figure 3.3) and Medical Surgical Unit Medications HCAHPS Scores
Prior Process Improvement, (Figure 3.4) summarize the HCAHPS scores content shared with the
leadership teams.
HCAHPS Survey Questions of Interest

A copy of a sample HCAHPS survey questionnaire for Hospital A is included in Appendix D: Press Ganey Sample Survey for Hospital A. However, for this specific quality improvement project, the DNP student was interested in the questions related to medications. The specific HCAHPS medication questions studied, along with their answer choices were:

How often did staff tell you what your new medication was for?

- Never
- Sometimes
- Usually
- Always

How often did staff describe medicine side effects?

- Never
- Sometimes
- Usually
- Always

Doing Process (D)

A performance improvement bedside medication “time out” was developed and implemented to increase patient’s understanding of their medications. The project leader was the student DNP leader. The DNP project leader created a key driver diagram (Figure 3.1, page 26) to outline the specific interventions to be implemented and tracked throughout this performance improvement project.
Aim

The specific aim was to develop an interprofessional bedside teaching plan to impact the acute care population’s knowledge of their medication and their side effects on a medical surgical unit. The goal was to increase patient’s understanding of their medications by inclusion of a bedside medication “time out”, and validated by discharge phone call confirmation and HCAHPS scores. The measure of this performance improvement project was to increase perceptions of HCAHPS medication education questions by five percent over a 60-day time. The specific aim is the first concept outlined on the key driver diagram.

Key Drivers

In order to meet the specific aim, the following were accomplished. The key drivers were:

1. Identification of nurse champions to determine best way to institute the “time out” process. The nurse champions decided which questions to ask on the medication tracking tool and discharge phone call questionnaire based on the evidence in the literature. The champions were included to allow for buy in during the process improvement period.

2. The nurse champions and unit pharmacist worked together to implement a medication “time out” on the unit.

3. Nurses and the pharmacist collaborated to better understand each other’s roles and identify which professional was best to teach which medications to the patients in this unit. (Pharmacist taught anticoagulants).

Interventions

Interventions are required to allow for key drivers to be accomplished. The following interventions were implemented to achieve key driver number one.
• RN unit champions were determined and two RN champion group meetings were held to set stage for medication “time outs”:
  o Meeting 1, development of specific questions for “time out” tracking tool.
  o Meeting 2, development of questions for discharge phone calls.

To accomplish the second key driver, the addition of a medication “time out” teaching period was developed, along with a time out tracking tool that was filled out by either RNs or pharmacist when they administered medications to the patients to document these activities. A medication “time out” tool was completed once per patient stay after the patient was educated about their medication (See Appendix B: Medication “Time Out” Tool). Although a medication “time out” ideally occurs with every medication administration, the medication “time out” tool was only filled out once per patient stay. The medication “time out” tool was completed by the bedside staff providing the education, either nurses or pharmacists. This “time out” tool was tracked by the student DNP project leader on a data tracking sheet to allow for process improvement to continue after this first PDSA cycle. This information was kept in a locked office computer protected by password.

The third key driver was collaboration between nurses and pharmacists to better understand their roles, and to identify which professional was best to teach which medications. As noted earlier, by protocol, a pharmacist must teach the patients about anticoagulants. A crucial step in this improvement project was to educate the unit’s bedside RNs and pharmacist regarding each other’s roles and responsibilities in educating patients regarding their medications purposes and side effects, as well as bedside teaching concepts. The student DNP project leader met with the unit nurses and pharmacists to review their individual roles and responsibilities, and to ensure they understood that interprofessional collaboration was necessary for success.
Pharmacists were to educate patients regarding their high-risk anticoagulant medications, and RN’s were to teach patients about all their medication during every medication pass, including anticoagulants. To ensure this was accomplished, the student DNP leader met with the unit pharmacists to outline which daily medication items are included in daily rounds.

**Patients to Include in Process**

To be included in the improvement project, patients were required to be admitted to Hospital A’s medical surgical unit between December 19, 2016 and February 19, 2017, prescribed at least one medication, and be able to speak and understand English. In addition, they had to be cognitively intact. For this project, cognitively intact meant they were alert and oriented times three: to their name (person), their current location (place) and could identify the current time (time). If patients were not discharged to their home, they were not included in the discharge telephone calls to complete the medication questionnaire since they would not be receiving a HCAHPS survey. Only patients discharged to their homes and not to a nursing home, receive HCAHPS surveys.

**RN Champion Meeting Number One**

As the specific aim for this performance improvement project was to incorporate an interprofessional bedside teaching plan to impact the acute care population’s knowledge of their medications and their side effects, alignment was required. Unit champions were solicited, and included the unit manager, pharmacist, educator, clinical coordinator, and four volunteer bedside nurses. With the identification of the nurse champions in place, the first meeting was held to
determine a specific medication “time out” process, and to develop or identify a medication “time out” tool to track the bedside teaching plan. After reviewing processes and tools identified in the literature researched by the student DNP project leader, the nurse champions agreed to use a process and tracking tool originally developed by Calabrese et.al. (2003). An example of the actual medication time-out tracking tool utilized can be found in Appendix B: Medication “Time Out” Tool.

Medication “Time Out” Process

A medication “time out” was a new term coined to allow staff and patients to realize the focus was on their medications purposes and side effects. By calling this task a specific name, it made the “time out” an intentional activity dedicated to patient education that could be recognized and remembered during discharge telephone follow-up inquiries. Specifically, during each “time out” with the patients included in this process improvement project, each RN or the pharmacist was required to:

- Have the patient rate their overall medication knowledge on a scale from one to ten, where one meant they knew little or had no knowledge, and ten being very knowledgeable. This question allowed the RN to encourage patient dialog to uncover what individual medication knowledge needs the patient may have.
- Assess the patient’s knowledge regarding each medication’s name, purpose, and side effects, and based on the patient’s accuracy, provide tailored teaching to meet their learning needs. Emphasis was placed on newly prescribed medications as it was likely that the patient knew little about them. During the “time out”, every prescribed medication was not reviewed at the time of every medication administration. The
expectation was that the medications being passed to the patient were reviewed at that time.

One time per patient stay, the medication “time out” activities were recorded for improvement purposes on a medication “time out” tool. This tool was created from previous works (Calabrese et al., 2003), and approved by the unit nursing champions. The medication “time out” tool can be viewed in Appendix A. The information obtained and recorded by using this tool included the following:

- Patient’s rating of their medication knowledge.
- The number of medications reviewed during the “time out”.
- The number of new medications the patient had been prescribed this admission.
- The medication names on which the patient was educated.
- Any other reasons the medication education could not take place.
- Signatures of the reviewing RN or pharmacist to allow for validation of staff participation.

The RN or pharmacist was also expected to include the patient’s social support person(s) during the “time out”, as knowledge is shown to be enhanced, and instructions followed, when care givers are included (Banning, 2004; Kornburger et al., 2013). Specific information about social support was not tracked during this PDSA cycle.

When a patient was discharged, the health unit coordinator removed the completed tracking tool from the chart and placed it in a designated area for review the next morning by the student DNP project leader. Each morning, the student DNP project leader would reconcile discharges with the completed medication “time out” tools to determine daily compliance. Daily compliance pie charts were displayed on the unit’s information huddle board to help the unit work as a team
and do their part in increasing patients’ knowledge of their medications. A pie chart performance example is presented in Figure 3.5: Breakdown of Patients Included in Medication “time out” Education Example.

**Figure 3.5. Breakdown of Patients included in Medication “Time Out” Education**

<table>
<thead>
<tr>
<th>Confused patients</th>
<th># patients med reviewed</th>
<th>Unaccounted for</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>7</td>
<td>0</td>
</tr>
</tbody>
</table>

Medication Communication PI

**Summary One Day. 10 Discharges**

70% Participation

Thanks to the HUC and RN ‘s who are working to improve our processes…

K. Huber, J. Villavicencio, J. Deatley, N. Gortner, & 1 RN name not deciphered

**RN Champion Meeting Number Two**

RN champion meeting number two was held to discuss and decide questions for the medication discharge phone call questionnaire. The nurse champions reviewed the related works of Downes et. al., (2015) and Kimball et.al. (2010) to cement the discharge phone call questions
for this performance improvement project. These studies on discharge phone calls were concerned with medication teaching, and whether patients could validate what was taught about their medications and side effects after they were discharged home.

**Medication Discharge Phone Call Questionnaire**

The specific questions asked included:

1. Did an RN or pharmacist talk to you about your medications during a “timeout”?
2. Did you use the medication list reviewed when you left the hospital?
3. How confident are you about your medications on a scale of one to ten?
4. Were you prescribed new medications? Did you get them filled?
5. Can you identify the medication name?
6. Can you relay the medication schedule?
7. Are you aware of special instructions or side effects of medication identified?

An example of this actual medication discharge phone call questionnaire can be viewed in Appendix C: Confirmation of Discharge Medication Questionnaire.

**Implementation of Medication Process Improvement**

During the pre-implementation phase of the medication “time out”, a staff meeting was held on December 16, 2016. The process improvement project was explained to all the medical-surgical unit’s nursing staff, allowing time for questions and clarifications. The review included a condensed version of the why this project has value to the patient, as outlined in the introduction and literature review chapters previously presented. Also reviewed were daily huddle expectations, and the teaching that was to be provided during each “time out”; i.e., teach-
back expectations, tablet inclusion, medication folder specifics, printed material expectations and pharmacist interventions. Each of these concepts were explained in detail.

**Daily Huddles and Ongoing Processes**

Staff education also occurred at monthly staff meetings and daily huddles throughout the entire span of this unit’s performance improvement period (see Table 3.6. Performance Improvement Timeline).

