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Summer 8-5-2020

### Improving Medication Communication of Nurses to Patients in the Cardiac Procedure Unit

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Improving Medication Communication of Nurses to Patients in the Cardiac Procedure Unit

Jose Abrogar

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School of Nursing and Health Professions

## Improving Medication Communication of Nurses to Patients in the Cardiac Procedure Unit

**Abstract**

**Problem:** Effective communication about medications and their potential side effects is a significant indicator of safe patient care and improved health outcomes. The Cardiac Procedure Unit (CPU) of a large medical center in California recently received a low HCAHPS (CMS, 2019) score of one star (out of five) in the area of medication communication.

**Context:** The CPU is a microsystem that provides pre and post cardiac procedure care for patients of diverse backgrounds. It has a highly competent staff administering patient care. Current patient medication education faces challenges that hinder patient receptivity and thus understanding.

**Intervention:** The proposed project employs a multi-pronged approach to improve the communication of medication education nurses provide to their patients in the CPU. This includes the creation of visual aids/flyers, changes in the patient discharge workflow, and incorporating medication discussion during the Nurse Knowledge Exchange (NKE).

**Measures:** HCAHPS score in the area of medication communication is the primary measure for the project efficacy. Additionally, patient and staff engagement are assessed through patient rounding and NKE.

**Result:** Since the project inception last September, with a score of one star, the score peaked at five stars two months later. The significant increase in HCAHPS score reflects the effectiveness of the project.

**Conclusion:** COVID-19 has significantly disrupted CPU's workflow and caused a significant decrease in the Q1-2020 scores. As we strive to return to a new normal post-COVID19, additional training and adjustment must be made in the CPU to maintain quality medication communication. This will help to sustain the initial gains achieved by the project.

### **Introduction**

Effective communication about medications and their potential side effects is a significant indicator of safe patient care and improved health outcomes. Educating patients about their medication promotes effective and safe drug use (Raynor, 2007). Failure to do so leads to an increased risk of patient harm (Gillam, Gillam, Casler, & Curcio, 2016). Currently, patient communication and education related to their medication side effects and interactions are insufficient (Harris, Roussel, & Thomas, 2018). The CPU of a large medical center in California obtained a low score of one-star (out of five stars) in a recent Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey assessing the effectiveness of medication communication. If nothing is done to address this, it could lead to an increase in patient readmission, increase healthcare costs, and deterioration of the patient's health outcome (Ahrens & Wirges, 2013).

Staff participation is the key to a successful performance improvement project in a microsystem (Nelson, Batalden, & Godfrey, 2007). According to the American Nurses Association (ANA), registered nurses (RN) use health teaching methods appropriate to a patient's values, learning needs, readiness and ability to learn (ANA, 2010). When nurses use an education process based on patient learning styles, it increases patient involvement. Specified learning styles result in improved learning, increased knowledge retention, and better patient satisfaction (Gillam et al., 2016).

The goal of this project is to employ a multi-pronged approach to improve the communication of medication education nurses provide to their patients in the CPU. Improving medication communication by the nurses will minimize patient readmission, promote patient safety, maximize medication efficacy, expedite patient recovery, promote adherence to health-optimizing medications post-discharge, improve the hospital's satisfaction score, and have better reimbursement incentives (Ahrens & Wirges, 2013; Gillam et al., 2016; Jones & Coke, 2016; McTier, Botti, & Duke, 2015; Shen, Ko, & Khan, 2013).

### **Problem Description**

The Center for Medicare and Medicaid Services (CMS) measures hospital performance using the HCAHPS survey (CMS, 2019). Currently, the CPU received one star (out of five) in the area of medication communication. This is below the regional standards of 3.4 stars.

The CPU is a twenty-bed medical-surgical telemetry microsystem. It services a combination of inpatient, outpatient, and observation patients requiring cardiac procedures. The CPU is a fast-paced unit resulting from high volume of daily admissions, discharges, and emergency cases. The CPU has a highly competent staff of nurses, patient care technicians, unit assistants, nurse practitioners, and cardiologists. The organizational priorities of the CPU include promoting patient safety, improving patient satisfaction, health outcomes, and decreasing readmission rates.

The high patient volume coupled with the complexity of care results in a heavy workload for the unit. The fast pace nature of the CPU limits the staff's ability to provide clear and informative medication education to the patients. Improving nurse to patient communication and medication education can decrease patient readmission rates by decreasing major adverse cardiovascular events such as stent thrombosis and myocardial infarction (Thim et al., 2014).

Another negative impact of low HCAHPS scores is the reduced reimbursement rate of services rendered. The CPU has higher healthcare reimbursement when we provide high-quality and low-cost care (Continuum, n.d.). Higher reimbursement fosters an incentive for care improvement which benefits both patients and the entire healthcare system (Britton, 2015).

### **Available Knowledge**

The monthly published HCAHPS survey results using the STARS rating system will be the main source of data to support the quality gap in the CPU that validates the need for this project. In the process of improving the nurses' medication communication to patients in the CPU, the following PICOT (population, intervention, comparison, outcome, and timeframe) question was used: In patients undergoing cardiac catheterization (P), how does creating visual reminders regarding medications and their side effects (I) compared to no visual aids (C) affect the HCAHPS scores (O) within 3 months (T)? The four changes proposed were adapted from evidence-based studies that stressed the use of the multi-pronged approach in improving the medication communication by nurses to patients in the CPU.

The monthly published HCAHPS survey results using the STARS rating system will be the main source of data to support the quality gap in the CPU that validates the need for this project. In the process of improving the nurses' medication communication to patients in the CPU, the following PICOT (population, intervention, comparison, outcome, and timeframe) question was used: In patients undergoing cardiac catheterization (P), how does creating visual reminders regarding medications and their side effects (I) compared to no visual aids (C) affect the HCAHPS scores (O) within 3 months (T)? The four changes proposed were adapted from evidence-based studies that stressed the use of the multi-pronged approach in improving the medication communication by nurses to patients in the CPU.

A systematic search was conducted to gather evidence and current practices in improving HCAHPS scores specifically the medication communication category. The following databases were used: Cochrane Database of Systematic Reviews, Joanna Briggs, Evidence-Based Journals, CINAHL, and PubMed. These databases were searched using the following keywords: medication education, medication communication, patient satisfaction, HCAHPS, medication side effects, patient education, and visual reminder. Limitations were set to include English-only articles with publication dates no earlier than 2010. During the literature review, five sources of evidence revealed that a well-designed, multi-pronged, evidence-based interventions will help to improve the HCAHPS scores under the medication communication category (Ahrens & Wirges, 2013; Gillam et al., 2016; Jones & Coke, 2016; McTier et al., 2015; Shen et al., 2013). The five studies reviewed were conducted in medical-surgical units, used a multi-method approach, and were completed to improve HCAHPS scores in the medication communication category (see Appendix A). Because the interventions were done in a similar setting to our microsystem, the evidence-based interventions can easily be replicated at the CPU to achieve comparable results.

