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Roberta Howard
University of San Francisco, a.roberta.howard@gmail.com

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Improving Patient Outcomes and Nurse Satisfaction by Reducing Avoidable Interruptions During Medication Administrations

Roberta Amie Howard

University of San Francisco

Abstract

Medication administration is an important part of nursing duties in acute-care settings. The nurse is responsible for prioritizing safe quality care when administering medications but errors do occur. This project addressed interruptions as one of the challenges of safe medication administration. The aims of this project are 1) to determine a standardized medication administration process 2) to identify perceived and actual interruptions on the unit and 3) to address and reduce the avoidable interruptions of calls, pages and call lights at the nurse station. The purpose of this project is to improve patient outcomes, nurse satisfaction and nurse workflow by reducing medication administration errors due to avoidable interruptions. A CNL student, Patient Safety Officer, nurses, unit staff and unit clerk participated in the project through microsystem assessments, surveys and observations to reduce calls, pages and call lights during unit specific medication administration hours. There was a reduction in overhead pages for nurses, which may indicate an effective intervention of triaging emergent and non-emergent incoming calls by clerks as well as patients waiting until the medication administrations hours were over prior to requesting nurse assistance. Pre-implementation, nurses were paged overhead 78% of the time compared to post-implementation of 46%. This indicates the clerks triaged call lights effectively after implementation. Safe medication administration remains an important area of improvement and this project provides an example of effective strategies to reduce avoidable interruptions.

Improving Patient Outcomes and Nurse Satisfaction by Reducing Avoidable Interruptions During Medication Administrations

In acute care settings, it is the nurse that is responsible for providing safe medication administrations to patients. Medication administration is a main nursing task, and has the potential for error resulting in financial and human loss. The Institute of Medicine's (2000) landmark study highlights these losses. According to the report, 10% of preventable adverse events were medication administration errors and 2% of admitted hospital patients experienced a preventable medication administration adverse event. This equates to nearly $5,000 in hospital costs per admission and 7,000 annual patient deaths due to medication errors (Institute of Medicine, 2000). Given the potential severity of medication errors, nurses are faced with challenges in providing safe medication administrations, namely interruptions. For the purpose of this project, an interruption is defined as any distraction, intrusion or interruption from the nurse themselves, other staff, environment and any external factors that prevented a linear medication administration from the medication room to the patient.

Research has shown that interruptions not only take up much of a nurse's time during a shift but also can have detrimental effects on safe medication administrations and patient care. A study focusing on interruptions during a nurse's shift and negative outcomes found that 13,025 interruptions occurred during a total of 2,880 hours of observed nursing shifts. Although the interruptions occurred over the duration of a shift, 17% of the interruptions happened while the nurse was preparing or administering medications and 90% of all interruptions resulted in delayed treatment or loss of concentration on the task at hand (Hall et al., 2010). Similarly, an observational study was able to determine the rate of 6.9 interruptions per hour lasting

approximately 17 minutes per hour. The study reported a third of a nurse's time is spent resolving interruptions (Smeulers, Hoekstra, van Dijk, Overkamp, & Vermeulen, 2013). Lastly, a northern California hospital collected data from 2008-2013 and reported an average of 3% of medication administrations occurred with errors, 30% of errors due to wrong time and an average of 14% of medication administrations had interruptions (S. Cutler, personal communication, September 30, 2014). The information referenced above provides significant insight into reasons for a nurse's loss of time at the bedside and inability to dedicate their complete focus on safe patient care during medication administrations.

The Clinical Nurse Leader (CNL) project took place at an urban level-one trauma hospital in Northern California. A CNL student worked with the hospital Patient Safety Officer and staff on a medical-surgical trauma unit to determine an area in need of improvement, which was established to be the medication administration process. The Institute of Medicine (2000) recommends standardizing medication administration processes to help reduce errors. The review of literature and recommendation for standardization prompted an initial assessment of the current medication administration process on the unit. It was found that although standardizing the medication administration process could reduce error, it did not address interruptions. Once a standardized medication administration process was created, further literature review was conducted to understand the scope of the problem and effective solutions in reducing interruptions. Lippitt's theory of change was applied to this project, as each of the seven phases is easily identifiable within the nursing process of ADPIE: Assessment, Diagnosis, Plan, Intervention and Evaluation (Mitchell, 2013). Therefore, Lippitt's theory was utilized to produce change on the unit in conjunction with using the nursing process for the final organization of this paper.

The aims of this project are 1) to determine a standardized medication administration process 2) to identify perceived and actual interruptions on the unit and 3) address and reduce the avoidable interruptions of calls, pages and call lights at the nurse station. The goals of this project are to improve patient outcomes, nurse satisfaction and nurse workflow by reducing medication administration errors due to avoidable interruptions.

Literature Review

The emphasis of the most recent literature review focused on identifying a positive association between interruptions during medication administration and increased risk for errors, the scope of the problem and evidence-based solutions to reduce avoidable interruptions in acute-care settings. Avoidable interruptions were determined to be non-emergent issues. Westbrook, Woods, Rob, Dunsmuir & Day (2010) observed 98 nurses provide 4,271 medication administrations for 720 patients across two major hospitals in Sydney, Australia. They hypothesized that interruptions during medication administration increased errors. Interruptions were reported in 53% of medication administrations and 80% of the administrations had some type of error. Wrong timing was found to be the most frequent clinical error at 16%. The researchers were able to determine a positive association between an increase in interruptions and an increase in medication administration errors. The most valuable information in understanding the relationship between interruptions and error was the ability to predict the severity of error with increasing interruptions. The data proved that the risk of a major clinical error transpiring during one medication administration more than doubled when experiencing no interruptions to 4 interruptions. A high frequency of interruptions during the medication administration process means a greater likelihood of clinical error by the nurse. It is clear that

interruptions shift a nurse's focus away from medication administration, increasing the risk for harm.