**Table 3.6. Performance Improvement Time Line**

<table>
<thead>
<tr>
<th>Task</th>
<th>Start Date</th>
<th>End Date</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>IRB Oversight/Approval</td>
<td>9/28/2016</td>
<td>12/5/2016</td>
<td>66 days</td>
</tr>
<tr>
<td>Nurse Champion Meeting- Set &quot;time out&quot; questions</td>
<td>11/29/2016</td>
<td>12/2/2016</td>
<td>3 days</td>
</tr>
<tr>
<td>Nurse Champion Meeting- Set discharge phone call questions</td>
<td>11/29/2016</td>
<td>12/2/2016</td>
<td>3 days</td>
</tr>
<tr>
<td>Attendance at daily huddle and monthly staff meeting to prepare unit for PI, included expectations for &quot;time outs&quot; documentation</td>
<td>12/11/2016</td>
<td>12/18/2016</td>
<td>7 days</td>
</tr>
<tr>
<td><strong>Start of unit PI</strong></td>
<td>12/19/2016</td>
<td>2/19/2017</td>
<td><strong>60 days</strong></td>
</tr>
<tr>
<td>Attendance of daily huddle by DNP project leader</td>
<td>12/19/2016</td>
<td>2/19/2017</td>
<td>60 days</td>
</tr>
<tr>
<td>Service Excellence Committee house wide sharing</td>
<td>1/18/2017</td>
<td>1/18/2017</td>
<td>1 day</td>
</tr>
<tr>
<td>Unit staff meeting-Reviewed pharmacy role and first 25 days of PI</td>
<td>1/19/2017</td>
<td><strong>2/20/2017</strong></td>
<td>6 days</td>
</tr>
<tr>
<td>Discharge phone call discussion and calls made</td>
<td>2/6/2017</td>
<td>2/28/2017</td>
<td>22 days</td>
</tr>
<tr>
<td>Unit champion meeting-Decision made to continue with data collection and PI process</td>
<td>3/2/2016</td>
<td>3/2/2016</td>
<td>1 day</td>
</tr>
<tr>
<td>Continued data collection process</td>
<td>2/19/2017</td>
<td>3/19/2017</td>
<td>30 days</td>
</tr>
<tr>
<td>Champion data sharing meeting</td>
<td>3/2/2017</td>
<td>3/2/2017</td>
<td>1 day</td>
</tr>
<tr>
<td>Data configuration period</td>
<td>3/1/2017</td>
<td>3/12/2017</td>
<td>12 days</td>
</tr>
<tr>
<td>Service Excellence Committee house wide info sharing</td>
<td>3/8/2017</td>
<td>3/8/2017</td>
<td>1 day</td>
</tr>
<tr>
<td>Staff meeting sharing of data unit level</td>
<td>3/19/2017</td>
<td>3/19/2017</td>
<td>1 day</td>
</tr>
</tbody>
</table>
From the onset of the project, the student DNP project leader attended the unit’s daily AM huddles to serve as a reminder of the concepts on which to focus. Specifically, these were the completion of the medication “time out” process, and completion of the time out tracking tools. Daily huddle is a short period at the start of the shift where the charge RN gathers with all unit staff working the shift, reviews what is going on during the shift, and on which unit initiatives the RNs are to focus. Morning huddle was chosen, because it is the expectation that both the dayshift RNs are in attendance, as well as the off-going nightshift RNs. The attendance of nurses from both shifts allows for consistency in daily communications at the unit level. The DNP project leader attended daily huddle for 54 of the 60 days of the project. Daily huddle information changed from day to day based on the performance indicators from the prior day. Included in the update was the information that can be viewed in Figure 3.5. Breakdown of Patients Included in Medication “Time Outs”, page 41. These daily sheets provided information concerning:

- Number of non-English speaking/confused patients
- Number of patients included in the “time out”
- Number of patients unaccounted for or not included in the “time out”
- Percent of participation based on number of discharges
- Thanking the specific RN/Pharmacist that completed the “time out” documentation
- Thanking the HUC daily for making sure the tools were saved for the DNP project leader

Also, included in the huddle communications were verbal reminders regarding areas of focus for the day. Some examples of daily reminders are: Medication “time out” verbiage should be used during every medication pass, review of side effects is just as important as why the patient
is taking the medication, reminders that the unit pharmacist is available for consult, and focusing
on new medications is paramount to patient understanding their medications. These examples
and more were communicated by the DNP team leaders daily to keep the process at the top of the
team’s daily priorities.

After daily huddle, the student DNP project leader would go to each bedside chart to ensure a
medication “time out” tool was affixed inside, labelled and ready for ease of nursing or
pharmacist documentation. Moving from chart to chart and room to room, allowed the student
DNP project leader to interact individually with each RN to assess and discuss their performance.

**Medication “Time Out”**

**Teaching Provided**

At the onset of this project improvement process, and during staff meetings, the student
DNP project leader reviewed bedside teaching concepts to ensure staff were aware of
expectations. Unit nurse and unit pharmacist individual roles were reviewed. At the unit level,
the pharmacist educated about the high-risk anticoagulant medications and RNs were expected to
teach about every medication, including anticoagulants, during every medication pass. The
pharmacist providing one on one anticoagulant medication education at the bedside is standard
practice at Hospital A. The unit pharmacist was always available for a consult with the RN if
questions or specific patient concerns arose surrounding other medication issues. Teaching was
accomplished verbally, by printing medication information sheets from the electronic medical
record (EMR), and/or reviewing the medications on the bedside tablet. Patient readiness and
barriers to learn were assessed; inclusion of social support persons was the expectation. The
teach-back method was also taught and utilized to ensure patient understanding.
student DNP project leader was on the unit almost daily, she was able to witness these concepts and expectations in action among the nursing staff.

**Teach-Back Method**

A part of this medication “time out” education involved assessing the patient’s view of their own medication knowledge. As this self-rating is question is number two on the medication “time out” tool, the RN or pharmacists asked the patient how they would rate themselves in their own knowledge of their medications on a scale of one to ten. One is having very little medication knowledge and a ten rating indicates they feel very proficient. In this manner, the RN or pharmacist could tailor their teaching to a patient’s rating of themselves, and could provide additional education to patients with low knowledge ratings. If the patient verbalized not wanting to participate in the “time out”, the RN would record the refusal, and try again at the next medication administration time. Closer to discharge, the RN needed to record medication “time out” activities to allow for inclusion of encounter in the project data. If the RN was concerned that the patient would be discharged soon, then a refusal of participation would be recorded on the tracking tool.

**Bedside Tablet, Verbal and Written Information**

Bedside tablet technology usage is available in Hospital A to enhance the patient experience. It is a relatively new technology as few hospitals have instituted this practice. Alert and oriented patients are offered this technology to supplement their information, aside from the traditional manner of verbal or written information previously utilized exclusively. The goal is to give patients access to their charts in real time while in the hospital. This will allow the patient and family to partner with their care givers so they have the information they need to positively impact their care. The bedside tablet houses information such as biographical information on
their assigned care team members, as well as their complete medication administration record (MAR). The patient can view their complete MAR, and know what medications are prescribed and when they are due to be administered.

The bedside tablet is a patient-centered intervention and unit metrics are collected about its usage. Early in the patient’s stay, a bedside tablet liaison visits them at the bedside to determine if offering a tablet is appropriate for the patient. Only those patients who are alert and oriented are offered its use. The liaison provides instruction on tablet use. For this project, the tablet was an option to enhance verbal or written medication instructions provided during the “time out”.

**Written Materials on Patient Medications**

During the “time out”, the RN or pharmacist verbally instructs the patient about the medications being administered. Specifically, the staff discusses the medication’s usage and its side effects. To enhance learning, written information sheets can be printed to aid in teaching. The information sheets are printed from Lexicomp, an approved Hospital A vendor for patient medication information. Lexicomp was chosen because their materials are written at a fifth-grade level to accommodate different patients’ abilities to read and understand these handouts. When these sheets are printed, the practice protocol is to review them with the patient, and place them in a folder specifically there to house the encounter information at their bedside. This folder is emphasized as the patient’s information warehouse, and the staff are encouraged to print materials as often as possible. The folder was not a new intervention for this project, but a renewed emphasis was being placed on its usage. Upon discharge, the after visit summary is also placed in this folder. All the information about their stay, such as, diagnosis, medications for
discharge, follow-up instructions and upcoming provider appointments, are placed in the folder for at-home reference.

How Will We Know the Change Has Been an Improvement?

The Study Process (S)

The third IHI question asked was, “how will we know the change has been an improvement?” By conducting discharge phone calls, and asking questions to validate patient’s knowledge of their medication purposes and their side effects, one may determine if the addition of the medication “time out” improved the patient’s knowledge of their medications. As a result of adding the “time out” and conducting discharge phone calls, the unit’s HCAHPS scores on the two medication questions may increase. These scores were projected to increase by 5% after the 60-day project period. The findings from the first PDSA cycle of this quality improvement project are presented in Chapter 4.

Discharge Phone Calls

Hospital A’s Dialysis Unit is adjacent to the medical surgical unit where the student DNP leader project was conducted. Both units report to the same nursing manager. The Dialysis Unit RNs were assigned to complete the discharge phone calls to assess patient’s medication knowledge. as these RNs are not always engaged in performing dialysis, and had time to do the telephone calls. Because these RN’s share the unit’s physical space, and although they do not care for the medical surgical patients on the unit, they do have a vested interest in unit initiatives due to their proximity. From a unit productivity standpoint, this additional duty made sense.