The evidence-based interventions gathered include the use of visual reminders such as medication flyers and labels like the “mugshot” project (Gillam et al., 2016), staff nurse training on educating the patients using the medication education program (MEP) (Shen et al., 2013) with the emphasis on “teach back” methodology (Ahrens & Wirges, 2013), encouraging active participation from the patients by conducting a structured patient interview (McTier et al., 2015) asking questions to the staff like the “always ask” approach (Ahrens & Wirges, 2013), and use of a multi-method approach instead of a single method to improve HCAHPS scores (Jones & Coke, 2016). Having a structured, multi-component program will foster staff involvement and promote

patient participation. It will result in improved learning, increased knowledge retention, and patient satisfaction (Jones & Coke, 2016). Most importantly it will increase patient knowledge about their newly prescribed medications and side effects. This will minimize patient readmission, promote patient safety, maximize medication efficacy, expedite patient recovery, and promote adherence to health-optimizing medications post-discharge (Ahrens & Wirges, 2013; Gillam et al., 2016; Jones & Coke, 2016; McTier et al., 2015; Shen et al., 2013).

### **Rationale**

Improving a nurse communication to patients about their medications and their potential side effects helps promote patient safety and improve health outcomes (Raynor, 2007). The care experience leader of a large medical center in California pointed out that the CPU obtained a low score of one star (out of five stars) in the recent HCAHPS survey assessing the effectiveness of medication communication, well below the regional target of 3.4 stars. These results justified the need for implementing a change in the microsystem using evidence-based practices in improving the nurses' medication communication to the patients in the CPU. Poor medication communication by nurses could lead to deterioration of the patient's health outcome (Ahrens & Wirges, 2013).

The goal of this project is to improve the patients' understanding of their medications in the CPU by employing a multi-pronged approach. To successfully affect change in the microsystem, Kurt Lewin's force-field analysis theory will be used to identify the driving and restraining forces in the unit (see Appendix B). To mitigate the restraining forces, the Clinical Nurse Leader (CNL) will seek stakeholder buy-in and collect feedback from frontline nurses both in the planning and implementation phases of the project. In addition, Nurse Knowledge Exchange (NKE) audits and Nurse Leader Rounding (NLR) data will be used to assess the sustainability of the



changes. Lastly, HCAHPS scores will be compared and analyzed to evaluate the effectiveness of this project.

### **Specific Aim**

The specific aim of the project is to improve the HCAHPS scores on medication communication by staff nurses to patients in CPU from one star to four stars (five means “always” and one is “never”) by July 31, 2020.

### **Context**

A clinical microsystem is a small, interdependent group of people who work together regularly to provide care for a specific group of patients (Institute for Health Improvement, n.d.). Patient care at the microsystem is often complex and consists of several dynamic elements. The 5 P’s tool was used to efficiently assess the microsystem’s structure and function (Nelson, Battalden, & Godfrey, 2007).

**Purpose.** The CPU is a microsystem that aims to deliver high-quality patient-centered care that promotes optimal health among patients undergoing cardiac catheterization procedures. The intention is to guide the patients to safe and fast recovery while minimizing complications from the cardiac procedures. Effective medication communication of nurses to patients will allow them to have a better understanding of their medications and their side effects. Having well-informed patients who leave the hospital will lead to a healthier patient population, who can independently take charge of their health and well-being.

**Patients.** The patients are usually pre-scheduled for cardiac catheterization. The patient population is very diverse in age, gender, ethnicity, pre-existing condition, and primary language spoken. Most of these patients are referred from other organizations in the Bay Area requiring advanced cardiac interventions.

**Professionals.** The CPU has highly competent staff with advanced training in patient care of “pre” and “post” cardiac catheterization procedures including diagnostic, interventional and structural heart procedures. The staff nurses are experts in groin and wrist management. They are competent in pulling transradial (TR) bands as well as arterial and venous femoral sheaths. The team is comprised of dedicated professionals including nurses, patient care technicians, unit assistants, nurse practitioners and cardiologists who work together to provide high quality, personalized, and excellent patient care. The key stakeholders in the CPU are the nurse manager, house supervisor, service directors, and cardiologists. These stakeholders help identify inefficiencies in the current workflow and suggest methods of improvement in patient education and foster staff involvement.

**Process.** During medication administration, the nurse takes at least ten to fifteen minutes per patient to give all their medications. It is at this time that the nurse educates the patients about their medications. During discharge, a more detailed education on the patient’s medications including their purpose, schedule, dosage, and potential side effects are given by the primary nurse. There is also a discharge pharmacist who comes to educate the patients on their medications. The pharmacist usually provides a more extensive and thorough education on the medications to prevent life-threatening complications.

**Patterns.** During medication administration and education, minimal RN interruptions are observed. This is to allow nurses to focus on giving the right medications and provide enough education to patients about their medications. However, there are instances where it is hard to provide education to patients post-procedure because they are usually drowsy. During discharge, the patients are usually anxious to go home especially when their ride is waiting at the lobby to pick them up. Some patients are also observed to be distracted and unfocused may be related to

the outcome of their procedure. In addition, some patients are tuned out because of complicated medical terminologies used by the nurses during education.

### **Interventions**

The changes being implemented in CPU regarding medication education are creating educational materials and workflow revisions such as:

1. visual aids for the staff (see Appendix C) - the team will utilize the care board and education board to remind the staff to review medication side effects during their medication passes. This will also encourage patients to ask questions about their medications.
2. flyer with commonly used medications and their side effects (see Appendix D) - the team will create a colorful flyer with animations highlighting medications and their side effects. The flyer will be made in multiple languages to serve the diverse backgrounds of our patients. This visually appealing and easy to understand handout will encourage patients to read and learn about their medications.
3. revising the discharge workflow - the distribution of medication flyers will be added to the current discharge workflow. The nurse will distribute the flyer along with discharge instructions to patients and will go over the medications and their side effects.
4. incorporating the medication side effects discussion during NKE – the iCPU acronym (see Appendix E) will be created for easy recall by staff to include medication communication during NKE. The acronym iCPU stands for: Introduction, Care board, Plan of care and Utilize patient input.

The CNL will start by reviewing the current HCAHPS scores pertaining to medication communication. Then the CNL will present the proposed project to the nurse manager, assistant nurse managers (ANMs), unit council members, and staff nurses. The CNL will highlight the benefits of the change to patients (improved satisfaction and safety), staff (gives consistent information to patients), microsystem (better workflow), and the organization (improved HCAHPS score and minimize readmission and cost). The CNL will announce the proposed changes during the department's staff meeting. The ANMs will also reinforce the change during daily shift huddles. The CNL and ANMs will use NKE audits and nurse leader rounding to assess the sustainability of the changes. Finally, to evaluate the effectiveness of the proposed changes, the team will analyze and compare HCAHPS scores over time.