The following two studies shared similar themes of identifying types of interruptions, implementing strategies to reduce interruptions and evaluation of their interventions. In an effort to reduce interruptions, Craig, Clanton & Demeter (2014) used a multifaceted approach to reduce the number of interruptions during medication administration. A total of 3,714 interruptions were observed, with 13% of those due to non-emergent phone calls. This was important to note as the intervention included educating clerks to triage and hold calls along with nurses wearing a vest to visually alert others that the nurse was on a medication pass and was not to be disturbed. Prior to the intervention, phone calls consisted of 14.6% of interruptions and it was reduced to 10% after implementation of clerk scripting and education. The coupling of the vest and clerk participation reduced the overall number of interruptions. Similarly Pape (2013) identified a need to bundle interventions to be successful in reducing medication administration errors. The goal of the study was to reduce interruptions and utilize time more effectively. The total observed number of interruptions was 142 with 13% of those resulting from phone calls. The study used a control and intervention group to compare data. The intervention group used a 5-part protocol including signage, quiet zones, checklists, nurse sashes and triaging phone calls. After the intervention, phone call interruptions were reduced to 3% and the total time to administer medication was reduced by 1.56 minutes from 5.03 minutes per medication to 3.47 minutes per medication. Ultimately, there was an 84% decrease in interruptions in the intervention group compared to the control. This approach indicated limited interruptions is possible and leads to an improved medication administration process time.

Several studies stressed the importance of multiple interventions and strategies to reduce medication errors. Freeman, McKee, Lee-Lehner & Pesenecker (2013) determined an average of 3.29 interruptions during a medication administration prior to an intervention. The study implemented eight interventions, including phone scripts for clerks to take messages and triage important calls. The post-intervention data revealed a decrease in interruptions with an average of 1.18 interruptions per medication administration as well as the number of pages decreased by half. The bundled approach to reduce interruptions also decreased reporting of medication errors from 41 during the same time frame in the prior year to 13 medication errors post intervention. Nurse satisfaction and quality of care improved based on anecdotal evidence (Freeman et al., 2013). This is echoed in another study determined to improve the medication process. Nurses provided anecdotal data indicating medication administrations were safer and more efficient after implementing a bundle of interventions. The hospital implemented a new protocol to protect the nurses from interruptions including signs to place on their mobile workstations, scripts for clerk and staff and patient education. The interventions were evaluated 30 days after the start of the initiative and found to be successful in reducing the number, duration and percentage of interruptions during medication administrations (Capasso, Johnson & Strauss, 2012). Lastly, research conducted by Kliger, Blegen, Gootee, & O'Neil (2009) focused on seven San Francisco Bay area hospitals and their efforts to improve medication administration accuracy. The intervention focused on improving six processes of medication administration including the prevention of interruptions. The study used interventions previously described but also incorporated a unique component of overhead announcements via clerks to indicate no interruptions during specific medication administration hours. Medication administration accuracy improved 11% and the number of medication administrations free from interruptions

increased 24% (from 60% to 84%) after 18 months. The success of these studies was due to a unit-wide team approach to patient and nurse quality improvement.

Assessment

The CNL student completed an initial microsystem assessment of the assigned medical-surgical trauma unit prior to meeting with the hospital Patient Safety Officer and unit manager to determine an area of improvement. The medical-surgical trauma unit treats general medical patients and post-operation patients with a focus on trauma and brain injury. It is a 34-bed unit and the average patient is 45 years old, insured and employed. Initial observations of 12 medication administrations were observed with an average of 4 medications given per patient. It was discovered that 83% of the medication administrations observed had at least one interruption. Nurses also indicated that although they received guidance from their preceptor as a new-hire, they had no formal protocol on the unit for the medication administrations process. After a search for a standardized medication process yielded no results, the CNL student, Patient Safety Officer and key players determined that a standardized medication administration process was needed before moving forward with the project.

The rationale behind addressing the medication administration process was to reduce error through standardizing care. As mentioned earlier, the report from the Institute of Medicine (2000) recommends standardizing processes as a strategy to improve medication safety. Standardizing processes are in line with Lean values, which are incorporated into practice at the hospital of the CNL student project site. Standardization reduces waste, improves efficiency of workflow and reduces error by having a system in place that does not rely solely on memorization (Ching, Long, Williams & Blackmore, 2013). It has been shown through literature

that nurses are forced to switch their attention to multiple tasks and a standardized medication process could prevent memory error.

Although the creation of the standardized medication administration was successful, it was found to be lacking in addressing interruptions during the process. It was agreed that the CNL student's focus should be on interruptions during the medication process while the Patient Safety Officer would focus on implementing the standard process of medication administration to the nurses on the unit.

The standardized process was used as a tool to assess the type, number and at what point interruptions occurred during medication administrations on the unit. A secondary observation of 20 morning and 12 evening (32 total) medication administrations and secondary nurse surveys were conducted to further study interruptions. An average of 1 interruption per medication administration was observed and nurses addressing interruptions spent a total of 76 minutes. As a CNL student, the focus of the project was to reduce medication errors, increase patient outcomes and nurse satisfaction through a reduction in avoidable interruptions.

A root cause analysis was carried out to determine the sources of interruptions in order to prevent potential medication errors. The secondary observations and nurse surveys were used to create a fishbone diagram (see Appendix A) and is supported by responses from the nurse surveys (see Appendix B). The root cause analysis and nurse surveys provided an insight into perceived and actual interruptions during medication administrations. Due to 100% of nurses indicating that phone calls were a source of interruptions, the CNL student chose to address phone, page and call light interruptions.

Diagnosis/Statement of Problem

The CNL is an expert in improving quality and safety outcomes at the microsystem level (American Association of Colleges of Nursing, 2013). After careful review of literature, assessment of the unit, observations and surveys it is clear that the problem of interruptions have a negative impact on medication administrations. Interruptions have been shown to decrease nurse workflow, nurse satisfaction and the ability to provide safe medication administrations. This is supported by both the literature and initial work completed on the medical-surgical trauma unit by the CNL student. The CNL can have a positive impact on improving both nurse and patient satisfaction by reducing time spent handling avoidable interruptions and improving patient outcomes via prevention of medication errors.