When each patient was discharged, a face sheet with encounter information was printed specifically with patient’s name, address and phone call contacts, as well as to which location the
The patient was discharged; i.e., home, extended care facility, rehabilitation facility, etc.). The dialysis RNs utilized this information when initiating calls. They were to contact only those who were discharged to home, as they were the patients who receive an HCAHPS survey. Calls were placed 48-96 hours after discharge. If the patient did not answer, the RN attempted a second call sometime in the 96-hour timeframe. If they did not answer after two attempts, the patient was sent a hospital initiated letter thanking them for choosing the establishment for their healthcare, and requesting they complete a satisfaction survey from HCAHPS if they received one. If the patient answered the telephone call, the discharge medication questionnaire was completed with their permission (Appendix C. Discharge Phone Call Questionnaire).

Not every patient eligible to participate in this study was called and asked to answer the discharge medication questionnaire. The survey questions were attached to a convenience sample of patients’ face sheets weekly by the student DNP project leader after they were discharged, and only if the patient was discharged to home. Any patient discharged to home had a medication survey attached. Discharge medication questionnaires were attached to 68 patient charts.

If patients were contacted by telephone, and answered the discharge medication questionnaire, the health unit coordinator stored the completed questionnaires in a secure locked drawer for the student DNP project leader to analyze. For this first PDSA cycle, targeted was minimum of 30 different patients for completed discharge medication questionnaires. The goal of the DNP project was to validate if patients remembered the education of medication “time outs” occurring, and if they could accurately state their medication purposes and side effects.
HCAHPS Surveys Results

In addition to completion of the discharge medication questionnaire, patient’s perceptions of the education they received were evaluated through HCAHPS survey results scores. During research for this project, there was no literature identified that indicated the amount of increase in HCAHPS scores that could be expected by adding a medication “time out” teaching intervention. As the goal was to be successful in increasing knowledge about medication purposes and side effects, the unit’s average 2016 yearly score for both questions was identified, and if the HCAHPS scores increased, the improvement project would be considered a success.

To allow for a small test of change, the unit’s HCAHPS scores were targeted to increase by five percent after the conclusion of the 60-day PDSA cycle project period. To determine the five percent increase, the average of a year’s data of the unit’s HCAHPS scores for the two questions of interest were examined to negate monthly natural fluctuations.

For the new medication purpose question, the average unit score for the past calendar year was 63.67%. Therefore, if a five percent increase in scores was obtained, the 60-day average would need to increase to 66.85 %, or a 3.18% increase. The medication side effects question average unit score for the past year was 44.24%. To realize a five percent increase, the 60-day average goal was set at 46.45% or a 2.21% increase over the two-month period.

Process for HCAHPS Survey

Press Ganey is the chosen vendor to send the HCAHPS surveys. This hospital surveys 100% of discharged inpatients, including those who are non-English speaking. When patients go home, 75% receive a paper survey, and have two weeks to complete and return it. If they do not do so in a two-week period, Press Ganey will send the same patient another paper survey for completion, so that every patient gets up to, two invitations to complete a survey. No matter
when a survey is completed, if completed and returned, it will be included in the medical surgical unit’s satisfaction scores. The remaining 25% of patients will receive a survey via e-mail. Press Ganey determines which type of survey patients receive. Not all hospitals survey 75% of patients by paper and 25% by email, but all must obtain 300 completed surveys in a rolling four quarter calendar year for value based purchasing points towards CMS reimbursement (HCAHPS Fact Sheet, 2015). At the present time, only paper surveys are included in HCAHPS results as CMS only reimburses for the paper surveys returned. The e-mail survey results received are utilized solely for performance improvement purposes. It is speculated CMS will change their process to allow e-mail survey results in the future. Until that time, the hospital focuses primarily on the paper surveys, as they are tied directly to reimbursement per value base purchasing program.

Press Ganey allows time for patients to complete and return their survey as well as time for Press Ganey to analyze the responses, and post real time results on their website. Because of these accommodations, there is a six to eight-week time lag after a patient is discharged from the hospital before survey results are available (Press Ganey Online, 2016). Because of this time lag, the data for our process improvement project were retrieved from the Press Ganey website after the first 60-day performance improvement project PDSA cycle was completed on February 19, 2017. These time series study charts were printed and posted on the unit huddle board every two weeks for 30 days after the performance improvement cycle concluded. These time series study charts were utilized to view change over time (See Figure 3.7. Example HCAHPS Unit Results 60-day PI for medication information question results).

After the 60-day project period, the unit RNs continued to collect data, and complete the medication “time outs” as they have opportunities to continue to increase unit scores with
additional PDSA cycles. The timeline of activities for the entire process improvement project can be viewed in Table 3.6. Time Line of Performance Improvement Process, page 43.

Figure 3.7. Example HCAHPS Unit Results 60-day PI for Medication Information

(Press Ganey.com, 2017)
Data Analysis

Data from the “time outs” tracking sheets and the discharge medication questionnaires was compiled and analyzed for trends. Descriptive statistics were also computed. The data were de-identified to ensure patient anonymity. The data tracking was completed by the project leader (DNP student) and unit champions.

HCAHPS scores data for the two questions of interest were compiled, and averages computed. The discharge phone call questionnaire results were also collected and analyzed. For each question answered, a positive response was the goal. The specific questions asked included:

1. Did an RN or pharmacist talk to you about your medications during a “timeout”?
   (Yes/No)

2. Did you use the medication list reviewed when you left the hospital? (Yes/No)

3. How confident are you about your medications on a scale of one to ten? (1-10 rating)

4. Were you prescribed new medications? Did you get them filled? (Yes/No)

5. Can you identify medication name? (Yes/No)

6. Can you relay the medication schedule? (Yes/No)

7. Are you aware of special instructions or side effects of medication identified? (Yes/No)

The affirmative results were reported as a “yes” and a high rating of medication knowledge on a scale from one to ten. If a majority of “yes” answers are received among the discharge phone call questionnaire questions reviewed, the result will show the validation of HCAHPS scores or the contradicting the HCAHPS scores. For the HCAHPS scores to yield positive results, the yearly average for each of the questions must show a 5% increase over the calendar year average received in Figure 3.4. Medical Surgical Unit HCAHPS Scores Prior to
Process Improvement Initiative, page 33. To achieve the goal of a 5% increase for the new medication question the goal 66.81 % and for the medication side effects question the goal is 48.9%. To ensure just the process improvement portion of the HCAHPS scores are counted towards results, percentages included will be for the surveys received during the improvement time frame of December 2016 through April 18, 2017. April 18, 2017 was chosen as the results date, as this was eight weeks after the conclusion of the project and this allows as many patients as possible the time to complete and return their HCAHPS surveys to Press Ganey.

The HCAHPS patient responses can be rated as never, sometimes, usually and always. The questions responses are assigned a one to four value by Press Ganey, and a frequency is assigned based on the number of survey responses received for each answer type. From the total number of responses received, a top box score can be calculated. The top box score indicates what percentage of patients rated the question as always. Top box scores are utilized in this hospital to rate performance, and are calculated solely by Press Ganey.

Protection of Human Subjects

This 60-day performance improvement project could not begin until approval was obtained by local Institutional Review Boards (IRB). On October 27, 2016, the Xavier University IRB granted permission to the University of Cincinnati (UC) IRB for oversight of this student DNP leader project. On December 5, 2016 UC IRB determined that the project was exempt, and no IRB review was required as investigators were not implementing interventions that are not considered out of the daily work flow of the bedside RN. See Appendix E. Documentation of Xavier University (XU) Human Subjects Review and Appendix F. Documentation of University of Cincinnati (UC) Human Subjects Review for details.
Resources/Financial Plan

The primary resource needed for this performance improvement project was increased productivity in the unit nursing staff and pharmacist. The unit staff productivity was impacted as the project’s interventions were included during normal care and treatment of patients and families. The costs associated with education for RNs and Pharmacists were covered by the unit’s operational budget. Discharge phone call time was also included in unit productivity measures. The financial impact was calculated for nurse champion meetings, staff meetings, daily huddle information sessions and the data analysis of the project. The total cost associated with this performance improvement project is estimated at $4386.35 (see breakdown of fiscal involvement in Table 3.8. Fiscal Involvement at Medical Surgical Unit Level).
### Table 3.8. Fiscal Involvement at Medical Surgical Unit Level

<table>
<thead>
<tr>
<th>Task Name</th>
<th>RN Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Start of semester</strong></td>
<td></td>
</tr>
<tr>
<td>Nurse Champion Meeting-set &quot;time out&quot; questions</td>
<td>8 Professional hours</td>
</tr>
<tr>
<td>Nurse Champion Meeting-set discharge phone call</td>
<td>8 Professional hours</td>
</tr>
<tr>
<td>questions</td>
<td></td>
</tr>
<tr>
<td><strong>Staff Meeting Education Sessions</strong></td>
<td><strong>15 min per meeting</strong></td>
</tr>
<tr>
<td>Staff Interviews- Readiness for change questionnaire</td>
<td>6.75 Professional hrs</td>
</tr>
<tr>
<td>Staff Meeting # 1-Pharmacy education</td>
<td>6.75 Professional hrs</td>
</tr>
<tr>
<td>Staff Meeting # 2-Project expectations</td>
<td>6.75 Professional hrs</td>
</tr>
<tr>
<td>Staff Meeting # 3-preliminary data based on PDSA</td>
<td>6.75 Professional hrs</td>
</tr>
<tr>
<td>cycle</td>
<td></td>
</tr>
<tr>
<td>Staff Meeting # 4-final reporting preliminary results</td>
<td>6.75 Professional hours</td>
</tr>
<tr>
<td><strong>Service Excellence Committee</strong></td>
<td><strong>10 minute update</strong></td>
</tr>
<tr>
<td>House Wide Meeting</td>
<td>5 Professional hours</td>
</tr>
<tr>
<td><strong>Daily Huddle Communication</strong></td>
<td><strong>13 staff=.65 per day</strong></td>
</tr>
<tr>
<td>Info Huddle to Ramp Up Project &quot;time out&quot;</td>
<td>4.55 hours this week</td>
</tr>
<tr>
<td>Daily Huddle Info Reminders</td>
<td>20.15 hours this mo.</td>
</tr>
<tr>
<td>PDSA –discussions</td>
<td></td>
</tr>
<tr>
<td>With bedside staff</td>
<td>6 hours</td>
</tr>
<tr>
<td>Discharge Phone Call Time</td>
<td>2 hr x day=10 hrs</td>
</tr>
<tr>
<td>Data Analysis Phase</td>
<td>3 hours</td>
</tr>
<tr>
<td>Project Completion date</td>
<td>3 hours</td>
</tr>
<tr>
<td>total 173.50 hours</td>
<td></td>
</tr>
<tr>
<td>173.5 x 25.00=4,336.25</td>
<td></td>
</tr>
<tr>
<td>+ 50.00 office supplies</td>
<td></td>
</tr>
<tr>
<td>$4386.25 Total</td>
<td></td>
</tr>
</tbody>
</table>

All costs were projected based on the number of staff that historically attended staff meetings and huddles, multiplied by the hours required, times the average RN salary at Hospital A. (i.e., For RN champion meetings 6 RN’s + pharmacist + project leader = 8 staff members’ times 1 hour = 8 hours, as 25.00 per hour = approximately $200.00 per session.) Office supplies were estimated at 50.00. This was a high estimate for newly printed materials only, as the unit is
already expected to print many materials. (see breakdown of fiscal involvement in Table 3.8. Fiscal Involvement at Medical Surgical Unit Level).