### **Study of the Interventions**

All the CPU RNs on all shifts are included in the population for implementing all the proposed changes in the microsystem. In addition, all patients in CPU who are alert and oriented to person, place, and time are also eligible for inclusion. Data will be obtained from HCAHPS performance reports that are sent out to the managers monthly. The reports include scores on ten categories. The NKE audit tool will be used to evaluate staff performance and compliance with the changes in the unit's workflow. The nurse leader rounding tool will also be used to solicit real-time patient feedback regarding the staff's medication communication to them. During huddles, the nurse leaders will gather feedback from the team and discuss what is working well and identify barriers that might hinder the success of the project.

### **Measures**

The outcome measure for this project is to see improvement of medication communication by nurses in the HCAHPS scores. The HCAHPS survey is a CMS rating applied to the quality of care for consumers. It is based on a one to five-star rating system – five means “always” and one is “never”. There are two questions assessing the effectiveness of medication communication in this survey (see Appendix F). These questions were reviewed by CMS for reliability, validity, and in compliance with domains that the Institute of Medicine identified as indicators of quality health care (NAPH, 2018). The process measures are combination of NLR and NKE audits which are performed by the nursing leadership team. NLR is a daily visit by the nurse leader with the patient and family to ask about the patient’s experience with care. Also, this time is used to address any questions or issues experienced by the patient. NKE is shift change handoff reporting that is done at the bedside with patient participation. This is performed during every shift change. Patient rounding and NKE are recognized as important tools for patient and staff engagement, and as the starting point for comprehensive hazard identification and mitigation process when implementing a change in the microsystem (Robbins & Taghavi, 2018). The balancing measure is making sure that most of the patients and nurses are able to participate in NLR and NKE, respectively.

### **Ethical Considerations**

Ethics played an important role in implementing this project. All the patients and staff involved participated voluntarily. There were no conflict of interest noted among the staff, patients, and management team. This project has been approved by the University of San Francisco

School of Nursing and Health Professions Master of Science in Nursing - Clinical Nurse Leadership program as a quality improvement project (see Appendix G). Thus, as per the university policy, this project does not require Institutional Review Board (IRB) review.

Two of the Jesuit core values are reflected in this project. They are, “cura personalis” (care for the whole person), and a commitment to diversity in all its forms such as the cultural, political, spiritual, and socio-economic background of every individual (University of San Francisco, n.d.). In addition, this project is also being guided by two provisions from the ANA Code of Ethics. The first is Provision One, which states that the nurse practices with compassion and respect for the inherent dignity, worth, and unique attributes of every person (Fowler, 2015). The second, is Provision Three, which states that the nurse promotes, advocates for, and protects the rights, health, and safety of the patient (Fowler, 2015). This project aims to promote patient safety by increasing their knowledge about their medications and side effects. All patients will be treated holistically and will be inclusive despite their age, gender, ethnicity, pre-existing condition, and primary language spoken.

### **Results**

Before the CNL project, the CPU’s HCAHPS star rating hovered between one to two stars. This is well below the regional standard of 3.4 stars. Since the project inception last September (at one star), the rating rose steadily and peaked at 5 stars in November (see Appendix H). This result was very encouraging and confirmed the positive impact of visual reminders for both the staff and patients. The rating remained above the goal of 3.4-stars from November through January.

However, it dipped precipitously from four stars in January, to two stars in February and one star in March. This stems from two factors.

- a. Many traveler RNs joined the CPU staff during those months and they were not familiar with the new workflow introduced by this project.
- b. The CPU had many overflow medical-surgical patients who were confused and couldn't benefit from patient education.

The CPU was closed for the months of April and May due to COVID19, and no HCAHPS results were collected.

## **Discussion**

### **Summary**

Currently the CPU is closed as all elective procedures are cancelled due to the COVID-19 pandemic. The two months leading up to CPU's closure, February and March, were marked with atypical unit workload, staffing, and onslaught of COVID-19 pandemic. The HCAHPS results were poor during that period, averaging 1.5 stars. However, the team feels the low score does not reflect the inefficiencies of my project, as the score rose steadily from one to five stars during the two months after project inception. Instead it was the extenuating external factors such as COVID-19 that caused the unit's score to dip. In order to properly assess the efficacy of the project, the team will wait for the unit to return to normal operation: with well trained staff caring for patients undergoing cardiac procedures.

Key contributors to the success of the project include the following:

- a. seeking the stakeholders' buy-in and collecting feedback from front-line nurses.
- b. helping nurses understand the importance of the project to the unit and how it benefits patient care. This motivates them to be more compliant with the proposed changes.

A lesson learned during this project is the importance of creating educational content that is sensitive to the interest and receptivity of the intended audience. Early feedback relating to the

project included the idea that the medication flyer created for patient education was filled with medical jargons. This hindered patient participation and understanding. We made changes to the flyer by replacing jargon with layman's term and added more pictures to facilitate participation and comprehension. The small tweaks to the flyer improved the nurse ability to provide education, which in turn improved satisfaction scores.

### **Conclusions**

Improving medication communication by the nurses will minimize patient readmission, promote patient safety, maximize medication efficacy, expedite patient recovery, promote adherence to health-optimizing medications post-discharge, improve the hospital's satisfaction score, and have better reimbursement incentives (Ahrens & Wirges, 2013; Gillam et al., 2016; Jones & Coke, 2016; McTier, Botti, & Duke, 2015; Shen, Ko, & Khan, 2013). This multi-pronged intervention has already demonstrated positive impact to the CPU by assessing HCAHPS scores before and after the project's inception.

To ensure the sustainability of the project, the team plans to employ the following tactics.

- a. review the current HCAHPS during the monthly unit council meeting.
- b. when the score is above the goal of 3.4 stars, have a mini celebration to recognize effort put forth by the team.
- c. ensure the unit continues to refresh the collaterals needed for the project and make incremental improvements.
- d. the CNL and ANMs will continue to use the NKE and NLR audit tools to help assess compliance of the frontline staff and give reminders when needed.



According to Nelson, Batalden, & Godfrey (2007), staff participation is the key to be successful in performance improvement project in a microsystem. Therefore, having a well-established sustainability plan promotes staff compliance in implementing the proposed changes in the CPU.

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## Appendix A

## Evaluation Table

**PICOT Question:** In patients undergoing cardiac catheterization (**P**), how does creating visual reminders regarding medications and their side effects (**I**) compared to no visual aids (**C**) affect the HCAHPS scores (**O**) within 6 months (**T**)?

