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Improving Medication Administration and Patient Outcomes by Decreasing Avoidable Interruptions

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Decreasing Preventable Interruptions to

Improve Medication Administration and Patient Outcomes

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Abstract

This Clinical Nurse Leader (CNL) project took place at a level I trauma center in the San Francisco Bay Area, on a 34-bed Medical Surgical, Behavioral Medicine and Acute Care for the Elderly (ACE) Specialty Unit. The goal was to improve the adverse events made during medication administration, which in turn reduces medical error costs and improves patient outcomes and patient safety. A review of the literature revealed several key points: (1) Medication errors are increasingly recognized as a significant, but preventable problem in our health care system, (2) Interruptions are implicated as a cause of clinical error, (3) Medication errors are associated with excess health care costs and most importantly, (4) Harm to the patient (Westbrook, Woods, Rob, Dunsmuir, & Day, 2010). Project data was gathered from a variety of sources, including interviews with key stakeholders, unit observations and assessment, and staff and patient surveys. Interventions included informational posters, nurse and unit clerk education at staff meetings, identification of unit specific interruption patterns, face-to-face conversations, and distribution of educational packets. The pre-intervention survey of the day shift and night shift registered nurses (RN) (n=20) found that when asked how often a nurse was interrupted during each medication administration, 45% of the unit RNs reported they were "Usually (45-89%)" interrupted. In the same survey, 25% of the RNs reported "Always (90-100%)" being interrupted and 30% reported only being interrupted "Sometimes (1-44%)". During a two-day pre-intervention observation of the unit clerk, 63 interruptions were observed during the medication administration time period of 8:00AM – 10:00AM. Of those 63 interruptions, 41 of those phone calls, pages and call

lights were considered emergent, needing a nurse to be paged, while 22 of those

interruptions were non-emergent. Although the post-intervention observation showed

more phone call interruptions, the ratio of emergent calls and non-emergent calls showed

that there was still a reduction of 6% in the interruptions to the nurses. The use of the

triage algorithm for phone calls, pages and call lights aided in the reduction of

disruptions. These results indicated that the interventions were successful, however there

is a need to promote staff diligence and compliance for the use of the phone triage

algorithm, message sheet, medication administration sign up sheet, and overhead

announcement. A sustainability plan, including recommendations were presented to the

unit nurse manager and the entire staff.

An Effort to Reduce Medication Errors by Preventing Avoidable Interruptions

The Problem

As defined by the Center for Drug Evaluation and Research (CDER), and the Division of Medication Error Prevention and Analysis (DMEPA), medication errors are any preventable events that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient, or consumer (FDA.gov, 2014). Individuals make mistakes or fail to inhibit them due to errors caused by faulty systems, processes and conditions. Therefore, designing a healthcare system that makes it difficult for people to make errors can best prevent mistakes. To tackle this problem is an enormous task. (Institute of Medicine, 1999). The goal was to improve the adverse events made during medication administration, reduce medical error costs and improve patient safety and outcomes.

This Clinical Nurse Leader (CNL) project took place at a level I trauma center in the San Francisco Bay Area, on a 34-bed Medical Surgical, Behavioral Medicine and Acute Care of the Elderly (ACE) Specialty Unit. Based on nurse surveys, informal observations and audits during medication administration, 45% of nurses reported interruptions were a usual (45 – 89%) occurrence, while 25% reported interruptions occurred always (90 – 100%) and 30% reported interruptions occurred sometimes (1 – 44%). In an audit of nurses during medication administration (n=18), it was found that a total of 56 interruptions transpired, and a total of approximately 59 minutes of interrupted time misused. Furthermore, surveying and observations uncovered that 75% of interruptions were due to phone calls (ie: Family medicine, Medical Team, Pharmacy),

followed by other patients needing attention (64%), time spent waiting to enter the medication room (55%), and another nurse needing assistance (42%). As a result, many nurses conveyed needing an improvement or change in staff culture regarding medication administration in order to reduce interruptions and potential medication errors. With baseline data collected, and an assessment of the microsystem completed, an emphasis on the interruptions during medication administration was considered appropriate to improve nurse satisfaction by improving process flow. In the time limitations, a small test of change was developed to better assess and establish a strong framework for the unit.

Literature Review

Medication errors can occur at any phase of the medication process including dispensing, preparation, administration and monitoring (Vincent C., Barber N., Franklin, B., *et al,* 2009). Medication administration has very few defenses against errors because it happens at the end of the medication process. Biron, Loiselle, and Lavoie-Tremblay (2009) reported that nurses identified interruptions as a substantial contributor to medication administration errors; and based on 14 observational studies, a rate of 6.7 interruptions per hour was recorded. A study in Italy on seven surgical wards revealed one interruption for every 3.2 drugs given, citing telephone calls being the major source for the interruptions. (Palese A, Sartor A, Costaperaria G., *et al* 2009). While in the United States, a survey of 284 hospital nurses, also found that interruptions were perceived to be the prime component for medication errors. (Biron et al.,2009). In an investigation by Westbrook, et al., (2010), wrong timing of medication administration was reported as the most frequent clinical error, with interruptions occurring in 53.1% of all administrations (n=688 administrations). An increased number of errors correlated to

the greater number of interruptions nurses received. This is the first substantial study that has demonstrated a direct association between interruptions and clinical errors in hospitals.