In summary, Chapter 3 reviewed the actions required in the planning and doing phases of the PDSA cycle for process improvement on this unit. The education requirements for the staff, and the specifics of the “time out” and documentation were detailed. In Chapter 4, the results of this student DNP leader project are presented. to allow one to surmise the process improvement points that require consideration before beginning the next steps for continued improvement of HCAHPS scores.
Chapter 4: Results

This chapter answers the third IHI process question regarding “How will we know this change has been an improvement?” Results are presented to determine if an interprofessional bedside teaching plan with a medication “time out” increased patient’s knowledge of their medications purposes and side effects. Outcome criteria included improved HCAHPS survey scores regarding patient’s responses to questions about their perceptions of being educated about their medications purposes and side effects in the hospital, and accurately taking their prescribed medications at home as determined by responses to a discharge medication questionnaire administered over the telephone. Descriptive statistics regarding the medication “time out” process are also presented. Process outcomes are briefly discussed as the Study (S) part of the PDSA process is discussed. The number of patients included in the data analysis of the process improvement project are described prior to outcomes.

Patients Included in the Process Improvement Project

From December 19, 2016 through February 19, 2017 there were 575 patients discharged from the medical–surgical unit. Of these 575 patients, 85 patients were excluded from the medication “time out” process improvement project because they were determined to be confused or they were non-English speaking, four patients were excluded because they refused to review their medications, and 34 patients were excluded because their “time out” tracking tools were blank or not completed. The remaining 389 patients had a medication “time out” education session, and the “time out” tracking tool was completed by an RN or pharmacist. Sixty-eight of the 389 patients were targeted for a discharge telephone call to complete a discharge medication questionnaire. Of these 68 patients, 21 were contacted and completed the discharge medication questionnaire.
Discharge Phone Calls

The student DNP project leader identified a convenience sample of 68 of the 389 patients with completed medication tracking tools for discharge phone calls to assess their knowledge regarding their medication purposes and side effects. Twenty-one (31%) of the 68 patients were contacted and completed the telephone discharge medication questionnaire. Over half of the patients (N=46) could not be contacted, and one person who was contacted refused to answer the questionnaire.

HCAHPS Survey

While not all discharged patients completed the HCAHPS survey, Hospital A does have its vendor, Press Ganey, survey 100% of patients who are discharged home (even non-English speaking). Seventy-five percent of the 389 patients had the opportunity to receive the HCAHPS questionnaires because they were discharged to home. This hospital uses paper surveys 75% which is the acceptable format for HCAHPS scores for CMS reimbursement, and 25% email surveys. The e-mail surveys at present provide information that was not reviewed for the purpose of this project, as this 25% do not count towards HCAHPS reimbursement. Therefore, the HCAHPS surveys regarding the patient’s perceptions of being educated about their medications’ purposes and their side effects were sent to a majority of the 389 patients discharged home during the process improvement period. These HCAHPS surveys potentially could have been answered by patients who did not receive the inpatient medication “time out” teaching. It is unknown which patients completed the HCAHPS surveys because their answers are kept anonymous.

The HCAHPS scores could not be finalized until six to eight weeks after the end the first PDSA improvement cycle. The conclusion date of the project was February 19, 2017. As
previously described, to give patents discharged from Hospital A’s medical surgical unit time to complete and return the HCAHPS questionnaires, a six to eight-week time lag was necessary. The HCAHPS question results were pulled directly from the Press Ganey website on April 18, 2017. Thirty-seven patients answered the HCAHPS questions regarding their perception that hospital staff educated them on their medication purposes and side effects. Considering that there were 389 eligible discharges and 37 patients completed the HCAHPS survey, this was a 9.5% response rate. A 9.5% response rate is close to the 10% average paper response rate for this unit to date.

**Results after First PDSA Improvement Cycle**

**Discharge Medication Questionnaire Results**

The discharge medication questionnaire was answered by 21 discharged patients who had received medication “time out” education, and a documented medication “time out” tracking tool. Even though they were required to have a completed “time out” tracking tool to be eligible for the discharge telephone call, we wanted to know if the patient remembered the actual “time out”. All of the patients contacted remembered that medication information was taught to them while in the hospital in the form of a “time out”. Of those 21 patients, 18 received one or more new prescriptions upon discharge, and could name their medications. However, they were not always able to correctly state any specific instructions or side effects of their new medications.
Table 4.1. Patients Responses to Medication Discharge Questionnaire (N=21)

<table>
<thead>
<tr>
<th>Medication Discharge Questionnaire</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>N (%)</td>
<td>N (%)</td>
<td></td>
</tr>
<tr>
<td>Did an RN or pharmacist talk to</td>
<td>21 (100%)</td>
<td>0</td>
</tr>
<tr>
<td>you about your medications during</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a “timeout”?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did you use the medication list</td>
<td>21 (100%)</td>
<td>0</td>
</tr>
<tr>
<td>reviewed when you left the</td>
<td></td>
<td></td>
</tr>
<tr>
<td>hospital?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Were you prescribed new</td>
<td>19 (90%)</td>
<td>2 (10%)</td>
</tr>
<tr>
<td>medications?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If prescribed new medication, did</td>
<td>19 (90%)</td>
<td>2 (10%)</td>
</tr>
<tr>
<td>you get them filled?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can you identify the medication</td>
<td>16 (76%)</td>
<td>5 (24%)</td>
</tr>
<tr>
<td>name?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can you relay the medication</td>
<td>16 (76%)</td>
<td>5 (24%)</td>
</tr>
<tr>
<td>schedule?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are you aware of special</td>
<td>16 (76%)</td>
<td>5 (24%)</td>
</tr>
<tr>
<td>instructions or side effects of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>medication identified?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

During the discharge phone call questionnaires, the patients were asked again to rate their personal medication knowledge. When asked on a scale of one to ten (with one not very confident and 10 very confident) how confident they were about their new medications, all the 21 patients rated themselves with an eight, nine or ten. The majority of the discharge phone call questionnaires yielded positive results, and it is believed these results support the HCAHPS scores validation of this medication “time out” process improvement intervention.

**HCAHPS Survey Results**

**Question 1 (Q1)**

The first medication question on the HCAHPS survey was, “How often did staff tell you what your new medication was for?”. The “never, sometimes, usually and always” question responses are assigned a one to four-point value by Press Ganey. A frequency rate is assigned based on the number of survey responses received for each answer type. From the total number of responses received, a top box score can be calculated. The top box score indicates what
percentage of patients rated the question as “always”. Top box scores are utilized in this hospital to rate performance.

To better understand the calculation of top box scores as reported by Press Ganey for hospital A, see Table 4.2. Survey Record Data for HCAHPS Question 1 and Question 2.

**Table 4.2. Survey Record Data for HCAHPS Question 1 and Question 2.**

<table>
<thead>
<tr>
<th>Q1 &lt;Tell You What New Medicine For&gt;</th>
<th>Valid Value</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>1</td>
<td>2</td>
<td>5.40%</td>
</tr>
<tr>
<td>Sometimes</td>
<td>2</td>
<td>2</td>
<td>5.40%</td>
</tr>
<tr>
<td>Usually</td>
<td>3</td>
<td>4</td>
<td>10.80%</td>
</tr>
<tr>
<td>Always</td>
<td>4</td>
<td>29</td>
<td>78.40%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>37</strong></td>
<td><strong>100%</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q2 &lt;Staff Describe Medicine Side Effects&gt;</th>
<th>Valid Value</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>1</td>
<td>8</td>
<td>21.60%</td>
</tr>
<tr>
<td>Sometimes</td>
<td>2</td>
<td>4</td>
<td>10.80%</td>
</tr>
<tr>
<td>Usually</td>
<td>3</td>
<td>8</td>
<td>21.60%</td>
</tr>
<tr>
<td>Always</td>
<td>4</td>
<td>17</td>
<td>45.90%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>37</strong></td>
<td><strong>100%</strong></td>
<td></td>
</tr>
</tbody>
</table>

After the first PDSA improvement cycle, the unit’s HCAHPS scores for this question from December 2016 unit April 2017, averaged 79.98%, which is over a 5% increase over the pre-improvement 2016 yearly cycle score of 63.67%. (See Figure 4.3. Final Units HCAHPS Scores Regarding Patients Perceptions of Being Educated About Their Medications Purposes) The December to April timeframe was chosen for results scrutiny as the surveys received during this period include the 60-day period of the “time out” improvement process. This December to April timeframe also takes into consideration the six to eight weeks’ time frame to allow patients to return the surveys to Press Ganey.
Figure 4.3. Final Unit’s HCAHPS Scores Regarding Patient’s Perception of Being Educated about their Medication’s Purposes