Plan

Lippitt's theory of change was applied to the progression of the project. The theory is comprised of seven phases that ultimately result in change. Lippitt's change theory was chosen to be applied to this project because it identified seven key phases of change and was easily transitioned into practice using the nursing process of ADPIE: Assessment (phases 1, 2 and 3), Diagnosis, Plan (phases 4 and 5), Intervention (phase 6) and Evaluation (phase 7). It allowed the CNL student the ability to move between phases as the project focused specifically on reducing calls, pages and call light interruptions (Mitchell, 2013). A timeline was also developed to keep the CNL student and unit staff on course. The GANTT chart addressed initial, secondary and tertiary observations and all surveys. The CNL student incorporated the seven phases of change from Lippitt's theory into the timeline to ensure all phases were completed. It was useful in maintaining organization of the project as the emphasis shifted toward interruptions and the

further specification of the problem unfolded, i.e., calls, pages and call lights. (see Appendix C for GANTT Chart with application of Lippitt's theory of change).

Method

In an effort to reduce avoidable interruptions, the CNL student determined a small test of change would be appropriate for the unit. The small test of change had to be specific and the CNL student had to be able to reach all the participants in a short period of time. This was the reasoning behind reducing avoidable interruptions such as calls, pages and call lights. Research had proven that calls were a prominent interruption during medication administration process and the CNL student had access to evidence-based practice of addressing clerks and staff at the nurse station to limit interruptions.

The clerk and charge nurse were approached with the proposal of a small test of change and gave permission for a tertiary observation, this time addressing calls, pages and call lights at the nurse station pre and post implementation. The charge nurse worked closely with the clerk so it was important to include the charge nurse in support of the clerk. Three (two morning and one afternoon) observations of medication administration times were observed both pre and post implementation. The observer (the CNL student) sat at the nurse station and took notes on the number and type of incoming calls as well as if the nurse was paged overhead. Prior to implementation, the observer did not intervene and post implementation the observer reminded the clerk and unit staff that data would be collected during certain times as a reminder to follow the intervention protocol.

The clerk and charge nurse were then supplied with a packet of materials (see Appendix D for packet materials) based on successful interventions detailed in previous research. The packet focused on the scope of practice for the unit clerk. The clerk and charge nurse were

provided an algorithm to safely triage incoming calls, pages and call lights. The algorithm was created by the CNL student, presented to the unit manager for modification and approval prior to introducing it to the unit. Colored copies were posted on the wall along with additional copies provided for desks at the nurse station. The clerk was provided a script to announce medication administration hours overhead that would alert staff and patients to delay any non-emergent issues. A message sheet was made available to the clerk to write down messages and post for nurses to review after medication pass was complete. Lastly, the packet included a nurse sign up sheet to help the clerk determine which nurses were actively passing medications. A final observation was completed post implementation to determine if there had been a reduction in calls, pages and call lights.

The hypothesis was that there would be a reduction in avoidable interruptions due to the clerk and charge nurse triaging calls, taking messages and announcing medication hours overhead.

Cost Analysis

The costs and benefits associated with this project are medication errors, staff compensation during trainings, patient satisfaction reimbursement scores and improved workflow. Using the data from a northern California hospital and the Institute of Medicine's alarming figure of $4700 of hospital costs per admission of preventable medication adverse event, one can quickly see the financial burden medication errors have on acute-care settings (Institute of Medicine, 2000 & S. Cutler, personal communication, September 30, 2014). For example, a northern California hospital had an average of 36.5 medication errors per year. If one assumed that the full $4700 would be applied to each error, that hospital would spend roughly

$171, 550 per year on preventable medication adverse events. This pales in comparison to the required compensation to better train staff to reduce interruptions.

The required training for this intervention would include the clerk and CNL salaries. It was found that a total of 3 hours would be needed to train clerks which would cost the hospital $117 per unit clerk to implement this strategy. Although a CNL is not currently present on the unit, the salary of a CNL in the northern California is approximately $90,000. The CNL would be able to manage several projects on a unit making the salary negligible in the long run of financial savings from improving outcomes.

The potential for savings is relevant to this project through patient satisfaction reimbursement scores and improved nurse workflow and satisfaction leading to staff retention. Patient satisfaction scores are directly related to health insurance reimbursement. Improving time at the bedside through a reduction in interruptions is one way to improve patient satisfaction. Capasso et al.'s (2012) study illustrated the relationship between reducing the time of interruptions and savings in nursing staff. According to the data, the nursing staff saved an estimated 15,000 hours of time per year when actively participating in the reduction of avoidable errors. This equated to the compensation of seven staff members. Lastly, Elganzouri, Standish & Androwich (2009) used pedometers during the study and found 1,009 steps were taken by the nurse per medication administration. Each medication administration had an average of 1 interruption. By reducing interruptions, the amount of effort and time spent attending to interruptions is reduced. This leads to financial savings by eliminating waste (Ching et al., 2013).

Intervention

The unit clerk and charge nurse were supplied the packet of intervention materials shortly after the pre-observation data. The staff was educated on how to use the materials and the

materials were adapted to the unit as needed. The goal to reduce interruptions and provide a small test of change was explained to encourage buy-in from staff. During implementation, the staff was robust in their willingness to participate. The nurses appeared interested in the change and notified the clerk when they were on a medication pass. Over the course of the next few days, it was difficult to maintain momentum as the clerk stopped taking messages, nurses no longer notified the clerk even after prompting and the packet materials were taken down and out of view from the nurse station.