According to an article in the Journal of Nursing Care Quality by Freeman, McKee, Lee-Lehner and Pesenecker (2013), current literature illustrates significant adverse consequences of medication errors in hospitals. Although a multitude of circumstances can lead to medication errors, the most common sources contributing to medication errors are: (1) interruptions, (2) environmental distractions, (3) nurse workload, (4) alarms, (5) cognitive function and education, (6) look-alike and sound-alike medications and packages, and (7) communication. Furthermore, they reported that nurses were interrupted on average 22% of the time, frequently during critical tasks such as during the administration of medication. It is also indicated that a vest, apron, sash, button, or other clothing items are important for nurse to wear while administering medications to prompt others to not interrupt. The study showed a reduction in interruptions after the implementation of a visual queue. While the overall goals of many studies are to reduce interruptions, Freeman, et al (2013), also recognize that realistically, in the hospital setting, there are many interruptions that cannot be eliminated. Still, with the need to improve safety during medication administration, a plan to reduce interruptions was created to reflect the following: (1) lighted lanyards worn by nursing staff during medication administration to indicate they should not be interrupted, (2) transitioning the medication room into a No Interruption Zone, (3) phone scripts for unit clerks to triage calls during peak medication administration times, (4) patient and family educational brochures provided on admission, (5) signs placed on each bedside table

regarding medication safety, (6) electronic medication administration record (eMAR) review during nurse-to-nurse handoff, (7) a scripting card to encourage dialogue between nursing staff and patients and families to discuss medication safety and the purpose of the lighted lanyard, (8) letters to stakeholders, and (9) education of unlicensed assistive personnel (UAP) to round, answer call lights, and respond to alarms during peak medication administration times. (Freeman, McKee, Lee-Lehner, & Pesenecker, 2013). This study's outcome indicated a direct relationship between the use of bundled interventions and the reduction of interruptions.

A study of seven hospitals in the San Francisco Bay Area suggests that registered nurses and other hospital based staff, such as the unit clerks, if given the training, and resources, are fit to improve patient care and safety processes on hospital patient units. (Kliger, Blegen, Gootee & O'Neil, 2009). This study was designed to improve the reliability of medication administration by improving the processes of the medical unit. In one case study, Hospital A developed a protected hour for nurses to focus exclusively on medication administration. During this hour, all calls (ie: patients, physicians, pharmacy) were held, and overhead announcements were not returned. On average, the implementation of the protected hour eliminated the interruptions of eight phone calls and three overhead pages per nurse. (Kliger et al., 2009). The team focused on decreasing interruptions from phone calls by developing a phone script to address callers and explain why the nurse could not take the call and a phone log in which the unit clerk noted the individual calling, the reason for the call and the call resolution. Targeting improvement of interruptions were determined by data collected from observations of the medication administration process.

The Journal of Research in Nursing published an article "*Reducing Interruptions During Medication Administration – The White Vest Study*," (Craig, Clanton, & Demeter, 2013) reviewed the study by the well-known Institute of Medicine.   In this review, researchers examined the most frequently observed interruptions, as defined by the Institute of Medicine, to develop and evaluate the intervention consisting of wearing vests during the medication administration period. The nurses on this test unit were observed for two weeks during routine medication administration periods. The vest was implemented and worn for another two-week period for post vest introduction observations. Data was collected on four of the units simultaneously, revealing that phone calls, questions by another staff and seeking supplies were the most frequent observed interruptions. Furthermore, it was found that with the use of vests to queue staff when a nurse was administering medication, there was a decrease in overall interruptions (Craig, Clanton and Demeter, 2013).

In a study by Kalisch and Aebersold (2010), they reviewed the relationship between interruptions, multitasking and errors. Conducted in two Midwestern Hospitals on seven patient care units, 36 nurses were observed for four-hour periods, a total of 136 hours. Within these 136 hours and 3,341 events witnessed, a total of 1,354 interruptions were recorded. This equated to nurses interrupted 10 times per hour or 1 interruption per 6 minutes. Of the number of interruptions between both hospitals, 38% of those interruptions caused a break in task, often resulting in a second interruption. It was also found that interruptions most commonly occurred while communicating, followed by documenting and administering medication. In Hospital A, 57% of the nurses were interrupted while administering medication, and 36% at Hospital B. Further analysis

found that patients (28%), other nurses (25%), PCAs (10%) and physicians (9%) were the source of these interruptions.

Cost Analysis

According to the article by the Institute of Medicine, *"To Err is Human: Building a Safer Health System" (1999)*, up to 98,000 people die each year due to preventable medical errors. It has been estimated that as a result to these medical errors, lost of income and other costs (ie: disability) are between $17 billion and $29 billion per year in hospitals nationwide. Moreover, costs of medication errors are estimated to be $4,700 per hospital admission. In this project, unit clerk education required a three-hour session. As found on a clerk job posting, a clerk at a Bay Area Hospital is allotted $26/hour. As an incentive to participate in the project education session, the unit clerk is offered time and a half, a rate of $39/hour or $117. For a small test of change, this is a small cost for a potentially great and beneficial implementation. A CNL can make upwards to $150,000/year, therefore a CNL student carrying out this work benefits the hospital and unit in terms of savings and costs tremendously.

Root Cause Analysis

To investigate the issue of medication errors at this hospital in the San Francisco Bay Area, an assessment of the Medical Surgical, Behavioral Medicine, Acute Care for the Elderly Unit, and a root cause analysis was conducted using multiple sources of data: unit observations and assessment, staff and patient surveys, observations from shadowing registered nurses and unit clerks, as well as interviews with various staff (nurse manager, charge nurses, and the clinical nurse specialist). The literature review revealed several

key points: 1) Medication errors are increasingly recognized as a significant, but preventable problem in our health care system, 2) Interruptions are implicated as a cause of clinical error, 3) Medication errors are associated with excess health care costs and most importantly, 4) Harm to the patient (Westbrook, et al, 2010). Reviewing the literature helped to identify interventions that have been effectively incorporated into similar microsystem settings. Once the interventions were identified, it was presented to the Patient Safety Officer, Chief Nursing Officer (CNO), and the unit Nurse Manager for approval. With the help of colleagues and instructors, options were narrowed to the definitively preferred intervention. Several interventions emerged from the Root Cause Analysis, including informational packets, containing an overhead announcement script, a phone call triage algorithm, medication administration sign up sheet, and a phone log sheet (Appendices F, G, H, and I). Education was done face-to-face with the unit clerks with the nurse manager present and distribution of the educational packets (The complete Root Cause Analysis can be found in Appendix A).