Study	Design	Sample	Outcome/Feasibility	Evidence Rating
<p>Gillam, S. W., Gillam, A. R., Casler, T. L., &amp; Curcio, K. (2016). Education for medications and side effects: A two-part mechanism for improving the patient experience. <i>Applied Nursing Research</i>, 72-78.</p> <p><a href="http://dx.doi.org/10.1016/j.apnr.2015.11.017">http://dx.doi.org/10.1016/j.apnr.2015.11.017</a></p>	Quasi-experimental design with pre and post intervention	All patients in a 34-bedded medical-surgical unit with the lowest HCAHPS scores on medication communication category.	<p>The mug shot intervention can significantly affect medication communication related HCAHPS survey scores if mug shots are coordinated and integrated with standard medication information sheets (i.e., the mechanisms must be used in tandem; one must not be substituted for the other).</p> <p>Useful in developing a tool to introduce in the microsystem to promote easy recall of patients about their medications.</p>	II,B

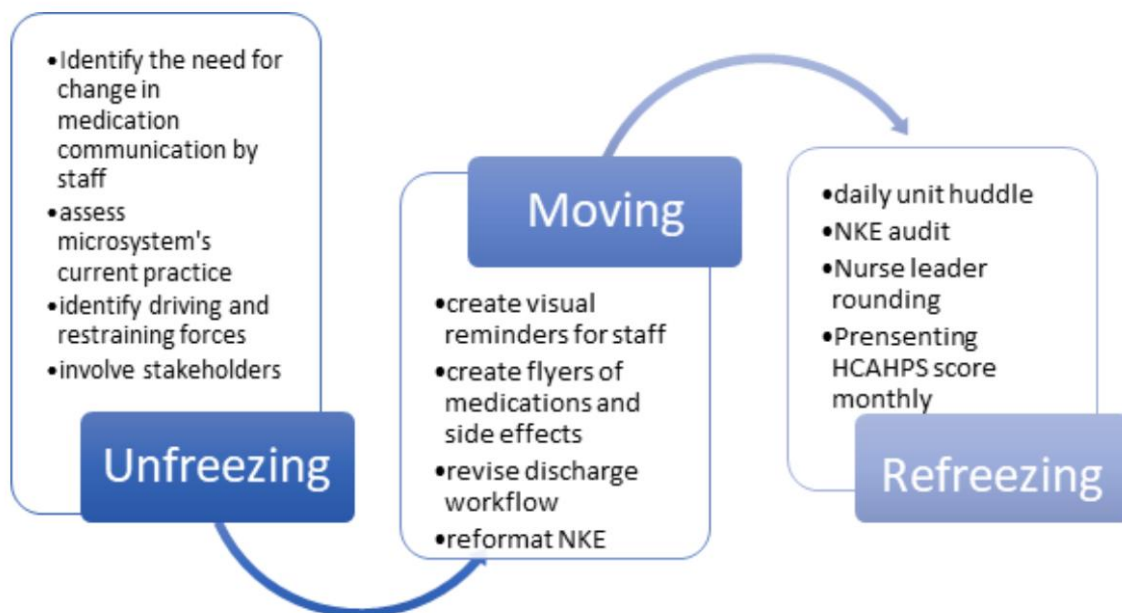
McTier, L., Botti, M., & Duke, M. (2015). Patient participation in medication safety during an acute care admission. <i>Health Expectations</i> , 18(5), 1744-1756. <a href="http://dx.doi.org/10.1111/hex.12167">http://dx.doi.org/10.1111/hex.12167</a>	Case Study	130 pre-cardiac surgery patients from a cardiothoracic ward in a tertiary referral hospital	<p>After conducting a structured patient interviews, the study showed that during preadmission, most patients were able to list and state the purpose of their cardiovascular medications, whereas prior to discharge, few patients were able to achieve this.</p> <p>Useful in educating patients based on their learning needs and abilities to promote better retention.</p>	III, B
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<p>Shen, Q., Ko, A., &amp; Khan, R. (2013). Evaluation of medication education program for elderly hospital in-patients. <i>Geriatric Nursing</i>, 7(3), 184-192. <a href="http://dx.doi.org/10.1016/j.geri-nurse.2006.03.015">http://dx.doi.org/10.1016/j.geri-nurse.2006.03.015</a></p>	<p>Descriptive Study</p>	<p>86 geriatric patients that were admitted in a 450-bed teaching hospital</p>	<p>A nursing-staff-initiated in-hospital medication education program (MEP) for elderly patients significantly improved the participant's knowledge about their medications. The patients showed improvement in recall and awareness of medication details such as name of medication, dosage and times of medication administration, and purpose of medication.</p> <p>Useful for ideas on additional educational tools to introduce in the unit.</p>	<p>III, B</p>
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<p>Jones, T. R., &amp; Coke, L. (2016, October). Impact of standardized new medication education program on post discharge patients' knowledge and satisfaction. The Journal of Nursing Administration, 46(10), 535-540. <a href="http://dx.doi.org/10.1097/NNA.0000000000000398">http://dx.doi.org/10.1097/NNA.0000000000000398</a></p>	<p>Quality Improvement</p>	<p>All patients from oncology and orthopedic units.</p>	<p>Having a structured, evidence-based multi-component program was successful in improving HCAHPs top box scores. Most importantly it increased patient knowledge about newly prescribed medications. Consistent with the findings of other studies, patients found it easier to remember the purpose than the side effect of their medication. Using the teach-back methodology and giving out written material like the new medicine education sheets helped to have an easier recall of medication side effects among patients.</p> <p>Useful in implementing a multi-pronged approach to improve medication communication.</p>	<p>V, A</p>
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<p>Ahrens, S. L., &amp; Wirges, A. M. (2013, October). Using evidence to improve satisfaction with medication side-effects education on a neuro-medical surgical unit. <i>Journal of Neuroscience Nursing</i>, 45(5), 281-287.</p> <p><a href="http://dx.doi.org/10.1097/JNN.0b013e31829d8ca5">http://dx.doi.org/10.1097/JNN.0b013e31829d8ca5</a></p>	<p>Quality Improvement</p>	<p>All patients in a 21-bedded Neuro-Medical-Surgical (NMS) unit recovering from neurological, neuro-trauma, and neurosurgical events.</p>	<p>The multi method approach used in the “Always Ask” program has the potential to improve patient-perceived quality of care and satisfaction. Regardless of cognitive and neurological deficits, nurses must recognize the importance of improving outcomes by performing medication education for all patients. The teach-back method may prove to be a viable approach for nurses to assess gaps in patient knowledge and improve patient satisfaction by communicating the possible medication side effects. The “Always Ask” project supported literatures that show the importance of easy to understand verbal and written education for patients.</p> <p>Useful in incorporating similar method during NKE to promote active participation from patients.</p>	<p>V, B</p>
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**Appendix B****Kurt Lewin's Change Management Theory**

**Appendix C****Visual Aids**

Do you know?




What is the name of your new medication?

Do you know?



What is this medication for?


Do you know?



What are the common possible side effects of your medication?


