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Implementing Risk Tools to Prevent Hospital Readmission

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Clinical Leadership Theme

Through a series of landmark reports the Institute of Medicine (IOM) has highlighted the need for clinical leadership at the point of care responsible for patient safety, improved outcomes, and initiating change (IOM, 1999; IOM, 2001; IOM, 2004; IOM 2011). The clinical nurse leader (CNL) role, introduced in 2004 by the American Association of Colleges of Nursing (AACN), responds to this call for clinical nurse leadership by assuming accountability for health care outcomes of a specific population, at the microsystem level, through synthesis and application of research-based information in designing, implementing, and evaluating patient care (Tornabeni and Miller, 2008). Point-of-care provider, and inter-professional collaboration for improving patient and population health outcomes, are the clinical nurse leader (CNL) themes that align with this project.

As a point-of-care provider with competencies and skills in leadership, the lateral integration of clinical care, and interdisciplinary collaboration to improve patient care outcomes (AACN, 2007), the CNL is ideally positioned to lead the redesign of the microsystem interdisciplinary processes. In facilitating the lateral integration of predictive models across the continuum of care through horizontal leadership, outcomes management, and as a team manager, the CNL can lead the transitions program (TP) team in developing new processes that facilitate transitions across care settings to support patients and families, reduce avoidable recidivism and improve care outcomes (AACN, 2013).

Statement of the Problem

Organizations are highly incentivized to decrease readmission and increase the quality of care patients receive by coordinating care transitions. Through the Hospital Readmission Reduction Program (HRRP) established in 2012 by the Affordable Care Act (ACA), the Centers

for Medicare and Medicaid Services (CMS) reduces Medicare payments for hospitals with excess 30-day readmissions for certain conditions (CMS, 2016). The Healthcare Effectiveness Data and Information Set (HEDIS) assesses and reports measures of care including the rate of unplanned acute readmission for any diagnosis within 30 days. These measures impact organizations accreditation by the National Committee for Quality Assurance (NCQA) and ultimately influence consumer's choice of health plan and providers (NCQA, 2012).

Discharge from the hospital is a critical transition point in patient care. An analysis of this organization's hospital readmissions data demonstrated that 47 percent of readmissions were potentially preventable (Feigenbaum et al. 2012). Readmission within 30 days has been described as a preventable consequence, often occurring as a complication arising from the hospitalization, poor handoffs at discharge, poor management of chronic conditions, and a lack of coordinated care (National Committee for Quality Assurance, 2012; Jencks, Williams, and Coleman, 2006). Many of these readmissions can be prevented with improved care and care coordination in the discharge and post-discharge period (NCQA, 2012). Knowing how to prevent readmissions is one piece of the solution: The other is accurately identifying the population who is at risk.

With the goal of becoming the industry leaders in successfully transitioning patient from acute settings to home, the department of research (DOR) of this Northern California (NCAL) integrated healthcare organization has built a tool that calculates each patient's individual risk score of rehospitalization or death with-in 30 days of discharge, in real-time using the electronic health record (EHR) (Escobar et al. 2015). The organization aims to re-focus its NCAL transitions programs on the goal of 30-day post-discharge readmission reduction by, using the readmission risk (RR) score tool to identify and prioritize outreach and interventions per

patient's risk, standardizing documentation and intervention activities across its NCAL TPs, and implementing a measurement strategy to evaluate program effectiveness.

Project overview

Aligning with the organization's goals, the TP plans to implement new interdisciplinary processes that operationalizes the organizations' DOR's RR score tool. The goal is to prevent readmissions by focusing interventions on the population at greatest risk. In clinical trials, focused intervention that include timely post discharge follow up, medication management, and assessment of the psychosocial barriers of health, delivered during transitions in care have demonstrated a reduction in subsequent readmissions and cost savings (Coleman, Parry, Chalmers, and Min, 2006). A problem often identified for patient discharging from the hospital and other care settings is medication management (MM). Like issues in transitions in care, MM problems are also linked to poor health outcomes (Ho, Magid, Mandoudi, McClure, and Rumsfeld, 2006), avoidable hospitalizations (Albert, 2008), and a wasted expenditure of \$290 billions of dollars annually (NEHI, 2011). As an aspect of workflow redesign the TP team will standardize the process of assessing patient for MM issues, to fully integrate the TP pharmacist in the interdisciplinary plan of care.