Pre-Intervention Survey

Nurses were informed that one of the aims of the study was to identify errors in the administration and preparation of medications. Baseline data was gathered on RNs through a Pre-Intervention Survey (n=20) of their perception of the problem, conducted on both day and night shift staff. Respondents represented 75% of the nursing staff on the unit (The text to the survey can be found in appendix B).   Surveys revealed that 45% of the nurses perceived they were interrupted 45 – 89% of the time (Usually), while 25% reported interruptions occurred 90 – 100% of the time (Always), and 30% stated interruptions occurred only 1 – 44% (Sometimes) (Figure 1).   When asked, 95% of the

nurses reported that phone calls were the main source of barriers or interruptions. Phone call interruptions were followed by nurses waiting in line for the medication room (90%), other patients needing assistance (80%), another nurse needing assistance, waiting for the doctor or pharmacy to return a call and equipment not working (60%), and other variables such as a bed alarms, and family questions (25%) (Figure 2).   Finally, when asked where the nurses were interrupted the most, 95% reported interruptions occurred in the hallway, 45% in the medication room, and 35% reported interruptions in the patient rooms. (Figure 3).

Patient surveys were also collected, but the data was not used in the final intervention for this project. (A full transcript of the patient survey can be found in Appendix C).

Along with nurse surveys, 18 nurses gave verbal consent to be observed during their usual medication administration time. In this audit, it was found that a total of 56 interruptions occurred, 34 of which were phone calls or pages and 22 were call lights from patients needing assistance. Of the 56 interruptions, 40 were deemed emergent, therefore a nurse was paged, and 16 did not need the immediate attention of a nurse since it was considered a non-emergent call. A total of approximately 59 minutes of interrupted time was recorded as misused. (Complete transcript of Audit sheet can be found in appendix D).

Intervention

As mentioned previously, several interventions emerged from the Root Cause Analysis; the root cause of medication errors are implicated as avoidable interruptions,

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which causes harm to the patient. With the addition from the pre- intervention surveys and observations, the focus of the educational intervention became more specific, and the follow approach was chosen as most applicable:

1. Reduce phone call interruptions

2. Triage phone calls as emergent or non emergent

3. Offer Unit Clerks materials to aid the nurses during medication administration hours

   To reduce medication errors by preventing avoidable interruptions, unit clerks were provided with informational packets containing an overhead announcement script, a phone call triage algorithm, medication administration nurse sign up sheets, and a phone log sheet. (Appendices F, G, H and I). Education was done face-to-face with the unit clerks with the nurse manager present, as well as the distribution of the educational packets. Due to busy schedules, time constraints, and high levels of distractions, the success of providing educational content to the unit clerks required multiple modes of delivery. Some of these methods included education at two staff meetings, 1:1 conversations, distribution of informational handouts and posters displayed in the break room and nursing station. (See Appendix I for the informational phone call algorithm created for this intervention). On each day of the study, the CNL arrived on the study ward at the medication administration times during the day (8:00 AM– 10:00 AM or 9:00AM – 11:00AM) and closely monitored the unit clerk who had provided verbal consent to participate in this small test of change. Observations took place during two medication pass times. (See Appendix E for unit clerk observational tool).

Post-Intervention Observations

After the completion of all project educational interventions according to a proposed timeline (see Appendix L), the unit clerks were given the tools to continue the implementation on the unit. Post intervention analysis of the data collected revealed that 63 interruptions were observed. Of those 63 interruptions, 41 of those phone calls, pages and call lights were considered emergent and need a nurse the be paged, while 22 of those interruptions were not emergent. Although the post-intervention showed more phone call interruptions, there was still a reduction of 6% in the interruptions to the nurses (See Appendix J and Figure 4). The unit clerks were able to use the phone call triage algorithm to determine whether a phone call was emergent or not, and took messages or paged other hospital staff to assist where needed. These results indicated that the interventions were successful at meeting the goals of reducing medication errors by preventing avoidable interruptions such as phone calls.

In addition to meeting the project goals on decreasing the number of interruptions to nurses during the medication administration time period, recommendations were presented to the nurse manager to help maintain this change in hopes to further decrease interruptions and medication errors.

Methodology

A framework for the Clinical Nurse Leader's success for implementing planned change in the healthcare system is the use of Gordan Lippitt's Theory of Planned Change.   Comprised of four elements: assessment, planning, implementation and evaluation, Lippitt's seven phases can be defined on these bases. Based on Kurt Lewin's

change theory, Lippitt's, planned change is defined as goal-directed, a conscious, planned effort which moves a system, an organization, or an individual, group, or institution (Mitchell, 2013). These phases are to focus on the role as a change agent throughout the evolution of the change. A key to change is having the right person be the voice of change and the support for the change to empower the process. A change agent, such as the CNL, initiates and accomplishes the change proposed by encompassing oneself with the situation. In phase 1, the CNL diagnoses the problem. The need for change is recognized and voiced to staff members that will be affected. Phase 2 assesses motivation of affected members and the capacity for employed change. Conversely, assessing the change agent's (CNL) commitment and recourses for change is evaluated in phase 3. The initiator of change or in this case, the CNL's experience, motivation and efforts are important factors to being a leader and moving forward with this process. The CNL will define the platforms of change in phase 4 and ensures the roles and responsibilities of the change is understood and communicated well to facilitators in the 5th phase. Phase 6 is the maintenance of the change through communication, feedback and coordination with various team members involved. The 7th and final phase is gradual removal of the change agent from the facilitated system. The change agent withdraws from the situation, leaving the system to maintain the change.