## Appendix D

## Common Cardiac Medications and Side Effects Flyer










KAISER PERMANENTE

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Common Cardiac Medication Side Effects

Use	Medication: Generic (Brand)		Common Side Effects
 <b>Blood Clot Prevention</b>	Apixaban (Eliquis) Aspirin Clopidogrel (Plavix) Dabigatran (Pradaxa) Enoxaparin (Lovenox) Heparin Prasugrel (Effient) Rivaroxaban (Xarelto)		Upset Stomach Bleeding
 <b>Blood Pressure Control &amp; Heart Failure</b>	<b>Beta Blockers</b> Atenolol (Tenormin) Carvedilol (Coreg) Labetalol (Trandate) Metoprolol (Lopressor) <b>ACE Inhibitors</b> Captopril (Capoten) Lisinopril (Prinivil) <b>Angiotensin Receptor Blockers</b>	Losartan (Cozaar) Valsartan (Diovan) Calcium Channel Blockers Amlodipine (Norvasc) Diltiazem (Cardizem) Felodipine (Plendil) Nifedipine (Procardia, Adalat) Verapamil (Calan, Verelan, Covera)	Cough (ACE Inhibitors) Drowsiness or Dizziness
 <b>Cardiac (Heart Rate Control)</b>	Amiodarone (Cordarone, Pacerone) Digoxin (Digitek, Lanoxin) Diltiazem (Cardizem)		Headache Drowsiness or Dizziness
 <b>Cholesterol Reduction</b>	Atorvastatin (Lipitor) Ezetimibe (Zetia) Fenofibrate (Tricor) Pravastatin (Pravachol) Simvastatin (Zocor)		Muscle Pain Upset Stomach Headache
 <b>Diuretic ("Water Pill")</b>	Bumetanide (Bumex) Furosemide (Lasix) Hydrochlorothiazide (Microzide) Spironolactone (Aldactone) Torsemide (Demadex)		Dehydration Low Blood Pressure (Hypotension) Drowsiness or Dizziness
 <b>Heartburn/Reflux/GERD Stomach Ulcer</b>	Famotidine (Pepcid) Pantoprazole (Protonix) Sucralfate (Carafate)		Diarrhea Headache
 <b>Antidiabetic (Blood sugar control)</b>	Insulin Glipizide (Glucotrol) Glyburide (Diabeta, Micronase) Glimepiride (Amaryl) Metformin (Glucophage)		Drowsiness or Dizziness Headache

## Appendix E

### Revised NKE Using the Acronym iCPU

- introduce the incoming nurse

introduction



- update the patient careboard

careboard



- discuss plan of care
- discuss new medication and side effects

plan of care



- ask patient's input on his/her care
- ask patients if they have questions about their medications

utilize patient input



## Appendix F

## HCAHPS Questions

## HCAHPS Medication



**15. During this hospital stay, were you given any medicine that you had not taken before?**

<sup>1</sup> ☐ Yes

<sup>2</sup> ☐ 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?**

<sup>1</sup> ☐ Never

<sup>2</sup> ☐ Sometimes

<sup>3</sup> ☐ Usually

<sup>4</sup> ☐ Always

**17. Before giving you any new medicine, how often did hospital staff describe possible side effects in a way you could understand?**

<sup>1</sup> ☐ Never

<sup>2</sup> ☐ Sometimes

<sup>3</sup> ☐ Usually

<sup>4</sup> ☐ Always

## Appendix G

### CNL Project: Statement of Non-Research Determination Form

**Student Name:** Jose Abrogar

**Title of Project:** Improving Medication Communication by Nurses

**Brief Description of Project:** This is a quality improvement project in the Cardiac Procedure Unit of a large medical center in California. The purpose of this project is to improve medication communication of nurses to patients in CPU by employing a multipronged approach. This will promote better understanding of patients about their medications and side effects that will promote patient safety, minimize patient readmission, maximize medication efficacy, expedite patient recovery, promote adherence to health-optimizing medications post-discharge, improve HCAHPS score, and have better reimbursement incentives.

**A) Aim Statement:** To improve HCAHPS scores on medication communication by staff nurses to patients in CPU from 1 star to 4 stars (5 means “always” and 1 is “never”) by July 31, 2020.

**B) Description of Intervention:** The following changes/interventions will be proposed in the microsystem: 1. Creating visual aids for the staff, 2. Providing a flyer with commonly used medications and their side effects to patients, 3. Revising the discharge workflow, and 4. Incorporating the medication side effects discussion during the Nurse Knowledge Exchange (NKE).

**C) How will this intervention change practice?** The benefits of the change to patients (improved satisfaction and safety), staff (gives consistent information to patients), microsystem (better workflow), and the organization (improved HCAHPS score and minimize readmission and cost).

**D) Outcome measurements:** Improve HCAHPS scores on medication communication category from 1 star to 4 stars (out of 5 stars).

To qualify as an Evidence-based Change in Practice Project, rather than a Research Project, the criteria outlined in federal guidelines will be used: (<http://answers.hhs.gov/ohrp/categories/1569>)

☐ This project meets the guidelines for an Evidence-based Change in Practice Project as outlined in the Project Checklist (attached). Student may proceed with implementation.

☐ This project involves research with human subjects and must be submitted for IRB approval before project activity can commence.

**EVIDENCE-BASED CHANGE OF PRACTICE PROJECT CHECKLIST \*****Instructions: Answer YES or NO to each of the following statements:**

<b>Project Title:</b>	<b>YES</b>	<b>NO</b>
The aim of the project is to improve the process or delivery of care with established/ accepted standards, or to implement evidence-based change. There is no intention of using the data for research purposes.	Y	
The specific aim is to improve performance on a specific service or program and <b>is a part of usual care</b> . ALL participants will receive standard of care.	Y	
The project is <b>NOT</b> designed to follow a research design, e.g., hypothesis testing or group comparison, randomization, control groups, prospective comparison groups, cross-sectional, case control). The project does <b>NOT</b> follow a protocol that overrides clinical decision-making.	Y	
The project involves implementation of established and tested quality standards and/or systematic monitoring, assessment or evaluation of the organization to ensure that existing quality standards are being met. The project does <b>NOT</b> develop paradigms or untested methods or new untested standards.	Y	
The project involves implementation of care practices and interventions that are consensus-based or evidence-based. The project does <b>NOT</b> seek to test an intervention that is beyond current science and experience.	Y	
The project is conducted by staff where the project will take place and involves staff who are working at an agency that has an agreement with USF SONHP.	Y	
The project has <b>NO</b> funding from federal agencies or research-focused organizations and is not receiving funding for implementation research.	Y	
The agency or clinical practice unit agrees that this is a project that will be implemented to improve the process or delivery of care, i.e., <b>not</b> a personal research project that is dependent upon the voluntary participation of colleagues, students and/ or patients.	Y	
If there is an intent to, or possibility of publishing your work, you and supervising faculty and the agency oversight committee are comfortable with the following statement in your methods section: <i>"This project was undertaken as an Evidence-based change of practice project at X hospital or agency and as such was not formally supervised by the Institutional Review Board."</i>	Y	

**ANSWER KEY:** If the answer to **ALL** of these items is yes, the project can be considered an Evidence-based activity that does NOT meet the definition of research. **IRB review is not required. Keep a copy of this checklist in your files.** If the answer to ANY of these questions is **NO**, you must submit for IRB approval.