(Press Ganey.com, 2017)
Question 2 (Q2)

The second medication question on the HCAHPS survey was, “How often did staff describe medicine side effects?” After the first PDSA cycle, the unit’s HCAHPS scores averaged 56.4%, which is greater than a 5% increase over the pre-improvement 2016 yearly cycle score of 44.6%. (see Figure 4.4. Unit’s HCAHPS Scores Regarding Patient’s Perception of Being Educated about their Medication’s Side Effects). The actual graphs retrieved from the Press Ganey website are presented for these two HCAHPS questions to allow for the review and critical appraisal of the results. Press Ganey provides these results in real time to their clients to allow for rolling calendar evaluation. By averaging only, the December through April time frame, the rest of the year is excluded to prevent inclusion of the months when interventions implemented by this project would not have affected score results for these two questions (See Figure 8: Monthly HCAHPS Results from April 2016 – April 2017, Includes Two Months Post Medication Process Improvement Scores)
Figure 4.4. Unit’s HCAHPS Scores Regarding Patient’s Perception of Being Educated about their Medication’s Side Effects

(Press Ganey.com, 2017)
The specific aim of this performance improvement intervention was to incorporate an interprofessional bedside teaching plan known as a medication “time out” to impact the acute care population’s knowledge of their medications purposes and their side effects. The quality improvement process was discussed in detail in the methodology section in Chapter 3. Because
of the project’s iterative processes, and the daily involvement of the student DNP project leader keeping the process on track, only descriptive statistics regarding the medication “time out” process and the “time out” tracking tool are presented here.

During the 60-day performance improvement period, 389 patients had a medication “time out” and a completed time out tracking tool. Seventy-one percent (34 out of 48) of the units’ RNs documented teaching interventions on 389 patient’s medication “time out” tracking tools. The unit pharmacist documented teaching interventions 40 times. Because of issues of signature illegibility or absence, it was unknown who documented the “time out” tracking tools 18% of the time. (see Table 4.6. RN and Pharmacy Completing Patients Medication “Time Out” Tracking Tools, for details).

Table 4.6. RN and Pharmacy Completing Patients Medication “Time Out” Tracking Tools

<table>
<thead>
<tr>
<th>Staff Documentation Breakdown</th>
<th>Number Documented</th>
<th>Percentage Documented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unknown Documentation</td>
<td>71</td>
<td>18%</td>
</tr>
<tr>
<td>Pharmacist Completed</td>
<td>40</td>
<td>10%</td>
</tr>
<tr>
<td>RN Completed</td>
<td>278</td>
<td>72%</td>
</tr>
<tr>
<td>Total Patient time Out Teaching Tools Completed</td>
<td>389</td>
<td>100%</td>
</tr>
</tbody>
</table>

As expected, patients on this medical surgical unit were taking multiple medications. During each documented “time out”, RNs and the pharmacist were to record how many medications they reviewed with each patient. Table 4.7. Number of Medications Reviewed Per “time out” shows the number of medications reviewed per medication “time out” teaching if greater than two percent. The total number of medications documented as “all medications reviewed” amounted to 10% of the time. This 10% is meaningful as the goal of the process was to ensure that patients were educated about all of their medications throughout the stay. Twelve percent of the time, the number of medications for which patients received education was not
provided on the “time out” documentation tool. The majority of the time, education was only provided for one medication and documented per requirements of the project.

Table 4.7. Number of Medication Reviewed Per “Time Out”

<table>
<thead>
<tr>
<th>Number of Medications Reviewed Per Time Out</th>
<th>Time this Number Reviewed</th>
<th>Percentage of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>99</td>
<td>27.50%</td>
</tr>
<tr>
<td>2</td>
<td>58</td>
<td>16.11%</td>
</tr>
<tr>
<td>3</td>
<td>41</td>
<td>11.39%</td>
</tr>
<tr>
<td>4</td>
<td>24</td>
<td>6.67%</td>
</tr>
<tr>
<td>5</td>
<td>18</td>
<td>5.00%</td>
</tr>
<tr>
<td>6</td>
<td>10</td>
<td>2.78%</td>
</tr>
<tr>
<td>7</td>
<td>11</td>
<td>3.05%</td>
</tr>
<tr>
<td>8</td>
<td>10</td>
<td>2.78%</td>
</tr>
<tr>
<td>9</td>
<td>8</td>
<td>2.20%</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
<td>2.78%</td>
</tr>
<tr>
<td>All Prescribed Medications</td>
<td>36</td>
<td>10%</td>
</tr>
<tr>
<td>Number Not Provided</td>
<td>12</td>
<td>3.33%</td>
</tr>
<tr>
<td><strong>Total Number Reviewed</strong></td>
<td><strong>360</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

New Medications

Many of the patients were started on a new medication while hospitalized. The exact number of new medication prescribed is unknown. The number of new medications recorded on the medication “time out” tracking tool for which education was provided by the RN or pharmacist was 328. Considering the total number of medications reviewed was 360, his means that 91.1% were new medications. This is a good finding considering patients are likely to know little about these newly prescribed medications.
Medications Prescribed

Patients on this unit were prescribed many different medications. Education was provided to patients for 156 different drugs, and many patients were on the same medications. The top three medications prescribed were Prednisone, Zofran, and Oxycodone. RNs did not list which medications were taught 63 times, or 12% of the time (See Table 4.8. Frequently Educations “Time Out” Medications for details). This may have an implication to future performance improvement efforts.

Table 4.8. Frequently Educated “time out” Medications

<table>
<thead>
<tr>
<th>Listed Time Out Medications</th>
<th>Number of Times</th>
<th>Percentage of Listed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prednisone</td>
<td>24</td>
<td>4.47%</td>
</tr>
<tr>
<td>Zofran</td>
<td>23</td>
<td>4.29%</td>
</tr>
<tr>
<td>Oxycodone</td>
<td>15</td>
<td>2.79%</td>
</tr>
<tr>
<td>Zithromax</td>
<td>14</td>
<td>2.61%</td>
</tr>
<tr>
<td>Protonix</td>
<td>12</td>
<td>2.23%</td>
</tr>
<tr>
<td>Medications administered to 11 patients or less</td>
<td>385</td>
<td>71.60%</td>
</tr>
<tr>
<td>Names Not Listed</td>
<td>63</td>
<td>11.75%</td>
</tr>
<tr>
<td><strong>Total of Medications Listed</strong></td>
<td><strong>536</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>
In conclusion, the results of the student DNP nurse leader’s project to determine if an interprofessional bedside teaching plan with a medication “time out” increased patient’s knowledge of their medications purposes and side effects were presented in Chapter 4. Outcome criteria included: improved HCAHPS survey scores regarding patients’ responses to questions about their perceptions of being educated about their medications purposes and side effects in the hospital; and accurately taking their prescribed medications at home as determined by responses to a discharge medication questionnaire administered over the telephone. HCAHPS scores for the identified medication questions on the survey improved after the medication “time out” education was implemented. Discharge phone calls also yielded affirmation that the “time out” intervention was successful a majority of the time in aiding the patient to remember that bedside staff taught them about their medications’ purposes and side effects. Our process improvement efforts cannot be used to evaluate if the “time out” medication education may have prevented an adverse drug event because a patient now knew the purpose of their medications or their medication side effects. However, our goal of having the patients acknowledge they were educated by hospital staff about their medications’ purposes and side effects was realized. We also identified opportunities for improvement for the second PDSA cycle. Chapter 5 will relay the interpretation of results and what action this unit can take to continue to improve their performance.
Chapter 5: Interpretation of Results

Discussion

Chapter 5 presents a discussion of the findings and conclusions. This performance improvement project was designed to increase patients’ knowledge regarding their medication purposes and their side effects. The IHI’s performance improvement model that accelerates change using the plan, do, study, act (PDSA) cycle was used (Langley et al., 2009). The PDS components of this model were discussed in earlier chapters. The act phase (A), which is the interpretation of results and actions moving forward, are discussed in this chapter. As mentioned several times earlier, while PDSA cycles are meant to be repeated multiple times, because of time constraints related to this scholarly project, only the first cycle was implemented, and its findings and conclusions are presented here.

Interpretation of Results

Scores for both HCAHPS questions regarding medications increased after the medication “time out” education process improvement project was implemented. Specifically, patients’ perceptions of staff educating them about the purpose of their medication increased from 69.45 to 74.45%, a 5% increase. The second question regarding how often staff taught medication side effects increased from 44.24% to 44.70%. While the 5% increase established as the goal for this process improvement project was not met for the second question, this is just the first PDSA cycle.

A small subset of patients (N=21) who had received the medication “time out” education session, and who had their medication “time out” tracking tool completed, were contacted by telephone post hospital discharge to home. When contacted at home, 100% confirmed that a pharmacist or RN talked to them about their medications’ purposes and side effects during a
medication “time out”. While a small number, this subset provided an opportunity to drill down further regarding what the patient knew. For example, 19 out of the 21 patients rated themselves as a “10” on a ten-point scale regarding their knowledge about their medications’ purposes and side effects. However, when asked about their medication’s side effects or any special instructions they received about their new medications, 24% of the patients were not sure.

**What Went Well**

Seventy-one percent (34 out of 48) of the unit’s RN staff participated in the medication “time outs”. Since most of the unit’s RN staff had less than five years of experience, their buy-in for this project was important.