Through careful review for this Bay Area Hospital's policy and procedures, it was discovered that no standardized protocols are in place for addressing the interruptions during medication administration within the institution. In executing the use of Lippitt's change theory, the first step is to diagnose the problem by observing all angles, such as consequences and complications of the staff affected by change. The CNL met with

stakeholders to communicate and involve those in policy-making roles. This ties in with phase 3, which is the assessment of the CNL's desire to promote change and the personality to assume the role. Possible solutions and ideas are researched for consideration with methods, pros and cons of affected staff and their incentives for participation. Assessment considers a multitude of regulations and cost effective outlets. The CNL organized groups for gathering data and testing methods. In phase 4, the change process was defined and a detailed plan of action was established. Responsibilities were delegated and a timeline was created. The change was implemented for a predetermined time and then evaluated. Throughout this change process, the CNL was actively facilitating the change, handling all conflicts and successes that arose. Maintenance of the change through effective communication and feedback was essential. Once the change had been successfully implemented, the CNL was removed from the environment and let the new protocol thrive and evolve; yet still remaining available to offer assistance.

Discussion

As previously shown, phone calls and pages are the greatest source of interruptions to nurses during the medication administration time phase. Any interventions that can reduce interruptions and in turn decrease medication errors can therefore work towards increasing patient safety and outcomes. As noted, this project successfully met its goal of reducing interruptions to nurses during the administration of medication on a 34-bed Medical Surgical, Behavioral Medicine, and Acute Care for the Elderly unit, located in the San Francisco Bay Area. Within this unit, there is a need to promote staff diligence and compliance pertaining to the implementation. If the unit will

consider these recommendations and continue to carry forward the intervention at a hospital wide level in the future, thus helping to prevent medication errors, decrease in excessive cost of errors will lead to the delivery of the best care for patient safety and outcomes. Sustainability plans including recommendations were presented to the unit nurse manager and the entire staff.

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    errors. *Archives Of Internal Medicine*, *170*(8), 683-690.

    doi:10.1001/archinternmed.2010.65

Appendix A: Root Cause Analysis

Medication Administration Error
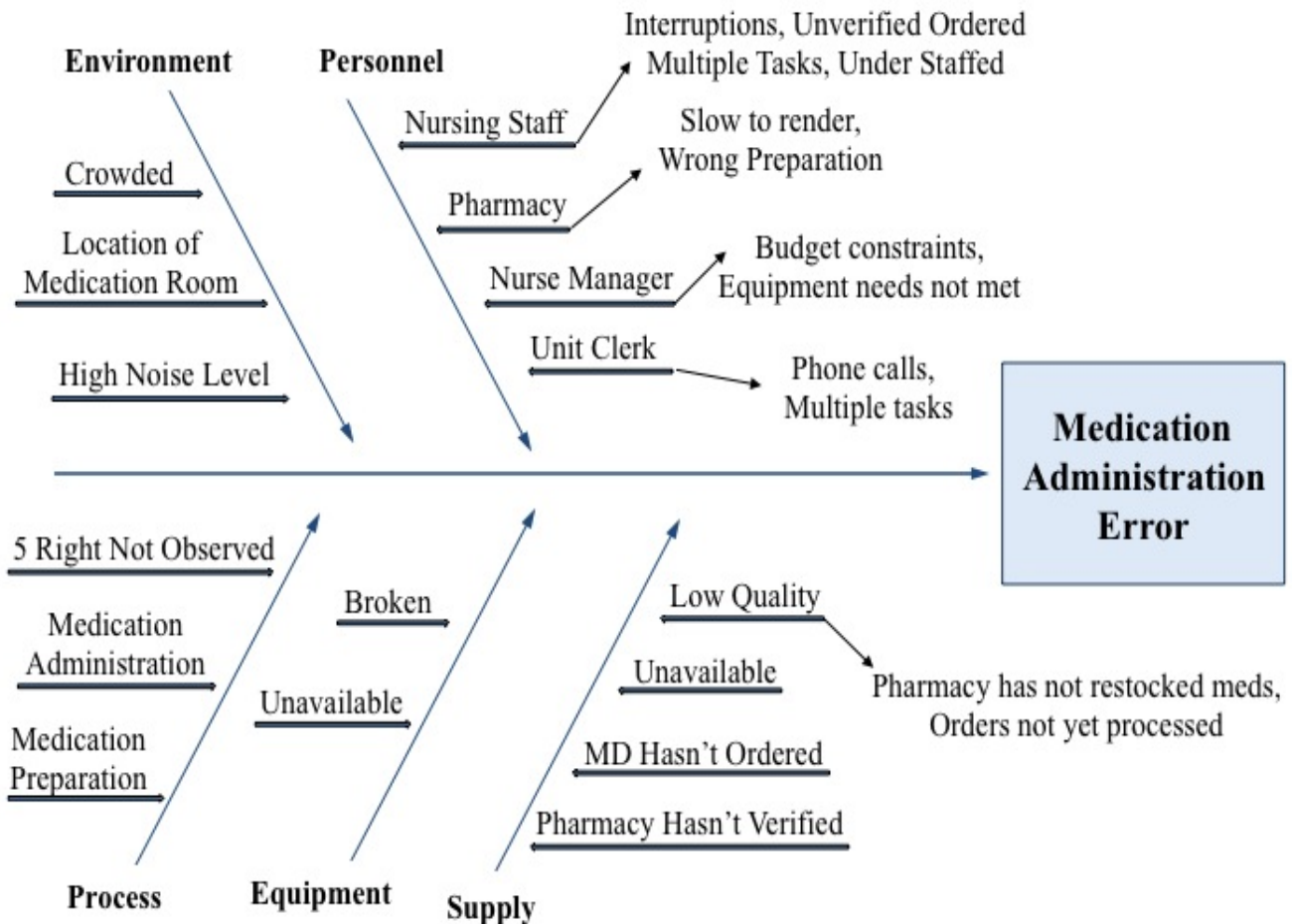
Appendix B: Nurse Survey