\*Adapted with permission of Elizabeth L. Hohmann, MD, Director and Chair, Partners Human Research Committee, Partners Health System, Boston, MA.

**STUDENT NAME (Please print): Jose Abrogar**

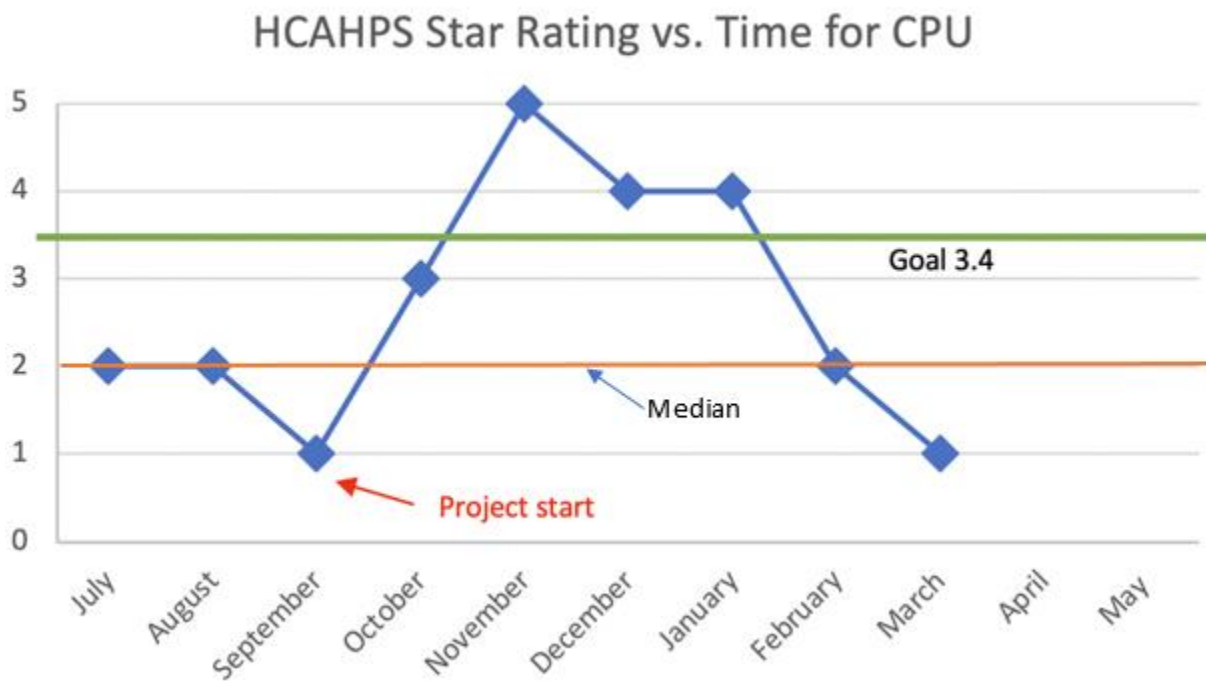
**Signature of Student:**

\_\_Jose Abrogar\_\_\_\_DATE\_\_4.20.20\_\_\_\_

**SUPERVISING FACULTY MEMBER NAME (Please print):**

\_\_\_\_\_  
**Signature of Supervising Faculty Member**

\_\_*Dr. Nancy Taquino*\_\_\_\_DATE\_\_4.18.20\_\_\_\_

**Appendix H****Run Chart**

## Appendix I

### Project Charter

**Project Charter:** Improving medication communication by nurses in Cardiac Procedure Unit (CPU).

**Global Aim:** To improve nurses' medication communication and education to all patients in CPU to promote better understanding of their medications and side effects.

**Specific Aim:** To improve HCAHPS scores on medication communication by staff nurses to patients in CPU from 1 star to 4 stars (5 means "always" and 1 is "never") by July 31, 2020.

#### Background:

Effective communication about medications and their potential side effects is a significant indicator of safe patient care and improved health outcomes. Educating patients about their medication promotes effective and safe drug use (Raynor, 2007). Failure to do so leads to an increased risk of patient harm (Gillam, Gillam, Casler, & Curcio, 2016). Currently, patient communication and education related to their medications' side effects and interactions are insufficient (Harris, Roussel, & Thomas, 2018). The Cardiac Procedure Unit (CPU), an inpatient unit within a large metropolitan hospital in California obtained a low score of one star (out of five) in a recent HCAHPS survey assessing the effectiveness of medication communication. This is below the regional standards of 3.4 stars. If nothing is done to address this, it could lead to an increase in patient readmission, increase healthcare costs, and deterioration of the patient's health outcome (Ahrens & Wirges, 2013).

The goal of this project is to employ a multi-pronged approach to improve nurses' communication and education to patients in the CPU regarding their medications. Staff participation is the key to be successful in a performance improvement project in a microsystem (Nelson, Battalden, & Godfrey, 2007). According to the American Nurses Association, one of the standards of nursing practice is to employ strategies to promote health by providing health teaching to patients (American Nurses Association [ANA], 2010). Since frontline nurses spend most of their time at the bedside, this makes them ideal educators for patients and their families. Staff nurses can improve the receptivity of their communication by relying on techniques based on patient learning preferences. When nurses use an educational process based on patient's learning style, it promotes patient involvement and results in improved learning, increased knowledge retention, and better patient satisfaction (Gillam et al., 2016).

**Goals:** The purpose of this project is to improve medication communication of nurses to patients in CPU by employing a multi-pronged approach. This will promote better understanding of patients about their medications and side effects that will result in the following:

1. Promote patient safety
2. Minimize patient readmission

3. Maximize medication efficacy
4. Expedite patient recovery
5. Promote adherence to health-optimizing medications post-discharge
6. Improve HCAHPS score
7. Have better reimbursement incentives.

### Team Composition and Sponsors:

Adult Services Director

Nurse Manager

Assistant Nurse Managers

Unit Council Members

Staff RN champions

### Measures:

Measure	Data Source	Target
Outcome		
Improvement in medication communication by nurses	HCAHPS scores	4 stars
Process		
Interviews to patients will be completed by the Nurse Leadership team during daily rounding.	Survey Study	80%
Nurse leaders will observe during the Nurse Knowledge Exchange (NKE) at each shift change.	Observational Study	100%
Balancing		
Patients surveyed are not able to participate in the Nurse Leader interview.	Survey Study	0%
Staff unable to perform NKE at bedside due to patient refusal to participate.	Observational Study	10%

## Appendix J

### Measurement Strategy

**Population Criteria:** All CPU RNs on all shifts are included in the population for implementing all the proposed changes in the microsystem. In addition, all patients in CPU who are alert and oriented to person, place, and time are also eligible for inclusion.