Results

The intervention was successful in reducing the number of overhead pages a nurse received during medication administration hours. Prior to implementation, the nurse was paged 78% of the time even though only 13% of the incoming calls were emergent, nurse-necessary calls. A total of 188 calls, pages and call lights were observed during three separate medication observations. Post implementation had a lower amount of incoming calls during the three observations at 126 total calls, pages and call lights. The nurse was paged overhead 46% of the time and 21% of calls were observed as emergent, nurse necessary calls. The clerk was successful in triaging calls and paging the nurse for emergent-only issues. Call lights were decreased by 59% after implementation indicating that the overhead announcement may prevent patients from paging the nurse for non-emergent issues during medication administration hours. Table 1 provides details of the number of calls received and Appendix E demonstrates the types of calls received pre and post implementation.

The nurses and clerks used the nurse sign-up and message sheets during all three observations of the pre-implementation observation and only used the nurse sign-up and message sheets for one of the three post-implementation observations. The implementation was successful

in reducing the number of times a nurse was interrupted by an overhead page but not successful in improving nurse satisfaction or workflow through use of the nurse-sign ups and message sheets. The overhead announcement by the clerk to alert the unit of medication administration hours was only completed after the observer requested the clerk to do so during post-implementation observations.

Anecdotally, the observer witnessed one physical therapy student respond to the overhead announcement by telling colleagues to not interrupt if a nurse was administering medications.

Expected Results

The expected results were based on pre-implementation data. The expectation was for clerks and nurses to use the nurse sign-up and clerk message sheets 100% of the time during the unit specified medication administration hours. The clerk and charge nurse would use the incoming call triage algorithm every time an incoming call, page or call light was received at the nurse station. The intervention would prompt a discussion and change in unit culture to respect the nurse while administering medications and not interrupt the process. The ideal goal would be for the unit to sustain the change in the medication administration process, even after Lippitt's phase 7, terminating the helping relationship, was achieved (Mitchell, 2013). Ultimately, this project would provide the framework for additional strategies to be bundled with the clerk intervention to reduce avoidable interruptions therefore reducing medication errors and improving patient outcomes, nurse satisfaction and nurse workflow.

Evaluation

The small test of change provided a wealth of knowledge during the evaluation process. Although the intervention was shown to be successful in reducing nurse interruptions of overhead pages, it is difficult for the observer to determine exactly how often the clerk used the

algorithm to triage calls. The observer was not able to listen to calls and therefore had to infer that correct triaging of calls took place. The unit is initially open to improvement processes and change is possible with a project that has a plan of sustainability. It is clear, in order to have the most impact on any test of change, one must address unit culture and sustainability. Nurses had indicated respect for the medication administration process would reduce interruptions but that was not thoroughly addressed in the intervention. The overhead announcement of unit medication administration hours helped to alert others but it didn't change the overall unit culture to one of mindfulness for the importance of not interrupting nursing tasks that impacted safe patient care. Any future change projects should address the establishment of a change agent within the microsystem after the test of change is finalized. Also, this project cycle was completed in 3 months; it would be valuable to have a longer study, especially for the intervention training and education to be most effective. These reflections are most useful for application to any further tests of change on the unit.

Nursing Relevance

This project contributes towards the goal of improved patient outcomes, nurse and patient satisfaction and nurse workflow by reducing avoidable interruptions and medication errors. Reducing interruptions leads to a reduction in medication errors, which have the potential to be significant adverse events. The purpose of addressing the medication administration process is to allow nurses to continue to provide safe and effective patient care and understand both actual and perceived interruptions of the nurse. The nurses on the medical-surgical trauma unit administer medication multiple times throughout a shift due to the nature of the patient diagnostic demographics. It is the responsibility of everyone on the unit to participate in providing a safe working environment.

The mission of this unit it to provide timely, safe and efficient quality patient care. Medications are a primary focus on the unit and it is important that patients receive the right medication at the right time. Limiting interruptions and standardizing the medication administration process not only facilitates the nurse's ability to provide safe patient care but also improves satisfaction and workflow by eliminating unnecessary steps.

Recommendations

Optimal improvements in reducing interruptions and medication errors would include a bundled approach of interventions over a greater period of time. As pointed out in the literature review, the most effective approach is to address multiple facets of interruptions on the unit. This includes a nurse-wearable item, signage, staff and patient education and continued triaging of incoming calls. Research has shown having the nurse wear something such as a sash or lanyard when on medication administration passes, designated quite zones in the medication room and other areas of the unit, staff education regarding the importance of respecting no non-emergent interruptions during medication administrations, patient education and encouraging a dialogue between nurses and staff to work together to change unit culture can lead to a reduction in interruptions (Capasso et al., 2012; Freeman et al., 2013; Pape, 2013). The CNL student would recommend a simulation day for nurses and staff to practice nurse assertiveness to prevent being interrupted and educating staff on how to have their needs met without interrupting a nurse. Patients would also need to be included in the change. Providing brochures to patients and visitors along with posted medication administration hours on the unit would allow patients to participate in their safe care. This would allow patients and visitors to page other personnel for non-emergent or non-nurse related issues during the specified times and to keep them informed as to why the nurse is requesting no interruptions. The brochure would encourage patients to start

a dialogue with the nurse regarding medication safety. Lastly, the algorithm provided to the clerk should be made available and explained to all staff on the unit as the clerk is not solely responsible for answering all incoming calls. Bundling the above strategies would have the greatest impact in reducing avoidable interruptions.

Conclusion

A CNL would be the ideal candidate to sustain improvement projects and be the change agent needed for successful implementation of standardized work processes on a unit. Sustainability depends on staff buy-in and an individual who is responsible or "owns" the project. This person would provide refreshers on unit staff respect for a nurse on a medication pass, train new clerks using the algorithm and packet materials, update materials and continual evaluation of the effectiveness with modifications as appropriate. The standardized medication process will need to be provided to all nurses on the unit as part of an official hospital procedure to ensure staff administers medications safely. Currently, an official procedure has been created and is the process of being distributed to all medical-surgical units. The CNL student is presenting all project findings to the Patient Safety Officer and Chief Nursing Officer to determine a plan of action for unit improvement and sustainability.