Medication Administration

NURSE Questionnaire (*please add any comments on the back of this page*):

1. How often are you interrupted during each medication administration? *Interruption = stopped, faced with a barrier*

    Always(90-100%)   Usually (45-89%)   Sometimes (1-44%)   Never (0%)

2. What are the barriers or interruptions you face while administering medications? *Select all that apply:*

- Another nurse needs assistance
- Phone calls
- Waiting in line for med room
- Waiting for doctor/pharmacy
- Other patient needs attention
- Equipment not working/cannot be found
- There are no interruptions
- Other: _____

3. What do you do when you encounter an interruption or barrier during medication administration? *Select all that apply:*

- Scanner doesn't work: _____
- Patient doesn't have a wristband: _____
- Medication isn't available:_____
- Other:_____

4. Where do interruptions occur the most? *Select all that apply:*

- Medication room
- Hallway
- Patient's room

5. What would prevent interruptions or barriers during your medication administration? *Select all that apply:*

- Additional equipment (EX: more COWS, scanners, dinamaps, etc)
- Improved equipment (EX: scanners, RN anywhere, functional COWs)
- Provide support for nurse-led patient education and teach-back (EX: written, audio, visual aids)
- Better or more direct communication with Pharmacy
- Better or more direct communication with PCP

- Improved staff culture regarding med pass (coworkers choosing to respectfully not interrupt you during med pass)
- Wearing medication vest, sash or button during medication administration to alert others to not interrupt.
- No improvements are needed for the medication administration process

6. Which part of the medication administration process is most time-consuming? What are some ways to improve those time consumptions?

7. What are some strategies or solutions to encourage no talking or interruptions in the med room?

8. What are some strategies or solutions to prevent *any* interruptions during the med pass (from the time you decide to give meds to walking into the patient's room to deliver them)?

Appendix C: Patient Survey

Medication Administration

PATIENT Questionnaire:

1. How long does it take for you to receive medication after you've requested it?

  1-14 minutes   15-29 minutes   30-44 minutes   45-59 minutes   More than 1 hour

2. Does the nurse ever leave your room during the time he/she is giving you medication?

   Always(90-100%)   Usually (45-89%)   Sometimes (1-44%)   Never (0%)

3. How safe and comfortable do you feel when your nurse is giving you your medication?

   Very safe   Somewhat safe   Neutral/Nothing   Not very safe   Not safe at all

4. How often does your nurse prepare the medication in your room?

   Always(90-100%)   Usually (45-89%)   Sometimes (1-44%)   Never (0%)

5. Do you feel that your nurse explained your medications and side effects clearly every time they gave you medicine?

   Always(90-100%)   Usually (45-89%)   Sometimes (1-44%)   Never (0%)

INTERRUPTIONS DURING MEDICATION ADMINISTRATION

Appendix D: Medication Administration Observation Tool

DATE/TIME: UNIT:
AM/PM SHIFT: MED PASS: ____OF____   TOTAL
\# OF PTS:

COMPLETED? Y/N/NA	TASK	# OF INTERRUPTIONS	TOTAL TIME OF INTERRUPTIONS	COMMENTS
	Verify relevant information (i.e. pain scores, vital signs and other needed clinical information) prior to entering medication room			
	Enter the medication room and sanitize/wash hands			
	Select all medication(s) in Omincell, verify against MAK			
	Remove medications from Omnicell, verify using the "five rights" (right patient, medication, dose, route and time)			
	Waste partial medication doses before leaving the med. room and cosign if necessary (i.e. narcotic waste, high-risk medications)			
	Label any medication that is not administered in its original container/syringe			
	Enter patient's room and sanitize/wash hands			
	Verbally confirm patient's name, DOB and any medication allergies against the MAK			
	Remind the patient: "for your safety, we will be asking for this information every time we give you any medications."			
	Scan patient's barcoded ID AND medication(s) to confirm the "five rights" (right patient, medication, dose, route and time)			
	Open and administer medications in front of the patient			
	Educate the patient: Include medication name,			

	indications, and side effects.			
	Remind Patient: It is important to SFGH that you always know and understand the medications you are taking and their side effects. Use teach-back to confirm understanding. Once the patient has received the medication and education several times, the patient should be able to provide the medication information independently.			
	Ensure patient ingests the medications in your presence			
	Enter additional relevant information and then click "Chart" in LCR			
	Perform hand hygiene when you exit the patient's room			

Appendix E: Unit Clerk Observation Tool

Date:					
Clerk:					
Page	Call light	Reason for page/call	Nurse necessary?	Was RN called/paged overhead	Total # of pages & call lights

Appendix F: Unit Clerk Overhead Announcement Script

Beginning of medication administration - time: _____
"Attention [UNIT]. Medication administration has now begun. Please refrain from interrupting nurses at this time. Med pass time will end at _____. Thank you."

End of medication administration - time: _____
"Attention [UNIT]. Medication administration has now ended. Thank you."

Appendix G: Unit Clerk Message Sheet

MESSAGES

UNIT:_____

DATE: _____

NURSE	CALLER & CONTACT INFO	MESSAGE	TIME

Appendix H: Medication Pass Sign Up Sheet

Date:

Please write name and check appropriate box when on and off med pass.

Nurse Name	**ON** Med Pass	**OFF** Med Pass

Appendix I: Unit Clerk Algorithm

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                          ┌─────────────────────┐
                          │   CALL RECEIVED     │
                          └─────────────────────┘
                 ┌────────────────┴────────────────┐
         ┌───────────────┐                  ┌───────────────┐
         │  CALL LIGHT   │                  │  PHONE CALL   │
         └───────────────┘                  └───────────────┘
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CALL LIGHT

Hi, (your greeting).

