Summer 8-12-2018

Improving Communication: Huddling for Change

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Improving Communication: Huddling for Change

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Abstract

The purpose of this communication improvement project is to incorporate huddles between interdisciplinary departments within a microsystem in order to improve customer satisfaction by decreasing the number of grievances. Based on the increasing number of grievances due to delayed hospital discharge, which results from a lack of communication between team members, there is an increased need for communication between the microsystem. By implementing weekly huddles between the Inpatient and Outpatient nurses, not only will there be increased care-coordination, but there will also be a decreased delay in discharge from the hospital caused by missed or no communication. Evidence-based practice indicates that huddles are effective in improving patient safety, creating time and space for conversation, enhancing relationships, and strengthening a culture of safety (Provost, Lanham, Leykum, McDaniel & Pugh, 2015). As a result of decreased delays in hospital discharge, there will be measurable outcomes that indicate decreased number of grievances specific to non-timely review of prior authorizations. The intent of this project is to apply evidence-based change that results in the improvement of the current communication processes and patient outcomes.

Keywords: *communication, utilization management, managed care, care-coordination, huddles, customer satisfaction, collaboration*

Improving Communication: Huddling for Change

Introduction

Problem Description

Although, there are various issues that contribute to poor quality of care and patient safety, communication issues are the leading cause in 60-80% of adverse events (The Joint Commission, 2015). As two smaller microsystems in the Utilization Management (UM) Department, the Inpatient and Outpatient Review departments at the Health Plan of San Mateo (HPSM) seldom meet together for huddles or meetings, but often care for mutual patients.

Nurses in the Outpatient department are responsible for reviewing Prior Authorization requests in a timely manner using nationally recognized and evidence-based standards. A physician submits Prior Authorization (PA) requests to the patient's health insurance (HPSM) for services that require approval before they can be rendered. The services may include: outpatient and inpatient-elective surgeries, prescription medications, diagnostic procedures, or durable medical equipment (DME). If the requested services are medically necessary, a covered benefit, and cost effective, the nurse approves the request using specified guidelines; however, if the services are not medically necessary or cost effective, the PA is sent to an HPSM doctor for further review. While the outpatient nurses review requests for services that are scheduled or have not yet taken place, the inpatient nurses perform concurrent reviews of acute inpatient care services as they are being provided. Using established and evidence-based criteria, the inpatient nurses monitor the appropriateness in the type and level of care (i.e. the setting), and the progress of care and discharge plans.

A patient's care may start off by getting approved for an outpatient surgery, which would be reviewed by the outpatient prior authorization nurses, but the patient may become hospitalized

due to post-operative complications, which would transition this member to the inpatient concurrent review nurses. In other cases, the inpatient nurses may already be working with a hospitalized patient that needs approval of outpatient services such as medical equipment upon discharge, which would transition the case to the outpatient nurses.

Especially true for those with complex care needs, patients often require the coordination of several services prior to discharge. Communication is one of the major barriers to interdisciplinary collaboration in healthcare; teamwork and inter-professional collaboration are requirements for safe and effective delivery of healthcare (Glymph, 2015). Given the complexity and fragmentation of the current healthcare system, huddles have been found to improve the ability to identify issues and to have the accountability to ensure solutions are effectively implemented (Donnelly et al., 2016).

Available Knowledge

Poor communication can cause several types of delays, which include diagnosis and treatment. Additionally, for healthcare providers, ineffective communication can lead to added workload as it decreases confidence in decision-making (Vermeir et al., 2015). There are several scenarios in which both inpatient and outpatient nurses share common patients; consequently, the lack of formal meetings or huddles sufficiently accounts for many miscommunications that may result in delay of patient care.

A Root Cause Analysis completed in the UM department revealed that delay in patient discharge from hospital was attributable to lack of communication between the inpatient and outpatient nurses (see appendix H). Due to missed communications, or lack there of, in 2017, there was a 6% increase in grievances (from 2016) filed by patients or their family members as a result of delayed discharge due to not receiving an approval of an item or service from HPSM in

a timely manner. Depending on the individual's diagnoses, some hospitals will not discharge a patient unless there is an approval of an authorization for medical equipment (i.e. oxygen equipment, wheelchair, or hospital bed) or an approval of a scheduled follow-up visit procedure. Technically, the hospitals are doing the right thing by ensuring continuity of care for the patient, and preventing hospital readmissions. Unfortunately, there have been several instances where the patient is awaiting discharge at the hospital, and the inpatient nurses fail to inform the outpatient nurses that they need an approval of a certain prior authorization by a certain time so the patient can be discharged. Ideally, the inpatient nurse would communicate the situation to the outpatient nurse, which would lead the outpatient nurse to prioritize the specified PA. Not only does delay in discharge increase cost for HPSM, but there is also added inconvenience to the patient and their family, as well as an increased risk of the delay in care for other patients. Delayed discharge results in beds being unnecessarily occupied, which can cause cancellations or delays in scheduled surgeries or treatments for other patients. Additionally, extended length of stay can increase the risk of infections, which in-turn increases the costs associated with infections treatment (Rojas-García et. al., 2018).

Most of the grievances come from aggravated family members or patients that were not discharged as planned due to their insurance (HPSM) not providing timely approvals. Upon further investigation of cause of delay, the lack of communication between the inpatient and outpatient nurses appears to be a commonality. Huddles have been identified to promote collaboration within the team, establish plans and expectations, and prepare for any problems and incidents the team might face (AHRQ, 2014). Implementing a mandatory meeting at the beginning of every week between outpatient and inpatient nurses will allow for better discharge planning, and anticipate needs of the mutual patients.

Huddles have been found to work because they demand rapid team formation and preparation at all levels of practice; they allow the team members to plan for anticipated changes in the daily work flow, prepare for and prevent crises, and make adjustments that can improve quality of life for patients and the staff. Additionally, huddles work because they stimulate patterns of "practice-level thinking" that is beneficial to the entire microsystem because the staff begins to think like a team (Stewart and Johnson, 2007).