**Data Collection Method:** Data will be obtained from HCAHPS performance reports that are being sent out to the managers monthly. The reports include scores on ten categories. NKE audit tool will be used to evaluate staff performance and compliance to changes in the unit's workflow. The nurse leader rounding tool will also be used to ask patients real-time feedback regarding the staff's medication communication to them. During huddles, the nurse leaders will gather feedback from the team and discuss what is working well and identify barriers that might hinder the success of the project.

#### Data Definitions:

Data Element	Definition
HCAHPS Stars rating	A CMS rating applied to quality of care for consumers. It is based on a 1 to 5-star rating system – 5 means “always” and 1 is “never”.
Medication communication	This is when a nurse educates a patient about his/her medications and side effects. This is also one of the categories measured during HCAHPS survey.
Nurse leader rounding	A daily visit by the nurse leader with the patient and family to ask about the patients experience with care. Also, time to address any questions or issues experienced by the patient.
NKE bedside report	Shift change handoff reporting that is done at the bedside with patient participation. This is performed during every shift change.
Observational study	A designated person (nurse leader or unit council champion) will observe the NKE to make sure that RNs are incorporating the proposed changes during shift report.

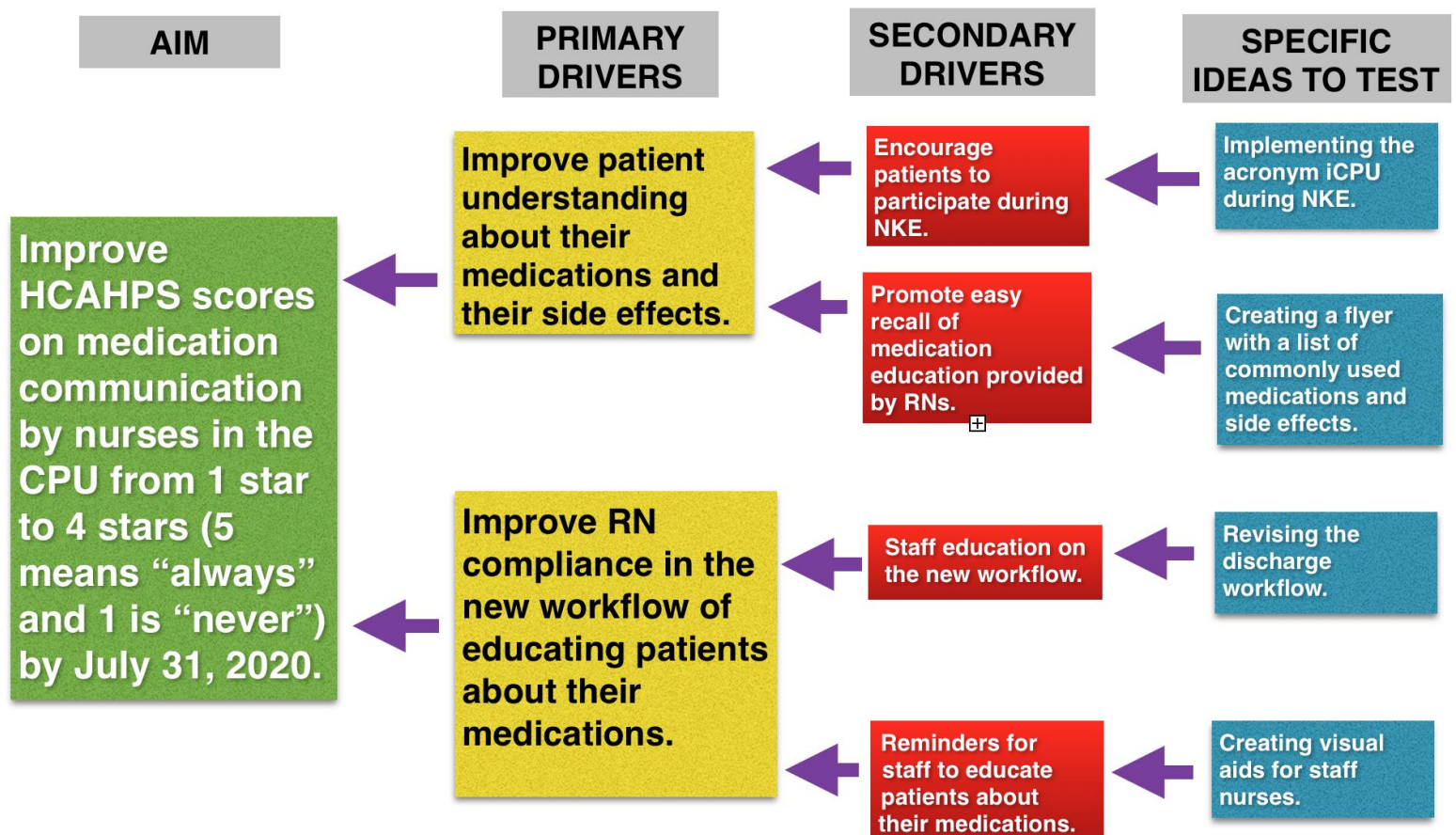
Data Element	Definition
Survey study	A survey administered by nurse leaders during daily rounding. Asks patient if the nurse discussed to them their medications and side effects.
Visual aids for staff	Visual reminders in patient care and education board to remind staff to review medication side effects during their medication passes.
Medication communication flyer	Colorful flyers with animations highlighting medications and their side effects. The flyers are made in multiple languages and are attached to discharge instruction as part of a new workflow.

**Measure Descriptions:**

Measure	Measure Definition	Data Collection Source	Goal
Number of nurses who are compliant in implementing the proposed changes in CPU	N = Number of RNs implementing the changes D= Total number of RNs in CPU	NKE audit tool	100%
Number of patients who claim their nurse educated them about their medications	N = Number of patients who claim they received education about their medications D = Total number of patients admitted in CPU	Nurse leader rounding tool	80%
Star rating on medication communication	N = Number of stars on the current HCAHPS scores D = Number of stars on last quarter's HCAHPS scores	HCAHPS report	4