**Pharmacist and Registered Nurse Collaboration**

During this medication “time out” process improvement project, pharmacist and registered nurses learned about each other’s roles, and collaborated to educate the patients about their medications’ purposes and side effects. The interprofessional team of pharmacists and nurses conducted a medication “time out” and completed the “time out” tracking tool on 79% of the eligible patients. Understanding each other’s roles was identified early in the collaboration as a critical step for process improvement. A second PDSA cycle could build on this collaboration.

Unfortunately, during this 60-day performance improvement first cycle PDSA period, the pharmacy department was understaffed by six full time work equivalents. This decrease in pharmacy staffing for the entire hospital limited the unit pharmacist’s ability to engage with the nursing staff because she had to spend 50% of her time covering an additional unit. Although RN staff nurses were encouraged to consult with the pharmacist during this project, the likelihood of this occurring was lower due to less physical presence of the pharmacist on the unit.
**Hospital Leadership**

Hospital A’s leadership team was very supportive of this process improvement project since it was directly aligned with the Hospital’s mission and values. This was critical to the implementation of the PDSA cycle as it involved RNs and pharmacists taking time to attend the educational sessions, and fill out the medication “time out” tracking tools, as well as the RNs on the dialysis unit making the discharge telephone calls, and completing the discharge medication questionnaire. The time for these tasks costs the hospital additional salary dollars.

However, if HCAHPS scores do not improve, the hospital may lose some of its revenue from the Centers for Medicare and Medicaid (CMS). CMS reimburses hospitals using value based purchasing, and the HCAHPS scores are used to determine the quality of the patient care provided by the hospital. This is a critical issue for Hospital A. Besides the very serious implications of decreased reimbursement if HCAHP scores do not increase, Hospital A’s mission and values focus on placing patients and family first, and low HCAHPS scores indicate that the mission and values are not fully achieved. Additionally, educating patients about their medications’ purposes and side effects is an important step to in preventing adverse drug events and re-admissions.

**Limitations**

While this process improvement project did result in an increase in HCAHPS scores after the medication “time out” process was implemented, this result could have occurred because of unknown factors.

- It is not possible to discern if the 21 patients who received a discharge telephone call with their HCAHPS scores, or to know if they completed the HCAHPS mailed to their home. Since Hospital A requests Press Ganey to survey all patients
who are discharged to home, there may be some patients completing the HCAHPS who may not have participated in a medication “time out” or completed a discharge medication questionnaire.

- The student DNP project leader used a convenience sample of 68 of the 389 patients with completed medication “time out” tracking tools to receive telephone calls to complete the discharge medication questionnaire. Additionally, though she did not conduct the medication “time out” education sessions with patients, her daily presence on the unit could have unintentionally biased her selection of patients for the discharge telephone call.

- Only 21 patients were able to be contacted at home and complete the discharge medication questionnaire despite two telephone calls made to them within 96 hours after discharge.

- There was a lower than usual response rate to the HCAHPS during the process improvement period. Less than 6% of the patients eligible to complete the HCAHPS survey did so.

Despite the fact there were several limitations to this first PDSA process improvement cycle identified, 79% of eligible patients on this medical surgical unit were included in “time out” medication education during the performance improvement process project. and received education about their medication’s purposes and side effects. Because of this fact, we think there has been improvement in the unit’s practice of preparing patients to better self-manage their medication administration at home. Additional PDSA cycles are recommended to continue improvements in this area of practice.
Improvements to be Implemented in the Second PDSA Cycle

Printed Materials and Bedside Electronic Tablet

Since patients learn differently (Henriquez, Costa & Cabrita, 2012; Metsala & Vaherkoski, 2013; Muegge, 2014), education materials in the first PDSA cycle were delivered verbally, by using written materials, and by bedside electronic tablet. The format of the education provided was not tracked during this PDSA cycle, and can be in the next cycle. Also, during several days of this improvement process, the student DNP project leader printed materials for the RNs to use when teaching their patients about their medications. Though most of the time these printed materials were utilized and placed in the patient’s bedside folder, there were several times they were not used at all, or not until the patient was being discharged and receiving discharge education. In the next PDSA cycle, there will be increased staff education regarding the importance of using the written materials throughout the admission, and placing them in the patient’s bedside folder during each patient’s stay.

The bedside electronic tablet is a relatively new technology used by Hospital A. Not all patients can utilize a tablet due to the level of their technical knowledge, their overall cognitive ability, or their ability to manually operate the device. Also, during the time of this performance improvement process, the bedside tablet program was experiencing technical difficulties because the hospital wireless bandwidth was not large enough to support its wireless connectivity. Therefore, this technology was available to very few patients on the unit. The few patients who wanted to use the electronic tablet, often needed help from their RNs to use it. This took RNs away from other duties. In the next PDSA cycle, staff collaboration to determine a better process to support patient use of the electronic tablets, followed by education regarding an improved process will be emphasized. Technical support will also be increased.
**Discharge Phone Call Process**

As discussed earlier, the dialysis RNs are responsible for making the discharge phone calls. They can only make calls when they have time between their dialysis responsibilities. This has caused difficulty in making the follow-up calls. These telephone calls are not reimbursable, and could negatively impact unit productivity. During this process improvement project, telephone calls were to be made within 48-72 hours after the patient was discharged. Though the responsibility for these calls had been assigned, buy-in had not been established. Consequently, 30 days went by and no calls were identified as completed. The unit manager was made aware of this problem but because of the work load of the dialysis RNs, the student DNP project leader began making the discharge telephone calls to complete the discharge medication questionnaire. As a result of this gap in the calls, only 21 patients were contacted and had the discharge medication questionnaire completed. Therefore, the goal of 30 patients being contacted to complete the discharge medication questionnaire was not realized. Due to the importance of the hospital improving its HCAHPS scores, the responsibility for this task will be reviewed and new plans made for PDSA cycle two.

**Recommendations**

Moving forward, it has been decided to extend data collection, and continue with additional PDSA cycles for ongoing improvement, as outlined in the IHI’s performance improvement model. Findings from this first 60-day PDSA cycle were reviewed at the medical surgical unit’s March staff meeting. The unit will study the data presented, and decide together the best methods for moving forward with cycle two. Of interest is: increasing engagement of RN staff and pharmacy; increasing use of printed materials and the bedside electronic tablet; differentiating what interventions should be in place based on patients self-rating of medication
knowledge; and revamping the discharge phone call process. The goal is to have 100% of RN and pharmacy staff providing and documenting medication “time outs”. An influencing factor that increases interest in this improvement process is that the organization may be penalized for their HCAHPS scores if they do not take appropriate action, and make medication education a priority.

The length of this performance improvement process was also a factor in this DNP project. The 60-day period was too short to involve as many patients as were needed to evaluate its outcomes, and sufficiently engage staff in a project of this magnitude. Over time with monthly adjustments, it may be possible to realize the goal of increased HCAHP scores of 5% or greater for both the medications and side effects questions. Please note that the 5% increase was chosen as a small test of change, and greater changes should be expected with future interventions.

**Implications for Practice**

When this unit achieves success in raising their HCAHPS scores, this same process improvement can be implemented on other units in this hospital. A second or third PDSA cycle should be implemented at the unit level before dissemination can occur throughout the hospital. Hospital wide scores for the medication and side effects HCAHPS questions are low. The DNP leader is the best leader to drive change on this unit and in this hospital. All eight of the DNP essentials are visible in the work carried out in this process improvement project developed for this medical surgical unit.

**Implications for Future**

Upon review of the results of this project, many other ideas for future investigation can be identified when considering medication communication and HCAHPS questions. The following topics have been identified:
- Pharmacist’s rounding at the bedside and engaging in discussions about the patient’s daily medication regimen
- Observation of RN practice at the bedside while teaching patients about their medications
- Identifying the patient’s social support and assessment of their knowledge of medications.
- Determining if printed materials distributed for every medication education intervention is more effective in teaching about medications vs. verbal teaching only

No one intervention was identified in the literature as having the ability to increase HCAHPS scores, and more work is needed in this area. Minimally, this performance improvement project has shown that paying attention to metrics can increase the scores. The correct bundle of interventions has yet to be realized, and the DNP practice leader is the correct role to unlock the mystery.

**Population Health Implications**

Population health management was the focus of this DNP scholarly project as evidenced by both the potential economic impact to healthcare costs and the emotional and psychological costs to patients who experience an adverse drug event. This project attempted to manage the population with chronic conditions requiring multiple medications by focusing on a narrower set of health outcomes: patients understanding the purposes and side effects of their medications. By ensuring individual patients are knowledgeable about their medications, we were aiming to improve their individual experience of care, reduce per capita cost of their care, and improve their health, all objectives of the Triple Aim.

The management of population outcomes starts with empowering one patient at a time, often in the clinical setting. Continued work with medication communication is required to impact the population as a whole. The implementation of additional PDSA cycles on this
Medical Surgical unit in Hospital A will allow for continued focus on the importance of medications knowledge to the health of the population served. As referenced in the IOM report (2014), there were definitely challenges shifting the focus of delivering care to patients on multiple medications to a population health management approach. This project also involved interdisciplinary staff that Kindig (2015) felt was necessary to improve population health.

**Conclusion**

This performance improvement project was designed to increase patients’ knowledge of their medications, and their purposes and side effects. Nursing and pharmacy staff members created a medication “time out” process improvement during which medications were reviewed with patients on a medical-surgical unit in Hospital A during the hospitalized patient’s stay, in a step by step specific manner. When the patient was discharged home, a convenience sample of patients were contacted by phone to validate their knowledge of their medications and the effectiveness of the medication “time out” intervention. Scores from the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) surveys evaluated the patient’s perceptions of the frequency with which hospital staff informed them of the purposes of their medication and it’s the medication’s side effects were used to evaluate the intervention. After the first PDSA cycle, improvements in HCAHPS scores were seen. Additionally, a small number (N=21) patients who completed a telephone discharge medication questionnaire confirmed they were educated in a medication “time out” about their medications purposes and side effects.