The health care system has several gaps that prevent patients from retrieving high quality care. By establishing consistent huddles within organizations, the complexity of the health care system can be better managed allowing care teams to work and problem solve together. Huddles also help teams evaluate their own performance and determine whether their goals and expectations are being met. Although, both teams seldom meet in person as inpatient nurses are often offsite, regular huddles can still help keep work flows and other programs on track, as well as learn together from previous mistakes (The Playbook, 2018). The implementation of creating mandated time for the two teams to meet will increase situational awareness and learning across departments. Huddles are often used by frontline staff to share and make sense of current situations, address concerns, and discuss options for resolving or eradicating errors from happening in the future (Yates & Federico, 2013). In this case, the error that the UM department is trying to prevent or eliminate is delayed discharge from hospitals.

Rationale

Studies have shown team huddles to be effective safety tools, however, they are not always successful unless properly implemented (Townsend, McNulty & Grillo-Peck, 2017). Kotter's eight-step model of change provides a guided framework for change leaders, such as Clinical Nurse Leaders (CNLs), to successfully implement and institutionalize change (Baloh,

Zhu & Ward, 2017). The change process begins by (1) establishing a sense of urgency for the change, (2) creating a guiding coalition, (3) developing a vision and strategy, (4) communicate the change vision, (5) empower broad-based action, (6) generate short-term wins, (7) consolidate gains and produce more change, and (8) anchor new approaches in the culture (Kotter, 1996). Studies have reported that the Kotter model was viewed as a useful implementation guide, and the changes implemented have been successful (Baloh, Zhu & Ward, 2017).

Specific Project Aim

The aim of this project is to decrease the number of grievances filed by patients or family members due to delayed discharge from a hospital as a result of non-timely review of prior authorizations by improving the process of communication in the Utilization Management (UM) department between the outpatient and inpatient microsystems. The process begins with the initiation of weekly huddles between the inpatient and outpatient UM nurses. The process ends with the approval and availability of all resources needed by the patient upon discharge, which can include durable medical equipment, follow up appointments, and home health care visits. By working on this project, we except decreased number of grievances by preventing delay in discharge from hospital due to not having services approved or available, and (2) improved communication between the microsystems, as well as between the providers and members. It is important to work on this now because we have identified the need for timely discharges to (1) improve satisfaction of patients, families, and care professionals, (2) improve quality of care for our members/patients and (3) improve communication between the inpatient and outpatient departments.

Further simplified, the project aim is to decrease the number of grievances filed by patients or family members as a result of non-timely review of authorizations. Ideally, the goal is

that no more than 5% of the total number of grievances over a twelve-month period should be due to delayed hospital discharge caused by lack of timely review of prior authorizations.

Methods

Context

A huddle is described as a type of communication that is brief, frequent, and provides consistent communication among team members to achieve common goals, such as patient safety, staff and patient satisfaction, and positive health outcomes (McBeth, Durbin-Johnson & Siegel, 2017). Ongoing huddles are useful in improving communication, resolving problems and sharing information; they can contribute to the development of a highly reliable healthcare organization (Melton et al., 2017). Meeting weekly with inpatient and outpatient nurses, there will be improved coordination of care within the UM department at HPSM.

The assessment of the UM microsystem was completed using the 5 P's framework: Purpose, Patients, Professionals, Processes, and Patterns (Nelson, Batalden & Godfrey, 2007). The purpose of the Utilization Management (UM) microsystem is to evaluate for medical necessity, appropriateness, and efficiency of the use of health care services, treatments, procedures, and facilities under evidence-based guidelines, and provisions of the applicable benefits under the health plan (APTA, 2017). The UM department caters to roughly 150,000 Medical & Medicare eligible, underserved patients in the San Mateo County that are enrolled in HPSM's health plan. The professionals in the UM department include roughly ten nurses, and twenty administrative supportive staff. The processes of the interdisciplinary team members vary as how they contribute to care of the patients. Although, the outpatient and inpatient nurses are divided into sub-departments in the UM microsystem, the tasks for both groups are interrelated as one patient may require both outpatient and inpatient services. Often times, microsystem

members have never taken the necessary steps to meet to review the specific processes of care that can potentially be improved. Patterns exist in all microsystems, but they often go unnoticed or unacknowledged (Nelson, Batalden & Godfrey, 2007). There is no current process in which inpatient and outpatient nurses meet on a regular basis to discuss workflows, and as a result, avoidable patterns observed in the consistent missed communications.

One of the main goals of managed care organizations, such as HPSM, is to attain cost savings while improving healthcare outcomes through the coordination of services for chronically ill members and others with complex care needs (Gilchrist-Scott, Feinstein & Agrawal, 2017). Improved communication will essentially lead to improved coordination of care, which will not only be cost-effective for the organization, but it will also improve health outcomes for members. Having weekly huddles between the inpatient and outpatient nurses to discuss the planned discharges of mutual patients during that respective week would improve the current practice gap, which would decrease the number of grievances. Huddles allow teams to have consistent, short briefings so they can stay informed, review work, make plans and move ahead quickly (Institute for Healthcare Improvement, 2018). Huddles also re-establish situational awareness, reinforces plans already in place, and assess the need to adjust the plan (AHRQ, 2013).

This communication-improvement project involves weekly 30-minute huddles between a total of 10 nurses. The aim of this quality improvement (QI) project does not directly involve a cost or revenue benefit, but with improved communication, there are potential benefits that may decrease spending and save cost for the organization. Using the 220 hours provided for the CNL Internship Project with an average salary of 50$ an hour, the cost of the QI project is $11,000. The benefits to the employer include, improving patient flow by coordinating timely discharge,

and improved customer satisfaction rates. Preventing delay in discharge due to missed communications will improve customer satisfaction rates, and may also reduce costs to the organization by reducing the number of hospital stay days caused by delay in discharge. Studies have indicated that even short morning huddles have significantly reduced ICU days, laboratory and pharmacy costs, as well as increased patient satisfaction (Chan & Vadera, 2018).