_____ *is on med pass right now. How can I help you?*

IS THIS AN EMERGENT ISSUE?

- YES → PAGE NURSE OR NOTIFY CHARGE NURSE FOR TRIAGE
- NO → DOES CALLER NEED IMMEDIATE ASSISTANCE?
  - NO → TAKE MESSAGE AND ASK IF CALLER CAN CALL BACK AFTER MED PASS HOURS
  - YES → PAGE PCA OR ALTERNATE STAFF TO ASSIST PATIENT IN ROOM

PHONE CALL

Hi, (your greeting).

_____ *is on med pass right now. How can I help you?*

IS THIS AN EMERGENT ISSUE?

- YES → PAGE NURSE OR NOTIFY CHARGE NURSE FOR TRIAGE
- NO → TAKE MESSAGE AND ASK IF CALLER CAN CALL BACK AFTER MED PASS HOURS

EMERGENT ISSUES (Manager, please update per unit's needs):

- Critical Lab Value
- MERT response

Appendix J: Unit Observations Data: Before and After Intervention

Unit	Before	After
# of med pass "shifts" observed	2	2
TOTAL # of pages & calls rec'd	56	63
# of Pages/calls	34	45
# of Call lights	22	18
Nurse necessary/Emergent call	40	41
Nurse NOT necessary/Non-emergent	16	22
RN paged/called overhead	34	35
RN NOT paged/called overhead	22	28

Appendix K: Recommendations

Welcome to San Francisco General Hospital and Trauma Center!

On [UNIT], nurses give medications to patients at:
- [Morning pass time]
- [Afternoon pass time]
- [Evening pass time]
-

At this time, you will see nurses wearing [red vests]. The [red vest] means that the nurse is on med pass and will need to fully concentrate and focus on this task. This is to ensure our nurses are not interrupted and can safely prepare medications and focus on the patient they are giving medications to.

Whenever you see a nurse in the [red vest], please refrain from interrupting him/her with non-emergency needs. Instead, you may use your call light button to call the unit clerk or the patient care assistant (PCA) and let them know what you need.

As a friendly reminder, you will also hear an announcement on the overhead when med pass time has started and when it has ended.

Also please know that this does not mean you cannot ask your nurse questions about your medications. In fact, we encourage you to do so! Please let us know if you have any questions or concerns!
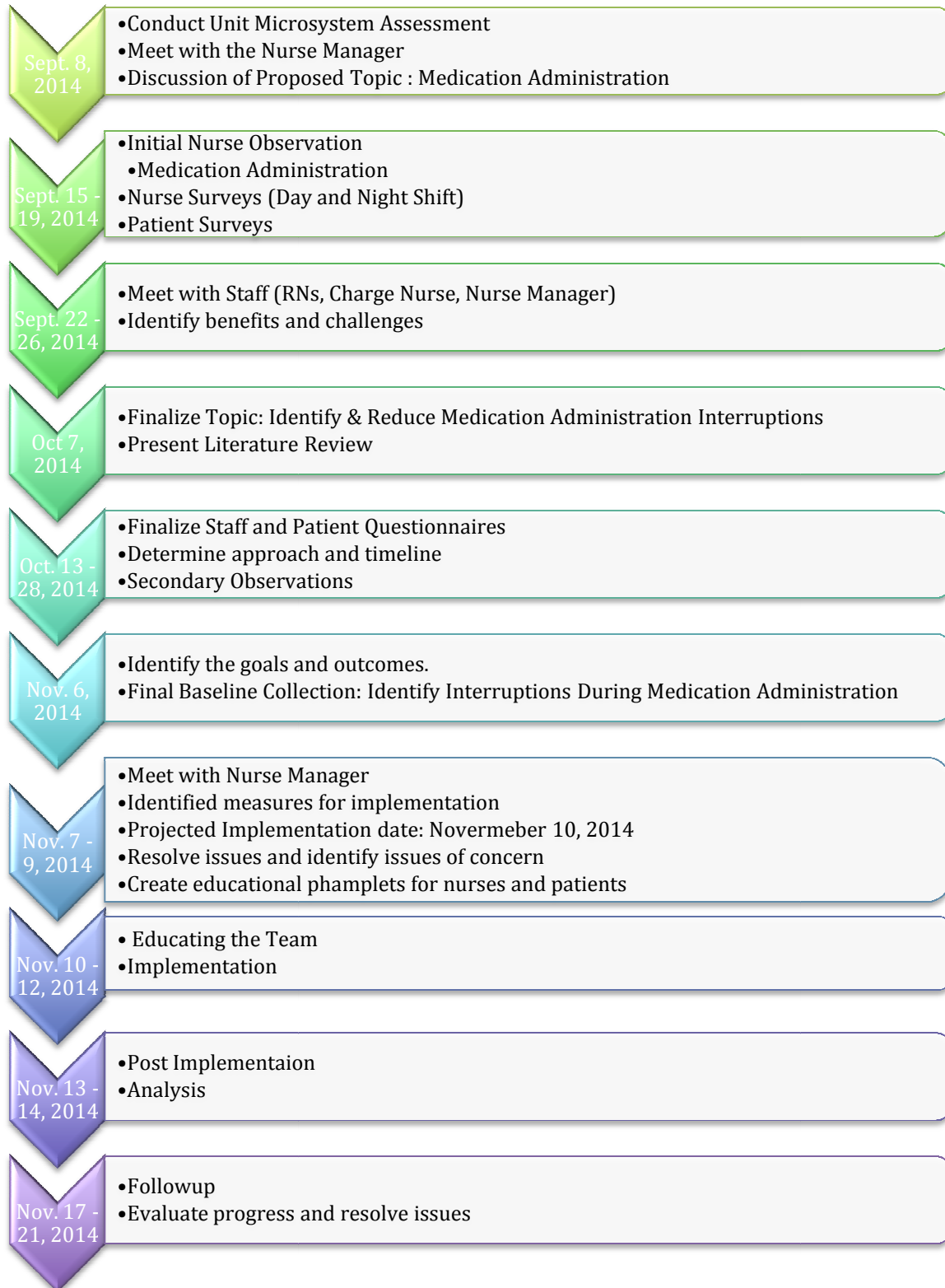
Thank you for your cooperation!