In closing, the study of interruptions during medication administration continues to benefit from tests of change, CNL projects and research. This project provided a glimpse into the potential success in reducing interruptions given the appropriate time, resources and unit staff education. Extensive research shows that not only do interruptions occur at all times of a nurse's shift but that an increase in interruptions will lead to an increase in the number and severity of medication errors. Project data analysis proves that clerks play an important part in reducing interruptions and triaging the needs of the unit. The value in reducing interruptions during

medication administrations far exceeds the costs associated with implementing an interruption intervention. Any effort to reduce interruptions will prevent medication errors, increase nurse and patient satisfaction and improve patient outcomes.

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Table 1

Number and Types of Incoming Calls Pre and Post Implementation

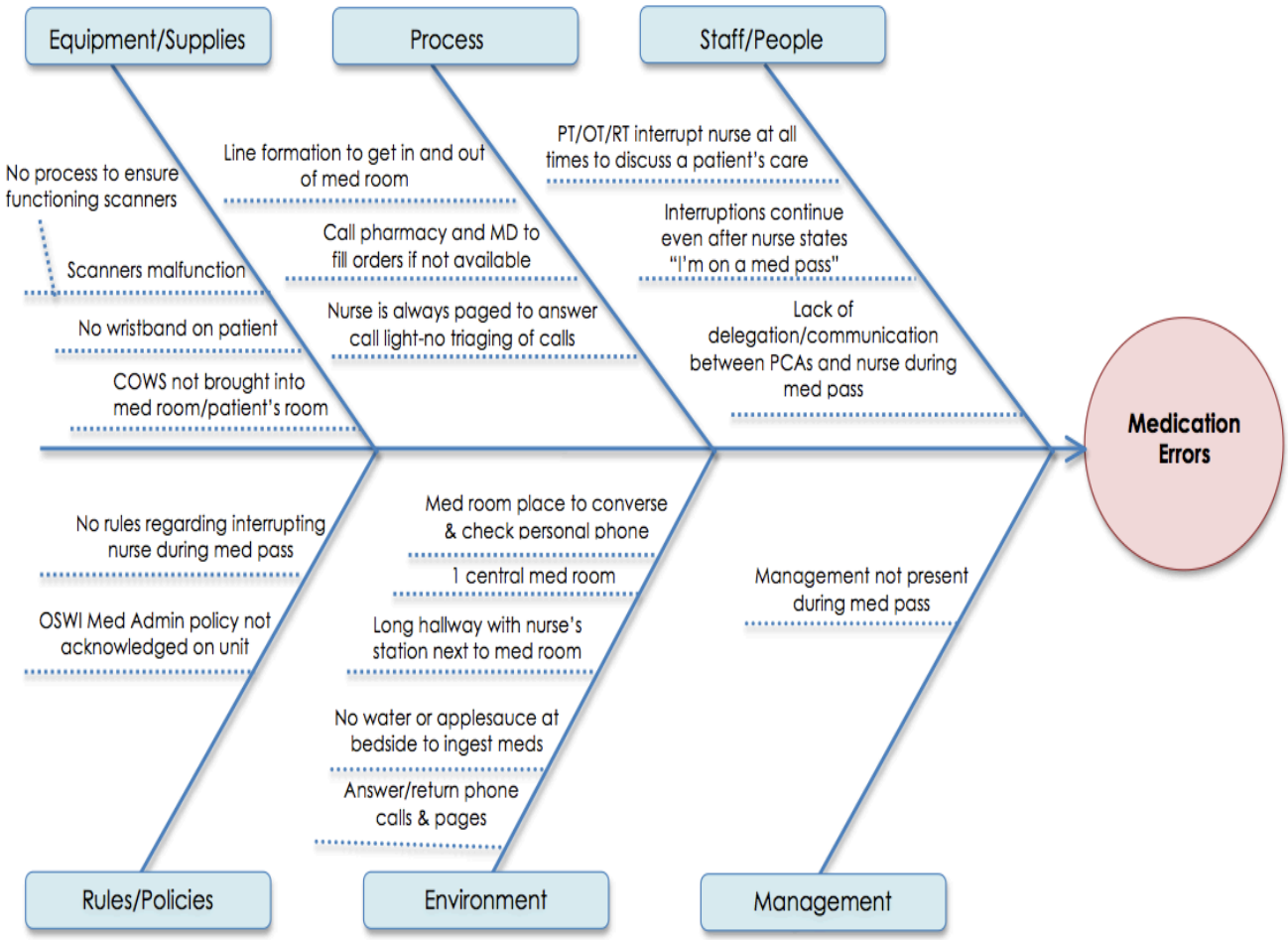
Three unit specified medication administration times were observed for both pre and post implementation of a unit clerk focused attempt to reduce interruptions.

Types of Calls	Pre Implementation	Post Implementation
Total calls/pages/call lights	188	126
Calls/Pages	92	69
Call lights	96	57
Nurse Necessary/Emergent	24	26
Nurse Not Necessary/ Non-Emergent	124	100
RN Paged Overhead	147	58
RN Not Paged Overhead	41	69

Appendix A

Root Cause Analysis of Distractions and Interruptions During Medication Administration