In the scenario that each day at the hospital costs 1,000$ for the organization, timely discharge will essentially save the organization $1,000 per day and per patient. Over the last three-month period, there have been about 5 patients who had to stay an extra night in the hospital because their care was not coordinated properly; this is about $5,000 the organization had to pay for unnecessary days. Using this average of 5 patients every three months, the organization could potentially save $20,000 over twelve months making a profit of $9,000 (subtracted from cost). Using this data as an example, the Return On Investment (ROI) is estimated to be 82% (see appendix J).

The strategic planning for this project is initiated by using a simple SWOT analysis (appendix B) (Penner, 2017). Strengths include the fact that there are little to no operational costs as most of the resources are already available on-site including meeting rooms, furniture, computers, projectors and etc. Additionally, HPSM can stand to make a total profit of an estimated $9,000 over a twelve-month period. The huddle initiative will provide provision to both nursing teams (outpatient and inpatient) with benefits of instilling confidence and preparedness, and improving communication in the microsystem. Weaknesses include the possibility of the entire nursing staff not being available to attend the weekly huddles. An internal concern is the anticipation of cancelled or missed huddles due to unexpected absences, other pressing priorities, or nurses being overwhelmed with their assignments that day.

Opportunities include the potential to increase customer (patient) satisfaction rates, and to decrease number of grievances filed by the patient or one of their family members. Both HPSM, and the respective hospital have the opportunity to decrease costs by ensuring timely discharge; the unnecessary days(s)at the hospital contribute to wasteful use of the facility's resources, and increase costs for the insurer (HPSM). The threats include the potential of delayed discharge as a result of external providers (hospitals, doctors or DME vendors) not submitting a prior authorization request in advance for the necessary services. Although, the inpatient nurse can begin the care coordination process and inform the provider of the patient's needs, the provider must still be responsible for submitting the PA request. Unfortunately, there is still a possibly of delayed discharge if a PA request is not submitted timely by the provider, which is out of the control of internal staff.

Intervention

The Plan-Do-Study-Act (PDSA) cycle is an effective tool for accelerating quality improvement; once a team has set an aim, established members, and developed measures to determine if the change leads to improvement, the change can be tested in the microsystem (AHRQ, 2013). Using the PDSA cycle, I was able to organize and modify the goals as the huddles were implemented (see appendixes C, D, and E). Additionally, prior to the implementation of the change initiatives, an assessment of the microsystem was completed to determine the root-cause of missed communications, decreased customer satisfaction and increased number of grievances that related back to poor communication.

Using Kotter's change model, the CNL establish a sense of urgency of the communication problem in the microsystem by presenting the problem to staff and management. Next, a guiding coalition was created with individuals who are committed to quality

improvement and improvement of communication that results in improved patient outcomes. The coalition includes, nurse case managers, inpatient concurrent review nurses, outpatient prior authorization nurses, and management. Then a vision and strategy was developed that focused on the goal of improving communication between inpatient and outpatient nurses. The change vision is then communicated to staff and managers of the UM department to ensure understanding of the goal. The CNL would empower the UM department to commit to the project by addressing barriers and encouraging participation. Next, establishing short-term wins would include seeing an improvement of communication via consistent weekly thirty-minute huddles over a specific period (six weeks). As the project continues to show improvement in communication, gains are consolidated leading to the production of more change. Lastly, the anchoring of new approaches into the culture of the department would be established through the evaluation of staff and outcomes.

Measures

In order to measure the improvement of communication, the CNL would plot data over time using a run chart; a run chart is a simple and effective to determine whether the changes being implemented are leading to change (IHI, 2018). Beginning from the implementation of the weekly huddles, the CNL would enter data on the total number of grievances, and the number that resulted due delay in discharge as a result of non-timely review of a prior authorization request. A report provided by the Grievance department shows the total number of grievances categorized by department, and is further broken down to reason of grievance. From that report, the total number of grievances attributable to lack of timely review of authorizations will be entered on the run chart along with data representing the total number of grievances.

Because the projected aim is to lower number of grievances annually, true measures on the effectiveness of huddles can only tested after the twelve-month period of the implementation of huddles. The goal is that no more than 5% of the total number of grievances over a twelve-month period should be due to delayed hospital discharge caused by lack of timely review of prior authorizations. However, for the purpose of this project, the same expectations (no more than 5%) were held for over the nine-week implementation period.

Additional long-term measures include the end-of-year budget analysis of spending within the organization. Although, this is not a project intended for profit, HPSM has potential to save on annual spending; reducing the number of unnecessary hospital days will decrease costs by reducing reimbursement to providers.

Ethical Considerations

Ethical aspects of implementing and studying the intervention(s) were addressed with the Human Resources Department at the Health Plan of San Mateo. The participants in the study all consented to the quality improvement projected. Privacy, autonomy, and potential conflicts of interest were all taken into account for this project.

Results

Initial steps of implementing weekly huddles posed some challenges in scheduling regular meetings during a time all of the nurses had availability in their schedules. Inpatient nurses are often offsite throughout the week, therefore, I had to work closely with the administrative assistant in the UM department in coordinating a time an day that worked for everyone. Fortunately, everyone's schedule accommodated to a weekly huddle on Mondays from 8:30am to 9:00am. The administrative assistant was also able to book a meeting room that the ten nurses could occupy on an ongoing basis during the huddle time. For the CNL change project

analysis and evaluation, the huddles were implemented over a nine-week period beginning June 4th.