Issues identified in the first PDSA cycle will be reviewed for improvement in the second PDSA cycle as Hospital A continues its efforts to improve patients’ knowledge of the purpose of their medications and their side effects.
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Appendix A: Hospital Professional Practice Model-Relationship-Based Care

![Diagram of Hospital Professional Practice Model]

**Foundation (Roots)**
The roots of the tree represent essential operational concepts reflective of philosophy, strategic information, shared governance, and leadership.

**Structure (Trunks)**
The trunks support RITE core values of Respect, Integrity, Teamwork, and Excellence that, along with adherence to Safety, guide all Associates to align their practices toward achieving institutional and nursing Mission and Vision.

**Process (Branches)**
The branches disperse an organizational culture of patient-centered, relationship-based care, reflective of a robust healthcare environment that supports Associate wellness and holistic patient care.

**Culture (Leaves)**
Empirical data identify cultivation of model components residing within the Roots, Trunks, and Branches that produce the final product—Leaves—symbolic of outstanding healthcare in People, Quality, Service, Finance, Growth, and Community measures of Healthcare Excellence.
Appendix B. Medication “Time Out” Tool

**Medication “Time Out” Tool:**

Patient Name: __________________________ Room# _______________________

MRN #: _____________________________________________________________

________ Include all A&Ox3 patients being sure to utilize the phase medication “time out” at the beginning of the session.

________ Inquire on a scale of 1-10 how comfortable the patient is with knowledge of their medications?

________ Review verbally with bedside tablet or paper MAR each medication purpose for them and potential side effects.

________ Number of medications reviewed?

________ Number of new medications reviewed? Names ________________________________

________ Medication review could not be competed due to ________________________________

**Reviewing RN or Pharmacist** ________________________________

*Adopted from Calabrese et al., (2003).*
Confirmation of Discharge Medications:

1. Medication Name: _______________________________________________________

2. During the hospital stay, did a pharmacist or nursing staff talk to you about your medications during a medication “time out”?  YES  NO

3. Can you describe what was explained about your medications when you left the hospital?
   Who explained this to you? _______________________________________________

4. How did you use the medication list you received when you left the hospital?

5. If you were prescribed new medications at discharge? If so what were they? __________

6. Were you able to get these filled? ___________ If no why? ________________

7. What does this medication help your body do? (Circle closest answer to response)
   - Prevents blood from clotting easily
   - Helps relax your muscles
   - Controls your blood pressure
   - Controls the rate of your heart
   - Helps you sleep at night
   - Reduces or takes pain away
   - Takes water/fluid away
   - Keeps bowels regular/prevents constipation
   - Stops/limits seizures
   - Other __________________________________________

8. What time do you take this medication?
   - Once in the morning
Once in the morning
Three times a day
At bedtime
At mealtimes
Other_____________________________

9. How much of this medication are you taking?
One tablet once a day
Two tablets once a day
One tablet twice a day
Two tablets twice a day
One at bedtime
One on an empty stomach___ times per day
Other_____________________________

10. For this medication are there special instructions about taking the medication with food?
It should always be taken with food
It should always be taken on an empty stomach
No special directions on taking medication with food
With this medication, when would you need to call your doctor?
Unusual bleeding
Rapid heart beat
Slow heart beat
Unusually low BP
If you had difficulty waking up in the morning
Your pain was not under control
You had swelling in your ankles that was not getting better
You had difficulty catching your breath
You did not have a bowel movement in several days
You had a seizure
Other ________________________________

*Adopted from Downes et al., (2015); Kimball et al., (2010).
Appendix D. Press Ganey Sample Survey Hospital A:

SURVEY INSTRUCTIONS: You should only fill out this survey if you were the patient during the hospital stay named in the cover letter. Do not fill out this survey if you were not the patient. Answer all the questions by completely filling in the circle to the left of your answer. You are sometimes told to skip over some questions in this survey. When this happens you will see an arrow with a note that tells you what question to answer next, like this:

- Yes
- No — If No, Go to Question 1

Please answer the questions in this survey about your stay at University of Cincinnati Medical Center. Do not include any other hospital stays in your answers.

YOUR CARE FROM NURSES

1. During this hospital stay, how often did nurses treat you with courtesy and respect?
   - Never
   - Sometimes
   - Usually
   - Always

2. During this hospital stay, how often did nurses listen carefully to you?
   - Never
   - Sometimes
   - Usually
   - Always

3. During this hospital stay, how often did nurses explain things in a way you could understand?
   - Never
   - Sometimes
   - Usually
   - Always

4. During this hospital stay, after you pressed the call button, how often did you get help as soon as you wanted it?
   - Never
   - Sometimes
   - Usually
   - Always
   - I never pressed the call button

YOUR CARE FROM DOCTORS

5. During this hospital stay, how often did doctors treat you with courtesy and respect?
   - Never
   - Sometimes
   - Usually
   - Always

6. During this hospital stay, how often did doctors listen carefully to you?
   - Never
   - Sometimes
   - Usually
   - Always

7. During this hospital stay, how often did doctors explain things in a way you could understand?
   - Never
   - Sometimes
   - Usually
   - Always

THE HOSPITAL ENVIRONMENT

8. During this hospital stay, how often were your room and bathroom kept clean?
   - Never
   - Sometimes
   - Usually
   - Always

9. During this hospital stay, how often was the area around your room quiet at night?
   - Never
   - Sometimes
   - Usually
   - Always

YOUR EXPERIENCES IN THIS HOSPITAL

10. During this hospital stay, did you need help from nurses or other hospital staff in getting to the bathroom or in using a bedpan?
   - Yes
   - No — If No, Go to Question 12

11. How often did you get help in getting to the bathroom or in using a bedpan as soon as you wanted?
   - Never
   - Sometimes
   - Usually
   - Always

continued...
12. During this hospital stay, did you need medicine for pain?
   O Yes
   O No → If No, Go to Question 15

13. During this hospital stay, how often was your pain well controlled?
   O Never
   O Sometimes
   O Usually
   O Always

14. During this hospital stay, how often did the hospital staff do everything they could to help you with your pain?
   O Never
   O Sometimes
   O Usually
   O Always

15. During this hospital stay, were you given any medicine that you had not taken before?
   O Yes
   O No → If No, Go to Question 18

16. Before giving you any new medicine, how often did hospital staff tell you what the medicine was for?
   O Never
   O Sometimes
   O Usually
   O Always

17. Before giving you any new medicine, how often did hospital staff describe possible side effects in a way you could understand?
   O Never
   O Sometimes
   O Usually
   O Always

**WHEN YOU LEFT THE HOSPITAL**

18. After you left the hospital, did you go directly to your own home, to someone else’s home, or to another health facility?
   O Own home
   O Someone else’s home
   O Another health facility → If Another, Go to Question 21

19. During this hospital stay, did doctors, nurses or other hospital staff talk with you about whether you would have the help you needed when you left the hospital?
   O Yes
   O No

20. During this hospital stay, did you get information in writing about what symptoms or health problems to look out for after you left the hospital?
   O Yes
   O No

**OVERALL RATING OF HOSPITAL**

Please answer the following questions about your stay at the hospital named on the cover letter. Do not include any other hospital stays in your answers.

21. Using any number from 0 to 10, where 0 is the worst hospital possible and 10 is the best hospital possible, what number would you use to rate this hospital during your stay?
   O 0 Worst hospital possible
   O 1
   O 2
   O 3
   O 4
   O 5
   O 6
   O 7
   O 8
   O 9
   O 10 Best hospital possible

22. Would you recommend this hospital to your friends and family?
   O Definitely no
   O Probably no
   O Probably yes
   O Definitely yes

**UNDERSTANDING YOUR CARE WHEN YOU LEFT THE HOSPITAL**

23. During this hospital stay, staff took my preferences and those of my family or caregiver into account in deciding what my health care needs would be when I left.
   O Strongly disagree
   O Disagree
   O Agree
   O Strongly agree

24. When I left the hospital, I had a good understanding of the things I was responsible for in managing my health.
   O Strongly disagree
   O Disagree
   O Agree
   O Strongly agree

25. When I left the hospital, I clearly understood the purpose for taking each of my medications.
   O Strongly disagree
   O Disagree
   O Agree
   O Strongly agree
   O I was not given any medication when I left the hospital

**ABOUT YOU**

26. During this hospital stay, were you admitted to this hospital through the Emergency Room?
   O Yes
   O No

continued...
SAMPLE

27. In general, how would you rate your overall health?
   - Excellent
   - Very good
   - Good
   - Fair
   - Poor

28. In general, how would you rate your overall mental or emotional health?
   - Excellent
   - Very good
   - Good
   - Fair
   - Poor

29. What is the highest grade or level of school that you have completed?
   - 8th grade or less
   - Some high school, but did not graduate
   - High school graduate or GED
   - Some college or 2-year degree
   - 4-year college graduate
   - More than 4-year college degree

30. Are you of Spanish, Hispanic or Latino origin or descent?
   - No, not Spanish/Hispanic/Latino
   - Yes, Puerto Rican
   - Yes, Mexican, Mexican American, Chicano
   - Yes, Cuban
   - Yes, other Spanish/Hispanic/Latino

31. What is your race? Please choose one or more.
   - White
   - Black or African American
   - Asian
   - Native Hawaiian or other Pacific Islander
   - American Indian or Alaska Native

32. What language do you mainly speak at home?
   - English
   - Spanish
   - Chinese
   - Russian
   - Vietnamese
   - Portuguese
   - Some other language (please print):

ADDITIONAL QUESTIONS ABOUT YOUR STAY
Now that we have asked you to tell us about what happened during your stay, we want to ask you about how well we met your needs.