SFGH Nursing Department

Appendix L: Timeline

Sept. 8, 2014	• Conduct Unit Microsystem Assessment • Meet with the Nurse Manager • Discussion of Proposed Topic : Medication Administration
Sept. 15 - 19, 2014	• Initial Nurse Observation • Medication Administration • Nurse Surveys (Day and Night Shift) • Patient Surveys
Sept. 22 - 26, 2014	• Meet with Staff (RNs, Charge Nurse, Nurse Manager) • Identify benefits and challenges
Oct 7, 2014	• Finalize Topic: Identify & Reduce Medication Administration Interruptions • Present Literature Review
Oct. 13 - 28, 2014	• Finalize Staff and Patient Questionnaires • Determine approach and timeline • Secondary Observations
Nov. 6, 2014	• Identify the goals and outcomes. • Final Baseline Collection: Identify Interruptions During Medication Administration
Nov. 7 - 9, 2014	• Meet with Nurse Manager • Identified measures for implementation • Projected Implementation date: Novermeber 10, 2014 • Resolve issues and identify issues of concern • Create educational phamplets for nurses and patients
Nov. 10 - 12, 2014	• Educating the Team • Implementation
Nov. 13 - 14, 2014	• Post Implementaion • Analysis
Nov. 17 - 21, 2014	• Followup • Evaluate progress and resolve issues

Figure 1: What are the barriers or interruptions you face while administering medication?

What are the barriers or interruptions you face while administering medications? (Select all that apply)
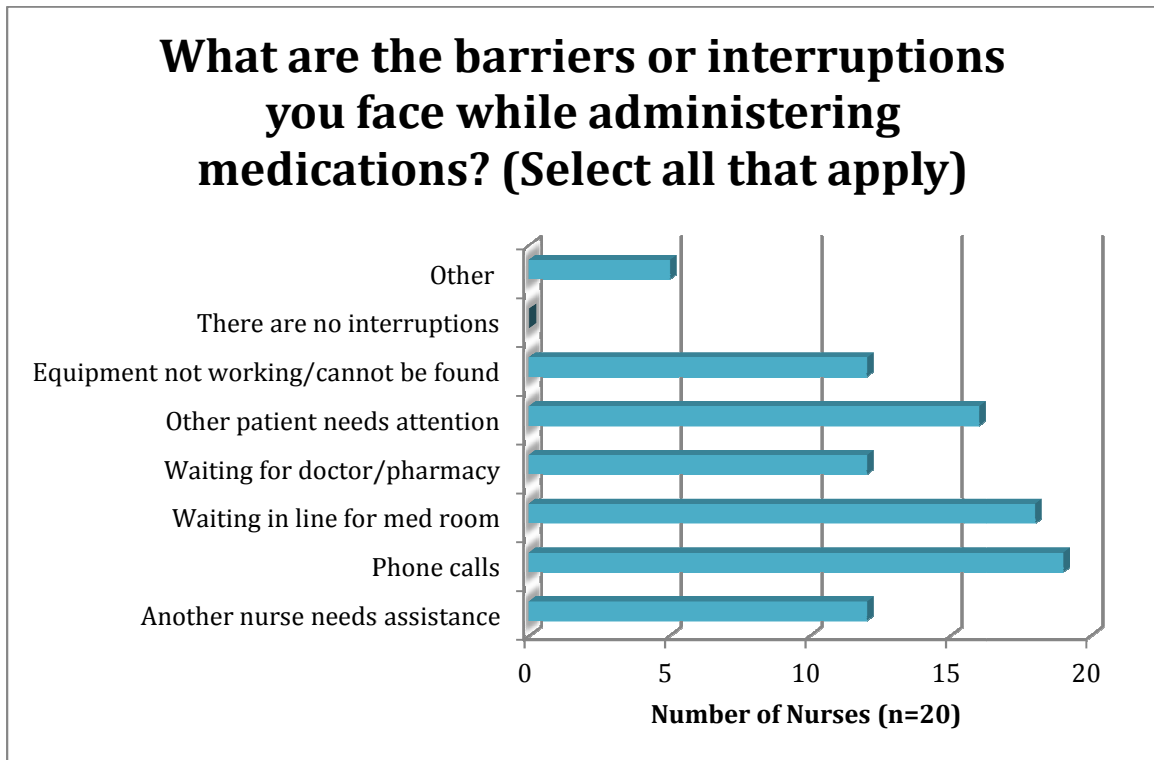
Figure 2: How often are you interrupted during each medication administration?