In retrospect, the PDSA cycles were divided into different phases as the quality improvement project required modifications to ensure huddles were meaningful and efficient. Phase I reflects the first three weeks the huddles were implemented (see appendix C). After the first two to three huddles, there was obvious disorganization during the discussions, as the nurses would often deviate from the presented topic. I decided to create an agenda and a huddle list tailored to the expected outcomes of the discussion (see appendix F). An effective and well-designed agenda helps the team members prepare, use time efficiently, allows everyone to be on the same topic, and indicates when the discussion is complete (Schwarz, 2015).

During phase II (week 3- week 6) of the quality improvement project, the agendas remained relatively the same in every huddle, and kept the discussions intuitive and meaningful. Inpatient nurses discussed the patients that were planned for discharge during the respective week, and the outpatient nurses made note of those patients. As a result, the outpatient nurses prioritized and processed PAs for the patients that were planning to be discharged during the week. In the following week, the nurses discussed whether all patients (discussed in the prior week) went home timely.

Phase III (week 6 – week 9) demonstrated compliance with huddles in terms of attendance and meaningfulness. At the end of week nine (9), I asked the Grievances department at HPSM to provide a copy of a detailed report of all of the grievances; the report includes the reasons of why a grievance was filed by a patient or a family member. In this phase of the PDSA cycle (PDSA 3), the measures included determining if all members were discharged timely as a

result of improved communication (huddles), leading to decreased number of grievances over the nine-week period (see PDSA cycle ramp in appendix I).

According to the above mentioned report, over the course of the nine week since the implementation of the huddles, there were a total of 17 total grievances; 6 grievances were due to delay in hospital discharge, however, 0 were due to the miscommunication in the UM department. The 6 grievances (due to delay in hospital discharge) were either because of an HPSM systematic error, or because the provider (hospital) failed to submit a prior authorization request prior to discharge time (see graphed data in appendix G). Although, the results indicate a positive outcome thus far, the effectiveness of huddles needs to be studied over a longer period of time.

Discussion

Summary

The open mindedness and positivity of both inpatient and outpatient nurses definitely contributed to the successful change within the microsystem. Additionally, support from senior management and other departments guided this project to change effectively. Constant feedback from management, and resources provided by my preceptor also generated potential for long-lasting change.

Key findings include the crucial impact communication has within a microsystem, and how just small changes can generate bigger change in the long run. Additionally, this successfulness of this project indicated how each microsystem affects the other, and changes in one department, can improve work processes in another. Huddles were found to have been successful in improving communication in the microsystem, and decreasing the number of grievances.

Conclusions

The results generated by this change projected indicated clear usefulness of huddles within a microsystem in improving internal communication, quality of patient care, and cost effectiveness. Additionally, with the data retrieved from the grievance reports, additional change projects can be discussed that address the areas of concern identified in this project. For example, the data produced in this project indicated that there are existing grievances due to delay in discharge, because of providers not submitting the prior authorization timely (before member's discharge date). In the future, this issue can be addressed by working with Provider Services in HPSM, and providing education to external providers in the expectations of submitting prior authorizations. The CNL can be actively involved in this type of change project, by not only presenting the goals and benefits of the change to internal staff, but by also fulfilling the CNL role of an educator and delivering the education to providers. Additional CNL roles assumed in this change project include: communicator, clinician, information manager, leader, advocate, and financial steward (AACN, 2013).

As the huddles have been successfully implemented so far for nine weeks, and there has been only positive feedback from the involved staff, the probability for this change to last for the long run is very high.

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Appendix A

EVIDENCE-BASED CHANGE OF PRACTICE PROJECT CHECKLIST

STUDENT NAME: Harnoor Chahal

DATE: 8/3/2018

SUPERVISING FACULTY: Carlee Balzaretti, DNP, FNP-BC, CNL

Instructions: Answer YES or NO to each of the following statements:

Project Title:	**YES**	**NO**
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.	X	
The specific aim is to improve performance on a specific service or program and **is a part of usual care**. ALL participants will receive standard of care.	X	
The project is **NOT** 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 **NOT** follow a protocol that overrides clinical decision-making.	X	
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 **NOT** develop paradigms or untested methods or new untested standards.	X	
The project involves implementation of care practices and interventions that are consensus-based or evidence-based. The project does **NOT** seek to test an intervention that is beyond current science and experience.	X	
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.	X	
The project has **NO** funding from federal agencies or research-focused organizations and is not receiving funding for implementation research.	X	
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., **not** a personal research project that is dependent upon the voluntary participation of colleagues, students and/ or patients.	X	
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: *"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."*	X	

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.

Appendix B

SWOT Analysis

Appendix C

Plan-Do-Study-Act (PDSA) Cycle

Phase I: Week 1 – Week 3

Appendix D

Plan-Do-Study-Act (PDSA) Cycle

Phase II: Week 3 – Week 6

Appendix E

Plan-Do-Study-Act (PDSA) Cycle

Phase III: Week 6 – Week 9

Appendix F

Huddle Agenda

Discharge Planning Huddle – Mondays 8:30-9:00AM **Date: _____**
8:30-8:45am: Inpatient Nurses: Discuss the known planned discharges for the week (Monday- Friday) – provide name of patient, estimated discharge date, and facility being discharged from. If known, please provide type of services they may need approval for prior to discharge (i.e. equipment, home health, follow up services, and etc.) Outpatient Nurses: * take note of patients with planned discharge for the week* follow HIPPA when storing this PHI (Protected Health Information) at your desks*
8:45-8:55am: Discussion: If all applicable, were there any delayed discharges from previous week due to non-timely review of prior authorization requests? If so, why? Provider error or internal UM error?
8:55am- 9:00am: Closing comments: New Items; Suggestions for Improvement