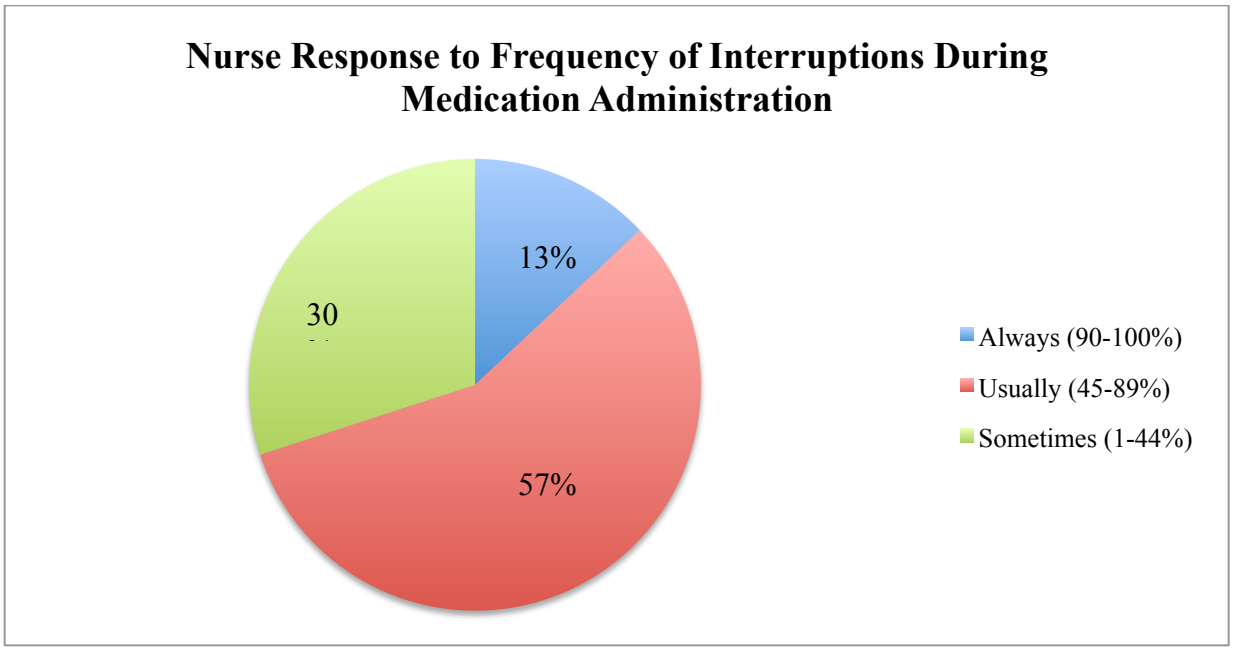
The fishbone diagram includes six causes of interruptions and the root of those causes detailed under each section. The importance of studying a root cause analysis is to prevent medication errors.

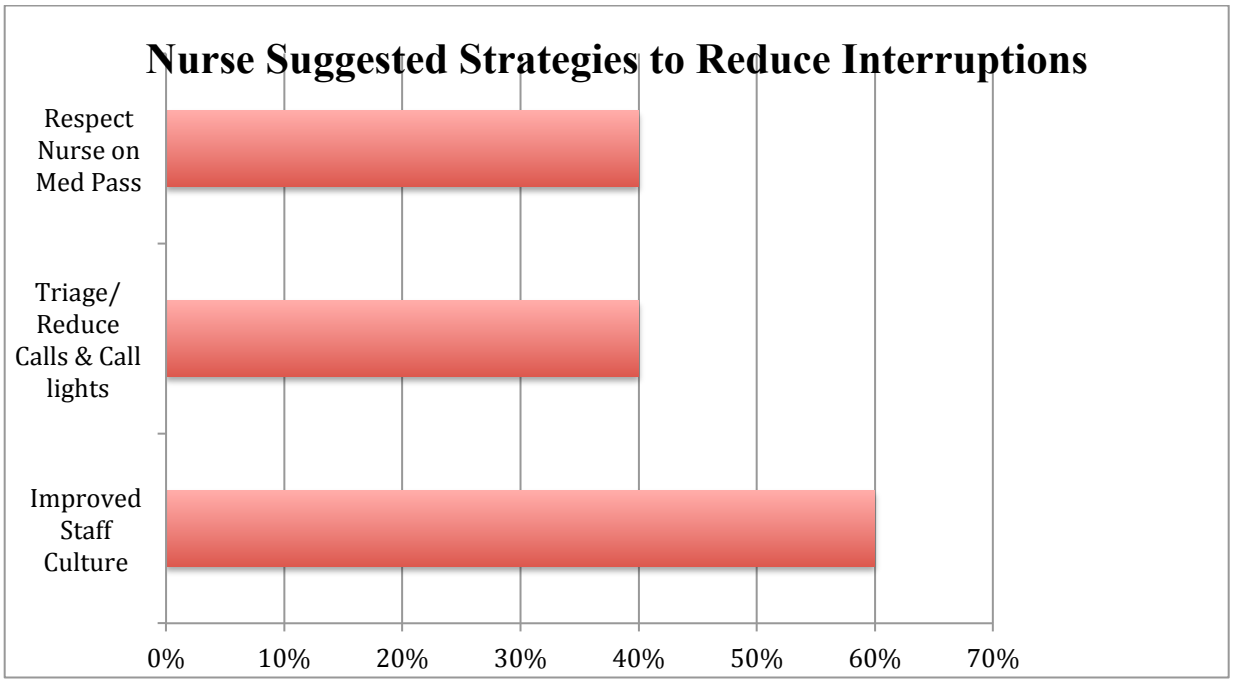


Appendix B

Perceived Interruptions From Nurses During Medication Administration

The following data indicated the nurse's perceived interruptions that are comparable to the actual interruptions discussed in the assessment and results portions of the paper. Thirty nurses completed surveys, taken from both day and night shifts.





Appendix C

GANTT Chart Detailing Timeline of Project

The following GANTT chart was used to illustrate the timeline of the project along with the seven phases of change decribed in Lippitt's change theory (Mitchell, 2103, p. 33).