INSTRUCTIONS: Mark the response that best describes your experience. If a question does not apply to you, please skip to the next question. Space is provided for you to comment on your experiences.

**ADMISSION**

1. Speed of admission process .................................................................
   - Very poor
   - Poor
   - Fair
   - Good
   - Very good

2. Courtesy of the person who admitted you ............................................
   - Very poor
   - Poor
   - Fair
   - Good
   - Very good

Comments (describe good or bad experience):

**ROOM**

1. Pleasantness of room decor .............................................................
   - Very poor
   - Poor
   - Fair
   - Good
   - Very good

2. Room cleanliness .............................................................................
   - Very poor
   - Poor
   - Fair
   - Good
   - Very good

3. Courtesy of the person who cleaned your room ...............................
   - Very poor
   - Poor
   - Fair
   - Good
   - Very good

4. Room temperature ...........................................................................
   - Very poor
   - Poor
   - Fair
   - Good
   - Very good

5. Noise level in and around room .......................................................
   - Very poor
   - Poor
   - Fair
   - Good
   - Very good

Comments (describe good or bad experience):

**MEALS**

1. Temperature of the food (cold foods cold, hot foods hot) ...............
   - Very poor
   - Poor
   - Fair
   - Good
   - Very good

2. Quality of the food ...........................................................................
   - Very poor
   - Poor
   - Fair
   - Good
   - Very good

this section continued on next page...
### MEALS (...continued)

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<th>1</th>
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<tbody>
<tr>
<td>3.</td>
<td>Courtesy of the person who served your food</td>
<td></td>
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Comments (describe good or bad experience):

### NURSES

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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Friendliness/courtesy of the nurses</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2.</td>
<td>Promptness in responding to the call button</td>
<td></td>
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<tr>
<td>3.</td>
<td>Nurses' attitude toward your requests</td>
<td></td>
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<tr>
<td>4.</td>
<td>Amount of attention paid to your special or personal needs</td>
<td></td>
<td></td>
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<tr>
<td>5.</td>
<td>How well the nurses kept you informed</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>6.</td>
<td>Skill of the nurses</td>
<td></td>
<td></td>
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<tr>
<td>7.</td>
<td>Extent to which nurses checked ID bracelets before giving you medications</td>
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Comments (describe good or bad experience):

### TESTS AND TREATMENTS

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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Waiting time for tests or treatments</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2.</td>
<td>Explanations about what would happen during tests and treatments</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>3.</td>
<td>Courtesy of the person who took your blood</td>
<td></td>
<td></td>
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<tr>
<td>4.</td>
<td>Courtesy of the person who started the IV</td>
<td></td>
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Comments (describe good or bad experience):

### VISITORS AND FAMILY

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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Accommodations and comfort for visitors</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2.</td>
<td>Staff attitude toward your visitors</td>
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</tbody>
</table>

Comments (describe good or bad experience):

### PHYSICIAN

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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Time physician spent with you</td>
<td></td>
<td></td>
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<tr>
<td>2.</td>
<td>Physician's concern for your questions and worries</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>How well physician kept you informed</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Friendliness/courtesy of physician</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Skill of physician</td>
<td></td>
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</table>

Comments (describe good or bad experience):

continued...
MEDICATION COMMUNICATION

DISCHARGE
1. Extent to which you felt ready to be discharged ........................................... ○ ○ ○ ○ ○
2. Speed of discharge process after you were told you could go home ...................... ○ ○ ○ ○ ○
3. Instructions given about how to care for yourself at home .................................. ○ ○ ○ ○ ○
4. If a social worker/RN case manager met with you during your hospitalization, how satisfied were you with the experience .......................................................... ○ ○ ○ ○ ○
5. Skill and competency of the discharge social worker/RN case manager .................. ○ ○ ○ ○ ○

Comments (describe good or bad experience): _______________________________________

PERSONAL ISSUES
1. Staff concern for your privacy ................................................................................ ○ ○ ○ ○ ○
2. How well your pain was controlled .......................................................................... ○ ○ ○ ○ ○
3. Degree to which hospital staff addressed your emotional needs ........................... ○ ○ ○ ○ ○
4. Response to concerns/complaints made during your stay ....................................... ○ ○ ○ ○ ○
5. Staff effort to include you in decisions about your treatment ................................. ○ ○ ○ ○ ○
6. Degree of safety/security felt in hospital .................................................................. ○ ○ ○ ○ ○
7. Extent to which staff washed their hands before examining you .............................. ○ ○ ○ ○ ○

Comments (describe good or bad experience): _______________________________________

OVERALL ASSESSMENT
1. How well staff worked together to care for you ..................................................... ○ ○ ○ ○ ○
2. Likelihood of your recommending this hospital to others ...................................... ○ ○ ○ ○ ○
3. Overall rating of care given at hospital ................................................................... ○ ○ ○ ○ ○

Comments (describe good or bad experience): _______________________________________

Did a member of the Patient Care Team check on you hourly during the day? ................ ○ Yes ○ No

Patient's Name: (optional): ______________________________________________________

Telephone Number: (optional): _________________________________________________

THANK YOU. Please return completed survey in the postage-paid envelope.

Name of Institution or Organization Providing IRB Review (Institution A): University of Cincinnati IRB

IRB Registration #: IRB0000181 Federalwide Assurance (FWA) #: FWA00003152

Name of Institution Relying on the Designated IRB (Institution B): Xavier University IRB

IRB Registration #: IRB00004019 FWA #: 00003152

The Officials signing below agree that Institution B may rely on the designated IRB for review and continuing oversight of its human subjects research described below: (check one)

(____) This agreement applies to all human subjects research covered by Hemcon FWA.

(_____) This agreement is limited to the following specific protocol(s):
Name of Research Project: Medications Communication Study ID: 2016-7531
Title: Medication Communication and Interprofessional Intervention for Populations with Multiple Chronic Conditions
Name of Principal Investigator: Sherrie L. Topper
Sponsor or Funding Agency: N/A Award Number, if any: N/A

(____) Other

describe:

The review performed by the designated IRB will meet the human subject protection requirements of Institution B's OHRP-approved FWA. The IRB at the University of Cincinnati will follow written procedures for reporting its findings and actions to appropriate officials at Institution B. Relevant minutes of IRB meetings will be made available to Institution B upon request. Institution B remains responsible for ensuring compliance with the IRB's determinations and with the Terms of its OHRP-approved FWA. This document must be kept on file by both parties and provided to OHRP upon request.

Signature of Signatory Official (Institution A):

______________________________
Print Full Name: ___________________________ Title: ___________________________

______________________________
Date: __________________________

Signature of Signatory Official (Institution B):

______________________________
Print Full Name: Morell E. Mullins Jr Institutional Title: Chair, Xavier University IRB

Date: 10-27-16
Institutional Review Board - Federalwide Assurance #00003152

University of Cincinnati

Date: 12/5/2016
From: UC IRB
To: Principal Investigator: Sherrie Topper
     Pharmacy Academic
     Study ID: 2016-7531
Re: Study Title: Medication Communication an Interprofessional Intervention for Populations with Multiple Chronic Conditions

The Institutional Review Board (IRB) acknowledges receipt of the above referenced proposal. It was determined that this proposal does not meet the regulatory criteria for research involving human subjects (see below). Not generalizable – QA/QI of patient care at West Chester Hospital. Ongoing IRB oversight is not required.

Please note the following requirements:

Statement regarding International conference on Harmonization and Good clinical Practices. The Institutional Review Board is duly constituted (fulfilling FDA requirements for diversity), has written procedures for initial and continuing review of clinical trials: prepares written minutes of convened meetings and retains records pertaining to the review and approval process; all in compliance with requirements defined in 21 CFR Parts 50, 56 and 312 Code of Federal Regulations. This institution is in compliance with the ICH GCP as adopted by FDA/DHHS.

Thank you for your cooperation during the review process.

45 CFR § 46.102(d): Research means a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge.

45 CFR § 46.102(f): Human subject means a living individual about whom an investigator (whether professional or student) conducting research obtains:

1. data through intervention or interaction with the individual, or
2. identifiable private information.

Intervention includes both physical procedures by which data are gathered (for example, venipuncture) and manipulations of the subject or the subject's environment that are performed for research purposes.

https://epus.research.chcmc.org/ePAS_PRD/sd/Doc/0/T9GPUFO0N5L499VG5MQ4S71J... 3/15/2017
**Interaction** includes communication or interpersonal contact between investigator and subject.

**Private information** includes information about behavior that occurs in a context in which an individual can reasonably expect that no observation or recording is taking place, and information which has been provided for specific purposes by an individual and which the individual can reasonably expect will not be made public (for example, a medical record). Private information must be individually identifiable (i.e., the identity of the subject is or may readily be ascertained by the investigator or associated with the information) in order for obtaining the information to constitute research involving human subjects.

**FDA regulations** apply whenever an individual is or becomes a participant in research, either as a recipient of a FDA-regulated product or as a control, and as directed by a research protocol and not by medical practice. FDA-regulated activities involve individuals, specimens, or data, as patients or healthy controls, in any of the following:

a. any use of a drug or biologic, other than the use of an approved drug or biologic in the course of medical practice
b. any use of a device (medical or other devices, approved or investigational) to test the safety or effectiveness of the device
c. any use of dietary supplements to cure, treat, or prevent a disease or bear a nutrient content claim or other health claim
d. the collection of data or other results from individuals that will be submitted to, or held for inspection by, the FDA as part of an application for a research or marketing permit (including foods, infant formulas, food and color additives, drugs for human use, medical devices for human use, biological products for human use, and electronic products.)
e. activities where specimens (of any type) from individuals, regardless of whether specimens are identifiable, are used to test the safety or effectiveness of any device (medical or other devices, approved or investigational) and the information is being submitted to, or held for inspection by, the FDA.