Post-Huddle Checklist

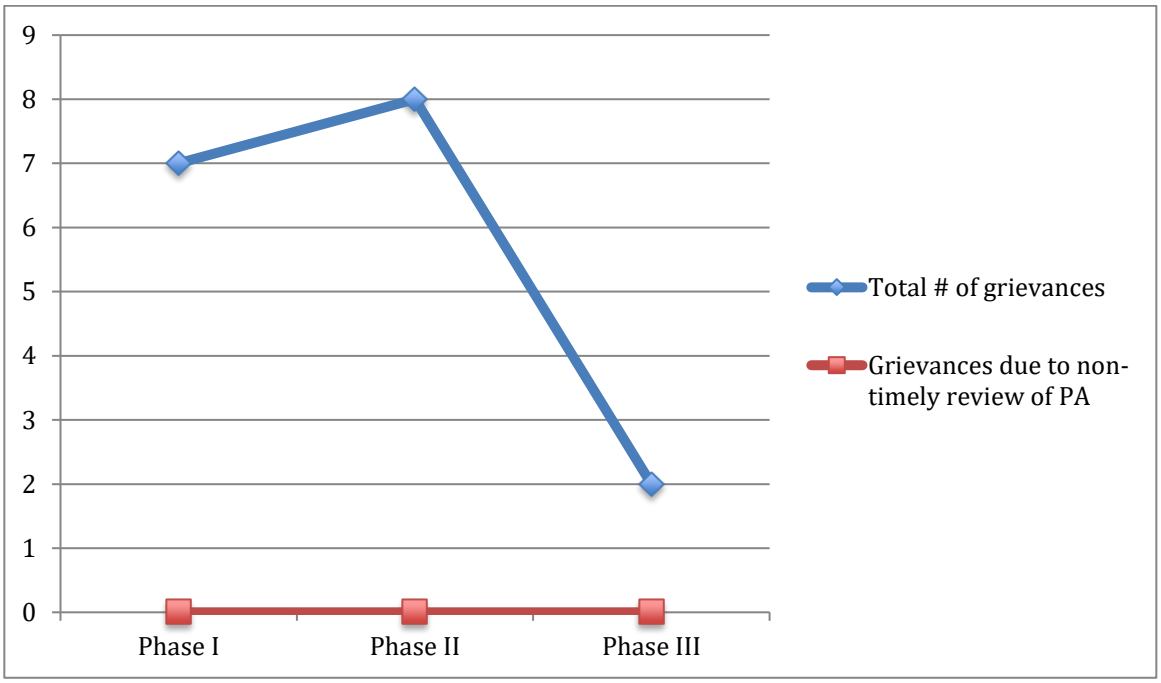
☐ all nurses present at huddle

☐ huddle ended timely

☐ all items discussed

Appendix G

Total Number of Grievances Over Nine-Week Huddle Implementation Period

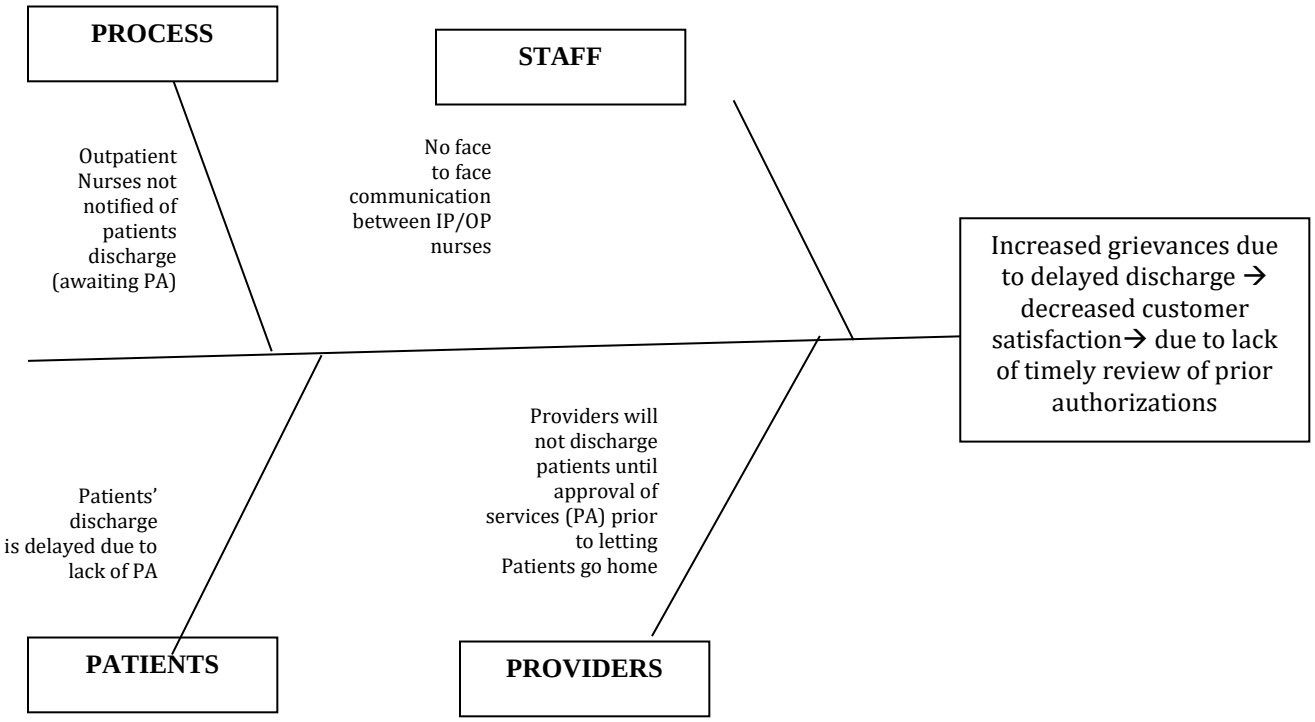


	Total # of grievances	Grievances due to non-timely review of PA
Phase I (week 1-week 3)	7	0
Phase II (week 3-week 6)	8	0
Phase III (week 6-week 9)	2	0