Activities and Role of 7 Phases in Lippitt's Theory of Change	September 1-15	September 16-30	October 1-15	October 16-31	November 1-15	November 16-30
Microsystem Assessment **Phase 1:** Diagnose the problem						
Initial Observation: Med Admin **Phase 1:** Diagnose the problem						
Initial Patient Surveys **Phase 1:** Diagnose the problem **Phase 2:** Assess motivation for change						
Initial Nurse Surveys **Phase 1:** Diagnose the problem **Phase 2:** Assess motivation for change						
Secondary Observation: Interruptions **Phase 3:** Assess change agent's motivation and resources **Phase 4:** Select progressive change objective						
Secondary Nurse Survey: Comprehensive **Phase 3:** Assess change agent's motivation and resources **Phase 4:** Select progressive change objective						
Baseline Data Collection: Call Interruptions at Nurse Station **Phase 4:** Select progressive change objective						
Intervention: Staff Education and Implementation **Phase 5:** Choose appropriate role of the change agent						
Post Intervention Data Collection: Call Interruptions at Nurse Station **Phase 5:** Choose appropriate role of the change agent **Phase 6:** Maintain change						
Closing Project: Debrief with Unit Staff, Share Results and Provide Framework for Sustainability **Phase 6:** Maintain change **Phase 7:** Terminate helping relationship						

Appendix D

Packet of Intervention Materials

The clerk and charge nurse each received a packet along with additional copies of message sheets and nurse sign-ups. The printed copies would have additional cells (not shown in the appendix) provided for the message sheet and nurse sign-up sheet. The algorithm was used to triage calls and the overhead announcement was done during the medication administration morning hours of 9-11am and afternoon hours of 1-3pm. The charge nurse and manager were instructed to fill in the algorithm's emergent issues per the unit's needs.

Clerk Message Sheet

MESSAGES

UNIT:_____

DATE: _____

NURSE	**CALLER & CONTACT INFO**	**MESSAGE**	**TIME**

Nurse Sign Up

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

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

Overhead Medication Pass Script

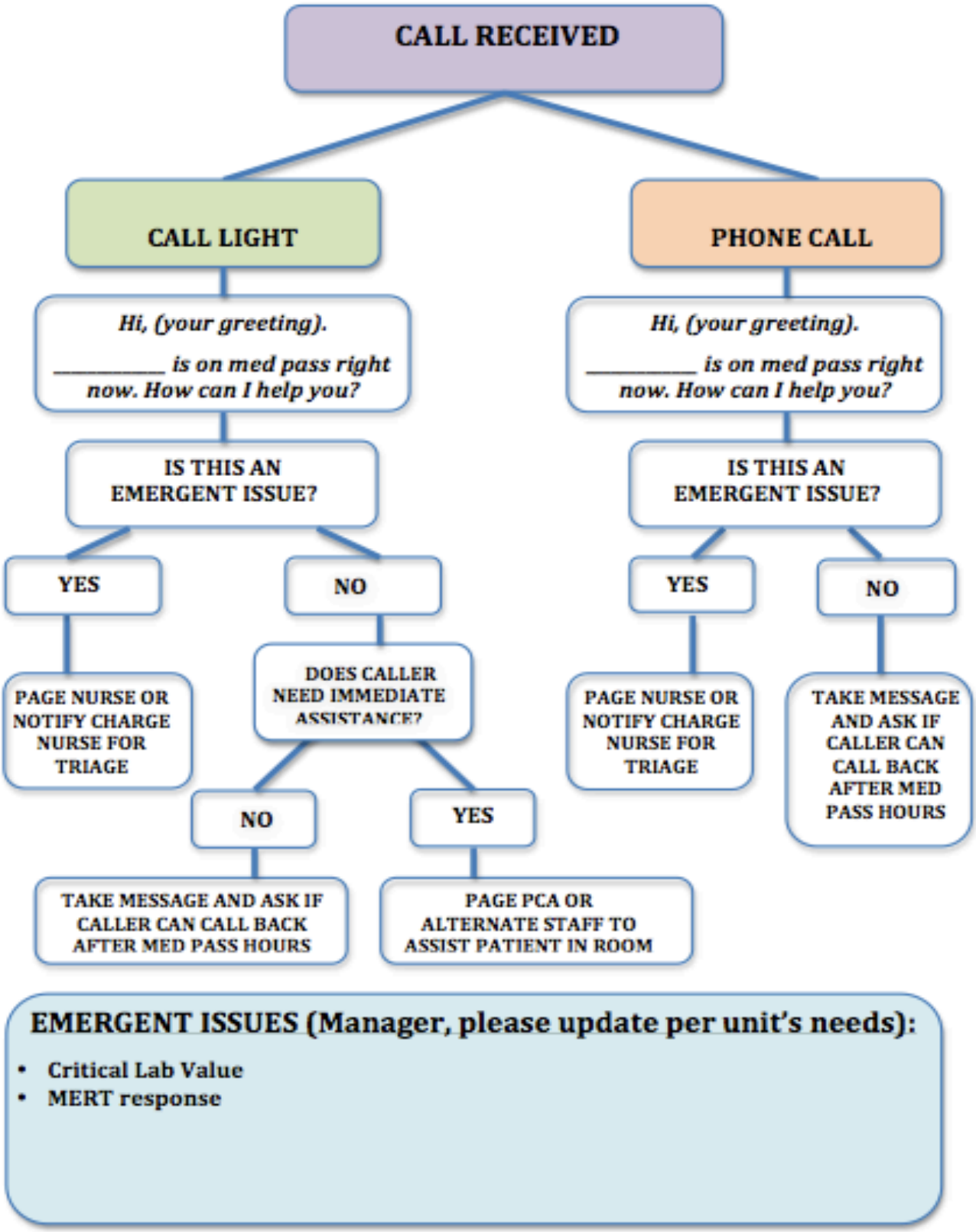
Beginning of medication administration - time: _____