How often are you interrupted during each medication administration? (Select one)

Number of Nurses (n=20)
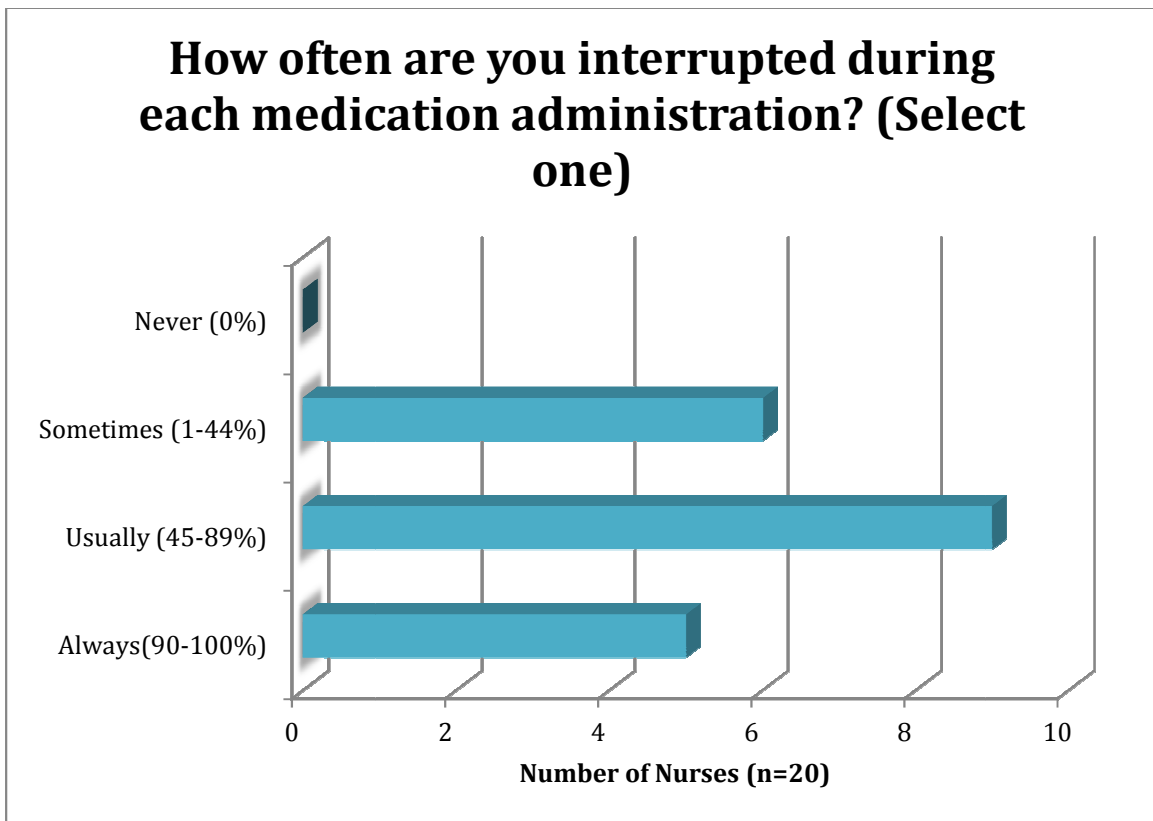
Figure 3: Where do interruptions occur the most?

Where do interruptions occur the most?
(Select all that apply)
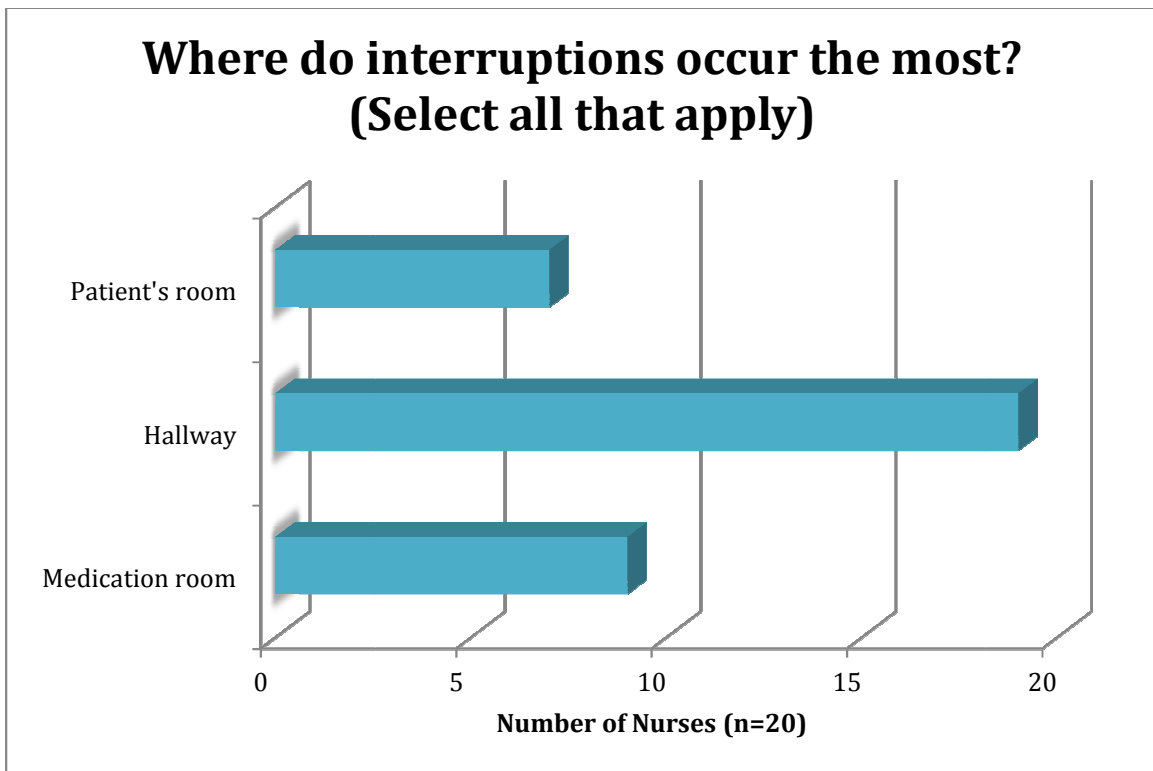
Figure 4: Unit Clerk Observations: Before and After Intervention

Unit Clerk Observations:
Before and After Intervention