Appendix H

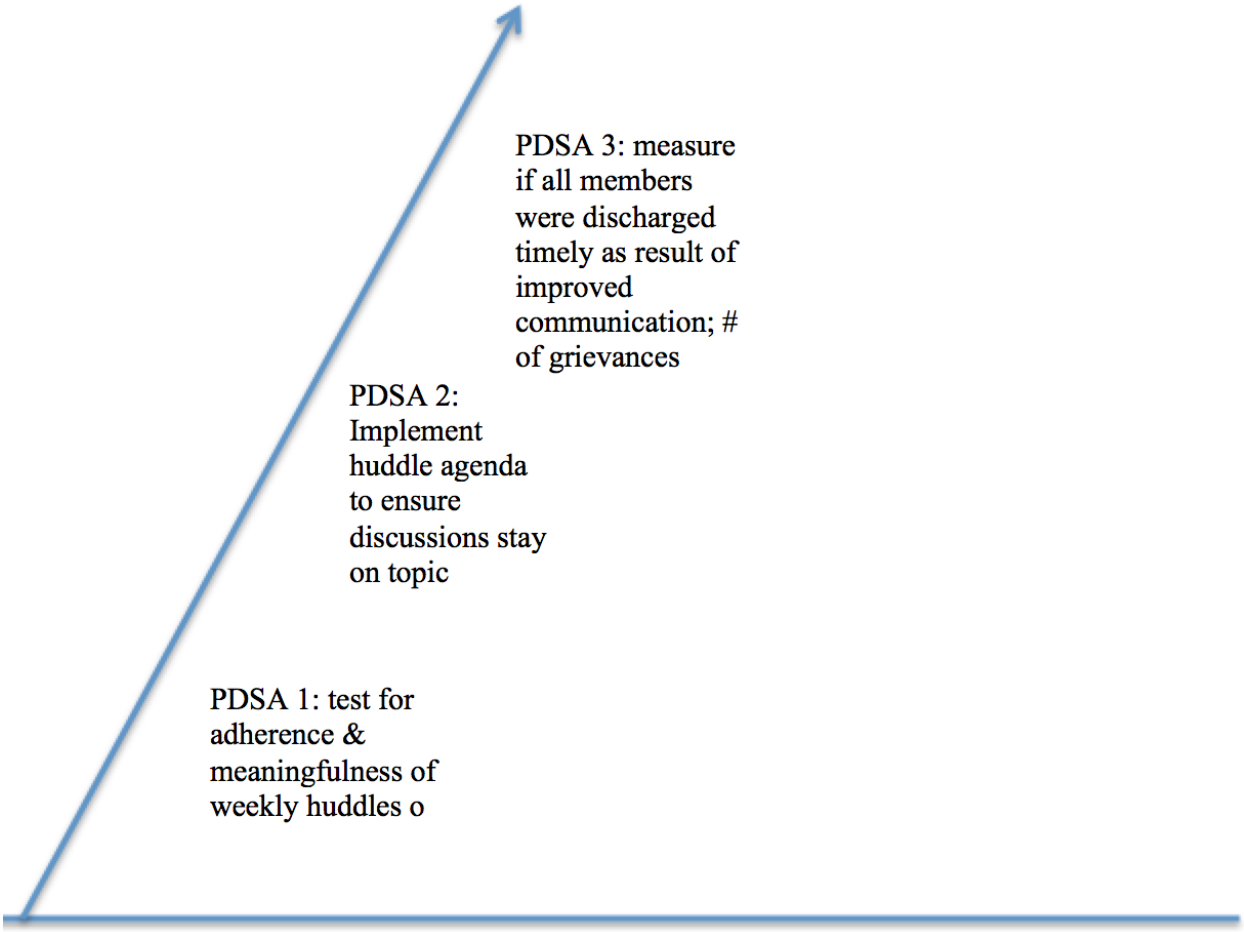
Root-Cause-Analysis

Fishbone Diagram



Appendix I

PDSA Cycle Ramp



Appendix J

Return On Investment (ROI)

CNL Salary	$50/hr
Hours Invested in Project	220 hours
Total $ in Investment	$11,000

Cost to HPSM per extra hospital day	$1,000/day
20 patients with 1-daydelayed discharge over 12 months	$20,000 in annual savings
Potential Profit (Annual savings – Total Investment)	$9,000

$$\text{ROI \%} = \frac{\text{Gain from Investment} - \text{Cost of Investment}}{\text{Cost of Investment}} \times 100$$

$$\text{ROI \%} = \frac{\$20{,}000 - \$11{,}000}{\$11{,}000} \times 100$$

ROI % = 81.8 → 82%

Appendix K

Evaluation Table

First Author (Year)	Design Method	Conceptual Framework	Sample/ Setting	Variables Studied and Their Definitions	Measurement	Data Analysis	Findings	Appraisal: Worth to Practice
Baloh (2017)	Longitudinal prospective qualitative study Recruitment of 17 small rural hospitals from Iowa that attended TeamSTEPPS training in 2011, 2012, and 2013 To minimize variation – limited the analytic sample to eight hospitals that implemented team huddles	Kotter's Model of Change TeamSTEPPS	Eight hospitals were 25-bed rural, critical access hospitals At eight hospitals: 169 interviews with 47 key informants were completed	To examine how the process of change as described in Kotter's change model applies in implementing team huddles To asses the impact of the execution of early change phase on change success in later phases	Quarterly visits to each hospital for 2 years Members of research team conducted semi-structured interviews with key informants; asked about TeamSTEPPS implementation goals, activities, progress Interviews were recorded. Transcribed, and anonymized – then analyzed Four coders independently read transcripts and highlighted any text pertaining to implementing of huddles Hospitals were scored on their performance in each phase of the model	Based on examinations of the coding data- scoring guide was developed Hospitals' score patterns examined across three phases	In half of the hospitals, change process were attributable with Kotter's model In other hospitals, success was dependent on implementation scope and the strategies employed	**Although, there was mixed results, the study indicated that changes can be successful even with Kotter's steps are skipped** **This study was very specific to my quality improvement project and helped provide valuable information about both Kotter's change model and the use of huddles as recommended by the TeamSTEPPS framework.**
Chan (2018)	Huddles were conducted 8:30am Monday through Friday – lasted 30 minutes Authors retrospectively	N/A	Neurosurgery department in the hospital	Authors looked at average monthly costs per patient for variety of variables:	Results of the variables tested were compared from before and after implementation of the huddle.	Results of the variables tested were compared from before and after implementation of the huddle.	Significant decrease in number of ICU days, average laboratory costs, and average	**This study indicated that even short morning huddles consisting of key members of the team may result**