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

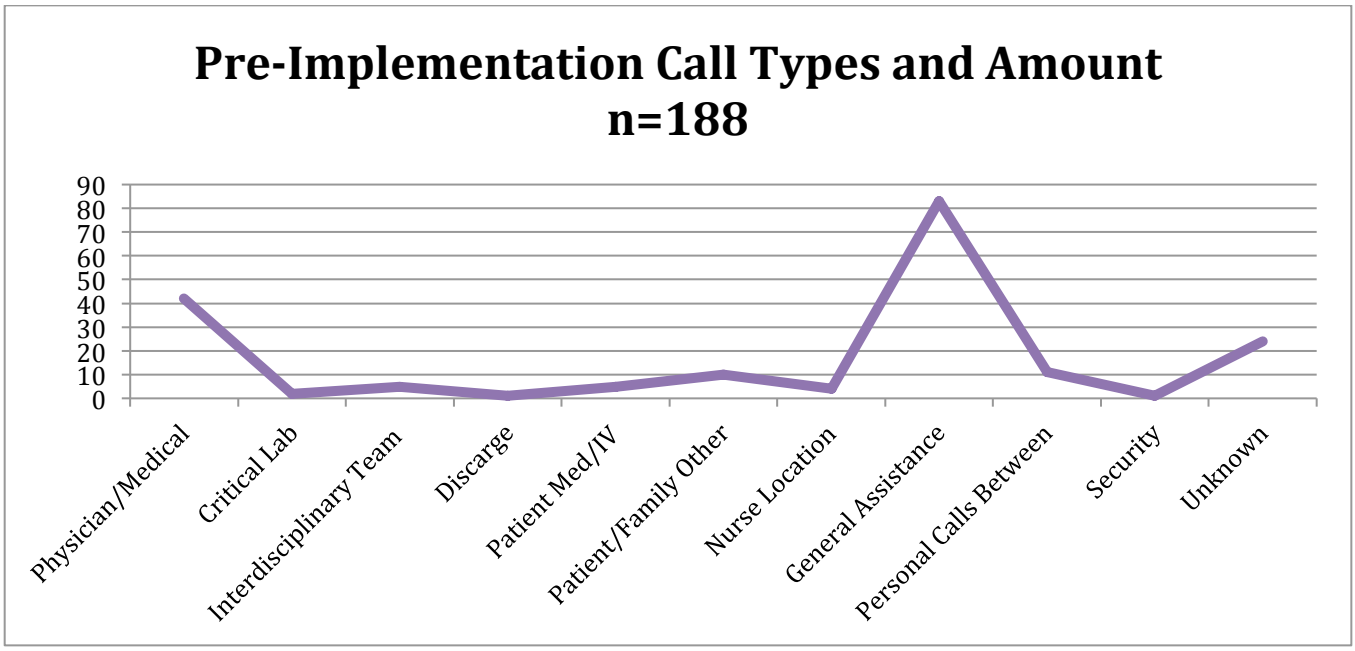
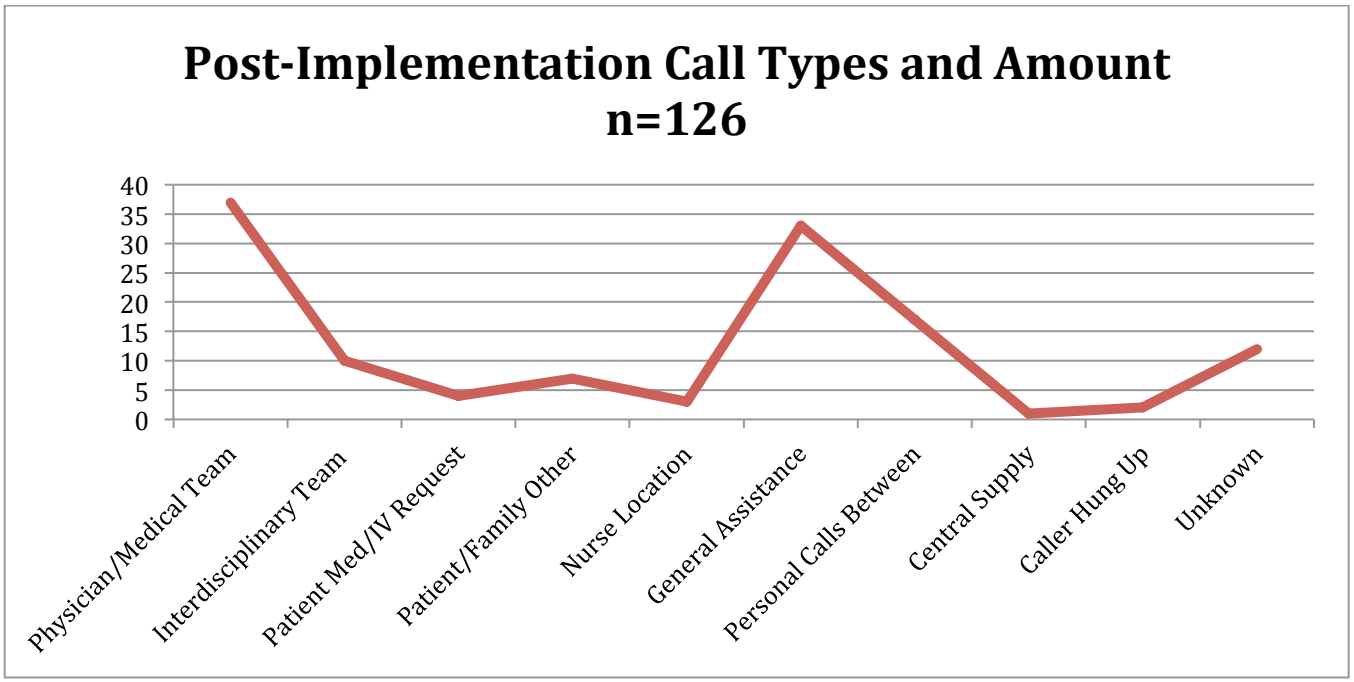
End of medication administration - time: _____

"Attention [UNIT]. Medication administration has now ended. Thank you."

Clerk and Charge Nurse Algorithm to Triage Calls



Appendix E

Types of Calls Received During Observations.

General assistance calls were identified as the clerk paging overhead requesting assistance for the room number of the patient calling into the station. The nurse assigned to that patient wasn't specifically paged overhead; indicating unlicensed assistant personnel could attend to the task.