## Appendix K

## Driver Diagram



## **Appendix L**

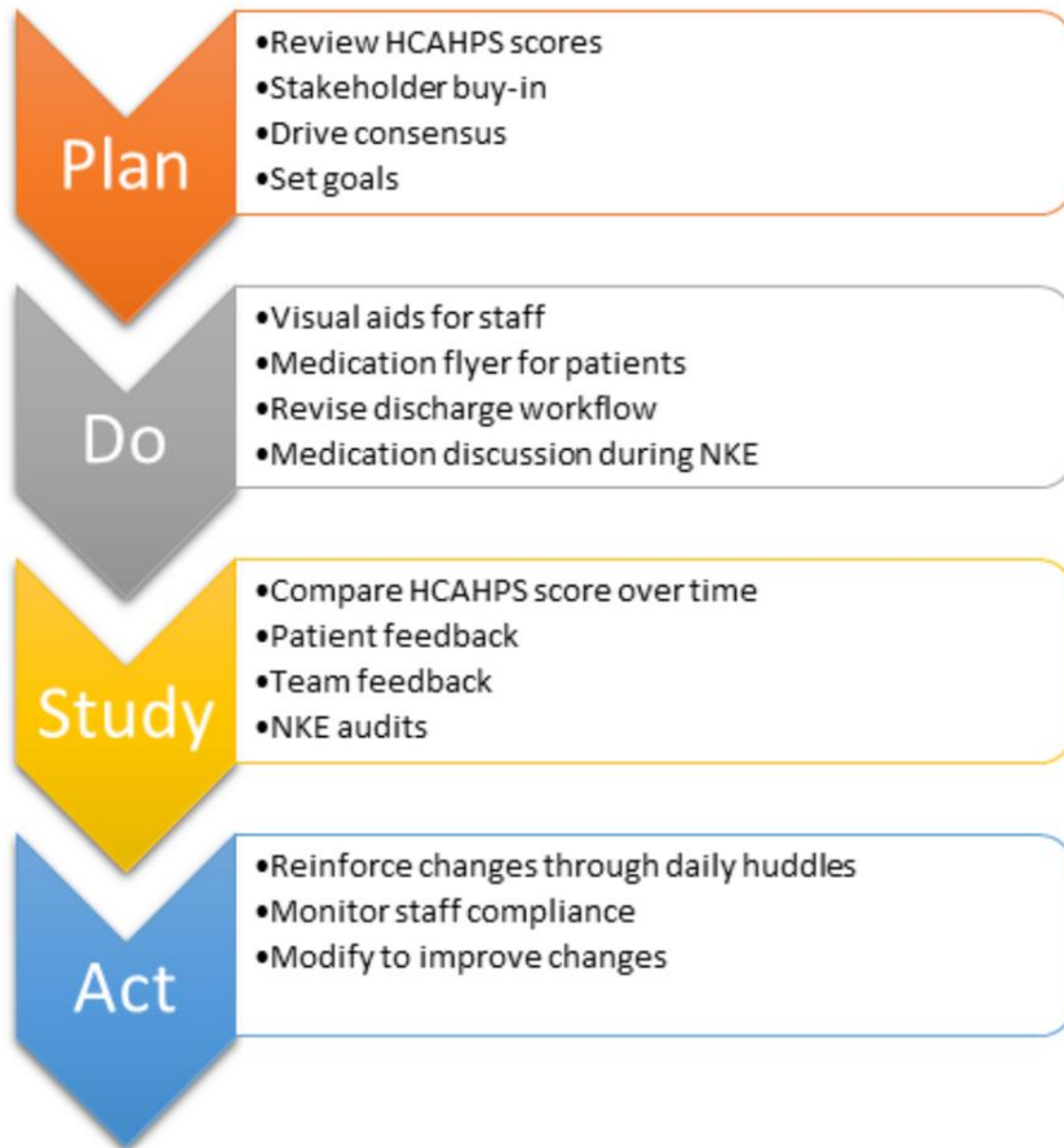
### **Changes to Test**

The changes being implemented in CPU are creating educational materials and workflow revisions such as:

1. Visual aids for the staff - the team will utilize the care board and education board to remind the staff to review medication side effects during their medication passes. This will also encourage patients to ask questions about their medications.
2. Flyer with commonly used medications and their side effects - the team will create a colorful flyer with animations highlighting medications and their side effects. The flyer will be made in multiple languages to serve the diverse backgrounds of our patients. This visually appealing and easy to understand handout will encourage patients to read and learn about their medications.
3. Revising the discharge workflow - the distribution of medication flyer will be added to the current discharge workflow. The nurse will distribute the flyer along with discharge instructions to patients and will go over the medications and their side effects.
4. Incorporating the medication side effects discussion during NKE – the iCPU acronym will be created for easy recall by staff to include medication communication during NKE. The acronym iCPU stands for: Introduction, Care board, Plan of care and Utilize patient input.

The CNL will start by reviewing the current HCAHPS scores pertaining to medication communication. Then the CNL will present the proposed project to the nurse manager, assistant nurse managers (ANMs), unit council members, and staff nurses. The CNL will highlight the benefits of the change to patients (improved satisfaction and safety), staff (gives consistent information to patients), microsystem (better workflow), and the organization (improved HCAHPS score and minimize readmission and cost). Next, the CNL will announce the proposed changes during the department's staff meeting. The ANMs will also reinforce the change during daily shift huddles. The CNL and ANMs will use NKE audits and nurse leader rounding to assess the sustainability of the changes. Finally, to evaluate the effectiveness of the proposed changes, the team will analyze and compare HCAHPS scores over time.



**Appendix M****PDSA Tool**

## **Appendix N**

### **Lessons Learned and CNL Competencies**

#### **Lessons Learned**

- Collaboration between the staff and the CNL is the key to the project's success. Including the frontline staff during the planning phase of this project increases awareness of the project's goal and fosters team-centric planning to support the goal. This also helps to overcome resistance to change, especially those that come from the top down. Help nurses to understand the importance of the project to the unit and how it will benefit patient care. Motivate them to be more compliant with the proposed changes.
- To successfully effect change, one needs to seek the stakeholders' buy-in and collecting feedback from front-line nurses. This must be done both in the planning and implementation phases of the project.
- The NKE audit tool, nurse leader rounding, and daily huddles are effective ways to evaluate the staff performance and compliance to the proposed changes. During NKE, the CNL or ANM can give real-time feedback to the staff. On the other hand, during the nurse leader rounding, the nurse leader can ask patients some feedback regarding the staff's medication communication to them. Lastly, during huddles, the CNL can gather feedback from the team and discuss what is working well and identify barriers that might hinder the success of the project.

#### **CNL Competencies**

The CNLs are competent nurse leaders in the department who are educated to implement change in the microsystem. The three roles of a CNL that most benefit my project are the clinician, educator, and client advocate. As a clinician, the CNL helps design, implement and evaluate the patient's plan of care by coordinating, delegating, and supervising the care provided by the healthcare team (American Association of Colleges of Nursing [AACN], 2007). As an educator, the CNL informs patients, families, and members of the healthcare team regarding the latest medication information (AACN, 2007). As a client advocate, the CNL has a comprehensive understanding of the patient's situation and uses appropriate clinical resources to advocate for the patient. These functions of a CNL make him/her the best agent to propose and initiate this project amongst the healthcare staff.

## Appendix O

### Project Timeline