	looked at average monthly costs per patient for a variety of variables			- average ICU days - average step-down days - average direct cost - average laboratory costs - average pharmacy costs -hospital ratings -hospital recommendations			pharmacy costs per patient after huddle was implemented Decreased laboratory and pharmacy costs produced $1,408,047.66 in savings. Customer satisfaction also increased	**in substantial savings**
Donnelly (2016)	Four elements of the Daily Readiness Huddle are applied: metric review, clinical volume review, daily readiness assessment, and problem accountability Data are visually displaced on erasable white boards The huddles use queues to determine whether anyone has concerns or outlier data in regards to S-MESA (Safety, Methods, Equipment, Supplies, and Associates).	N/A	Data was tracked over 12 months. Huddles are attended by radiologists, directors, managers, front-line staff with concerns, representatives from support services	Author's tracked and calculated the mean, median, and range of days to resolution and completion for complex issues and for projects during the first full year of the implementation process.	Using S-MESA, problems are identified and categorized as quick hits (will be resolved in 24-48h, not requiring project management) and complex issues.	Author's tracked and calculated the mean, median, and range of days to resolution and completion for complex issues and for projects during the first full year of the implementation process.	During first 12 months, 91 complex issues were identified and resolved, 11 projects were in progress and 33 completed, with 23 other projects active or in planning. Time to resolution of complex issues (in days) was mean 37.5, median 34.0, and range 1-105. For projects, time to completion (in days) was mean 86.0, median 84.0, and range 5-280	**The results from the study provided a framework to rapidly identify issues, bring accountability to problem-solving, and foster improvement.** **Study provided that huddles have a positive effect on team building and coordination.**

Gilchrist-Scott (2017)	Using data from the 2011/2012 National Survey of Children's Health and the Medicaid Statistical Information System state data mart- a retrospective, cross-sectional analysis of the relationship between fee-for-service, PCCM or HMO enrollment, and access to and receipt of care coordination. The relationship between fee-for-service, PCCM or HMO enrollment, and access to and receipt of care coordination. State-level univariate analyses and individual and state multilevel multivariable analyses evaluated correlations between MMC enrollment and care coordination.	N/A	All states in the state-level analysis and all children received public insurance in the individual level analysis A total of 95,677 individuals were surveyed	The analysis examined the relationship between state-level MMC variables and individual-level indicators of care coordination within those states. 1. Access to care coordination, which represents whether the individual's care meets the AAP requirements of care coordination 2. receipt of care coordination when needed, which represents those individuals who received adequate care coordination services when they needed them	Fixed effects were used to estimate all predictor coefficients, allowing for random intercept at state level; multinomial logistic regression was used for response with 3 possible outcomes;	The key outcome variables were (1) access to care coordination, (2) receipt of care coordination when needed. The analysis was performed in 3 steps; first by calculating the estimate percentage of publicly insured children who received each of the care coordination target outcomes within each state; second- by calculating the unadjusted correlations between HMO and PCCM penetration and care coordination outcomes; third, by performing 4 multilevel logistic regressions to estimate between state level HMO or PCM penetration rates and the odds of having access to care coordination when needed compared with those enrolled in traditional Medicaid FFS payment structures	Results demonstrate significant, national-level correlation between the form of MMC used by states, and the odds that a child living within that state will have access to adequate care coordination, and receive care coordination when needed.	**The study demonstrated that primary care case management adoption is associated with increased receipt of care coordination.**

Glymph (2015)	Historical background of huddle communication Systematic literature review conducted on preoperative briefing and huddle communication	TeamSTEPPS Huddle	Articles published from January 1,2005 to January 1, 2013 were searched A total of 2,123 articles were reviewed and excluded from both searches; 11 articles met the inclusion criteria and were included in this literature review	Purpose of this study was to provide systematic review of huddle communication and give future evidence based recommendations on how the huddle can be used in healthcare as well as how to roll out the use of HUDDLE acronym: Healthcare, Utilizing, Deliberate, Discussion, Linking, Events.	Studies that implemented huddles effectively; literature review;	Leadership can have a great impact on implementation of huddle moment communication Data analysis of 11 articles; evaluation of huddles Effective teamwork can only be achieved through committed collaborative partnerships across professions	Leadership plays a vital role in changing the culture for new initiatives such as huddle moments in healthcare; the literature shows that the huddle creates a s hared mental model among team members by bringing them together before a case to discuss its critical aspect; HUDDLE acronym can aid healthcare providers	**This article provided great insight of huddles in different areas of the health care system; established the role leadership and huddles play in effective communication.**
McBeth (2018)	Quantitative, retrospective descriptive design; sampled used non-random, purposive sampling approach	N/A	Study conducted at a regional referral children's hospital within a level one trauma center and tertiary care academic hospital; pediatric ED provides services to over 13,000 children	The independent variable was the daily morning huddle; the dependent variable was ED boarding time 1. Time from admission orders to bed assignment, and	Examine the changes in patient flow before and after the implementation of an inter-professional, interdepartmental daily morning huddle Data collected retrospectively from the electronic medical	Descriptive statistics, two-sample t-tests, and Chi-square tests were conducted with statistical software environment. Sensitive analysis to confirm results was conducted using the van Elteren test. Statistical significance was	Significant decrease in pediatric ED boarding times after implementation of a daily morning huddle	**This study established the use of huddles being attributable to reduced onboarding time, which translated into better communication between team members and**

			annually, admitting more than 2,400 patients to the children's hospital All patients seen in pediatric ED who were 0 to 15 years of age and received admissions orders to the PICU or pediatric ward; and were admitted to the PICU or pediatric ward and boarded in pediatric ED	2. Time of admission orders to transfer	record over two separate time periods coinciding with pre/post-implementation of the morning huddles	determined by $p < 0.05$		**increased preparedness.**
Melton (2017)	Descriptive, longitudinal study design to evaluate an active huddle process was conducted during a 3-month period at seven hospitals	Watson Theory of Human Caring	Data (N = 15, 623) were collected during a 3-month period at each of the seven hospitals by a member of research team Date (n = 140) were also collected related to huddle attendees' satisfaction with the process	The study examined data related to problem solving and information sharing that result from the huddles process across seven hospitals Variables studied include: a. the incidence of problems that can be resolved, b. the incidence of problems that cannot be solved, c. timeliness of resolution, d. attendance of individuals able	Study described safety huddles in relation to: 1. Problem type, 2. Timeliness of resolution, 3. Attendance of representatives from each discipline, 4. Amount of information sharing, and 5. Attendees' satisfaction with the process	Analyses of the data provided information regarding whether the goals of implementing huddles, such as resolution of the problem in a timely fashion and for a better understanding of communication, are occurring	Huddles provide a structured format in which staff can positively impact safety concerns, form a greater sense of medical community, increase sharing of information between disciplines, quickly resolve discipline- based problems, and increase awareness of safety concerns	**The study indicated the effectiveness of huddles in improving quality of patient care, safety, and created a sense of information sharing in a positive way.**

				to address specific problems, e. extent of information sharing, and f. the incidence of problems identified; participant satisfaction was evaluated				
Provost (2015)	Study design incorporating literature review, direct observation, and semi structured interviews.	Complex adaptive system (CAS) framework	Study explored the impact of huddles in three health care organizations with direct observations and semi structured interviews; the three organizations included: 1. Internal medicine clinic (outpatient) – medical directors, clinicians, and administrative staff; 2. Medical and surgical unit (40 beds); and pediatric hospital (577 beds) Thirteen key informants including nurse managers, nurse educators, vice presidents of quality, safety,	Variables studied included exploring new theories for how and why huddles have been useful in health care organizations; perspectives of how huddles impacted their organizations and patient outcomes	Field data emerged from an iterative process that included discussions among the author team and reflection on clinical experiences.	All authors independently reviewed field data in order to identify patters and then met to compare interpretations.	Huddles create time and space for conversations, improve relationships among health care providers, and strengthen culture of safety.	**This study provided evidence in the useful of huddles across different levels of care in the health care delivery system; this was helpful in providing evidence that huddles are useful in every day practice**

			and transformation; and directors of patient flow, operating rooms and clinical services participated in semi-structured interviews.					
Rojas- García (2017)	Systematic review – examines quantities and qualitative studies	N/A	This review includes 37 papers, reporting data on 35 studies: 10 quantitative, 8 qualitative, and 19 exploring discharge	Variables studied: 1. Quantify the impact of delayed discharge on health outcomes, 2. Qualitative assess impacts on patients, health professionals, and provider organizations, and 3. Evaluate the potential costs associated with delay	For quantitative and health economic studies, results were classified into categories depending on the nature of the outcome Experiences of delay reported in the qualitative studies were divided into 3 categories: 1. Perceptions of patients, 2. Perceptions of health professionals, and 3. Experiences of delay for hospitals	Characteristics were summarized for each study: characteristics include: design, setting, year of publication, country, target population, socio-demographic characteristics, disease(s) and reason(s) for delayed discharge.	Delayed discharge was associated with mortality, infections, depression, reductions in patients' mobility and their daily activities.	**This study was vital in identifying the consequences of delayed discharges; and the potential affects on patients, staff, costs, and quality of care given to the patient.**
Townsend (2017)	Study conducted in an academic health center (AHC) that also fills a community hospital need for a diverse inner-city population;		Daily huddles were piloted on 5 medical/surgical units	Variables studied: whether routinely scheduled, organized interdisciplinary huddles result in decreased length of stay and readmissions.	The 2015 readmission and length of stay data were compared with the 2013 baseline.	Mean readmission reduction of 0.56%; paired t test comparing 2013 and 2015 readmission rates of the 5 units was significant	Enhanced communication occurs with interdisciplinary collaboration Variation resulting from inconsistent coverage was found to negatively impact effectiveness and huddle outcomes	**Although, the results from the study were mixed, this study indicated the importance of consistent engagement, and the need for organized implementation huddles; this study indicated what is needed for an**

							Variation in engagement by physicians was noted	**effective huddle**
Vermeir (2015)	Narrative literature review	N/A	Total of 69 articles were included in this review	Variables studied: 1. Quality of written communication; 2. Impact of communication inefficiencies; 3. Recommendations to improve written communication in healthcare	Framework with four categories was predefined: modalities of communication, deficits in communication, economic impact of communication efficiencies, and recommendations.	Each individual paper was categorized into different fields; the review was further elaborated by addressing each category separately and rereading all articles that were relevant for that category	Poor communication can lead to various negative outcomes: discontinuity of care, compromise of patient safety, patient dissatisfaction, and inefficient use of valuable resources Communication between caregivers should be more frequent.	**This review provided valuable information about the various negative outcomes as a result of poor communication**

***Prompts for each column – **please do not repeat the headings, just provide the data**