Previously the TP has lacked a consistent or evidence-based way of identifying patients who would benefit from care coordination following hospital discharge to ensure recovery at home and prevent avoidable readmission. Without a defined process of assessing patients risk for MM issues, patients received pharmacy services in an inconsistent manner. By working on these processes, we expect to increase the number of patients receiving care from the TP, develop and standardize a new intake and assessment process of interdisciplinary care for transitioning patients, and ultimately see a reduction in all cause readmission rates. Creating these new

processes now are important for several reasons. Other TPs within the system have tested the risk score and have demonstrated a statistically significant reduction in all cause readmission rates. The project will ensure the care delivered by the TP is consistent with the organization's NCAL TPs, and is aligned with the organizational goal of becoming industry leaders in successfully transitioning patients from hospital to home. The project goal is to develop new interdisciplinary intake and assessment processes that implement the risk assessment tools. The aim of the project is that 70 percent of all medium and high risk score patients referred to the TP will receive a post discharge phone call within 48 hours, and are assessed for their risk of MM issues as part of their initial assessment, by August 1st, 2017.

Designed to improve patient safety, quality of care, and reduce preventable hospitalizations this evidence-based change in practice project aligns with the macrosystem's purpose of providing quality, cost effective, efficient, and equitable health care for its' members and addresses the six quality dimensions for changing the health care system from the Institute for Medicine (IOM) report, Crossing the Quality Chasm (IOM, 2001). Operationalizing the DOR's predictive models for proactively identifying patients at risk of rehospitalization and developing and implementing a standardized process for assessing all TP patients risk for MM issues will ensure that the right individuals receive the right care at the right time.

Data Source/ Literature Review

An evidence question was formulated using population, intervention, comparative intervention, outcome component, and time (PICOT) (Melnik and Fineout-Overholt, 2015, p.28). The PICOT was as follows:

- P- Adult patients discharging from hospital
- I- Transitional care/ Interventions

- C- Routine outpatient follow up
- O- Reduced rehospitalization rates
- T- 30-60 days

This guided the formulation of the search question: What transitional care intervention can reduce 30-60 day rehospitalization rates in adult patients discharged from hospital? An electronic literature search of the CINAHL, Cochrane, and PubMed databases was conducted: Filters were used to search for English-only articles with publication dates from 2006 to present. Manual searches of reference sections of identified studies and systematic reviews were also performed to find other relevant articles. The six articles selected for review describe transitional care models and interventions that reduce readmission, also included is the original research evaluating the predictive models and subsequent risk score tool whose operationalization is central to this project.

The John Hopkins Nursing evidence-based practice (JHEBP) research evidence appraisal tool (Newhouse, Dearholt, Poe, Pugh, and White, 2005) was utilized to critically appraise the chosen articles and then entered an evidence table (see Appendix A). These studies were rated as L I A to L 1 B using the JHEBP research appraisal tool and were all randomized controlled trials (RCTs), the strongest design for testing an intervention. The controls imposed by randomizing, intervening, and comparing, enables the inference of causal connections by ruling out alternative explanations

A critical component of the new TP processes is the prioritization and timing of the initial post-discharge outreach. Melton, Foreman, Scott, McGinnis, and Cousins (2012) found the prioritizing of telephonic outreach to high-risk patients to be an effective case management strategy in reducing 60-day readmission rates. In their prospective RCT, all study participants

received post-discharge follow-up calls that focused on post-discharge medication understanding, care management orders, and the scheduling of follow-up visits. The timing of the intervention was found to be critical, post-discharge follow-up call within 24 hours of discharge notification per health status demonstrated higher rates of telephonic engagement and a reduction in readmissions. This research supports this project's aim to outreach to all high and medium risk transition patients within 48 hours of discharge. With the goal of developing an effective process of receiving and responding to referrals every day a stretch goal of outreach within 24 hours of discharge is considered achievable.

The impact of a social worker led care coordination intervention was the focus of a RCT by Bronstein, Shawn, Berkowitz, James, and Marks (2015). The study interventions, focused on the social barriers of financial constraints, knowledge deficit regarding the role of the primary care provider (PCP), and transportation issues, and were delivered by telephonic and home visit follow-up post-discharge. A highly statistically significant improvement in risk of readmission was attributed to the interventions and the social worker's role in empowering patients to self-advocate and coordinate their own care.

Facilitating and supporting patients and their caregiver's capacity for self-care and its positive impact on the readmission rates is further substantiated by other studies. In a RCT performed in a large integrated health care delivery system in Colorado, the effect of a bundle of care transition interventions on readmission rates and hospital costs was studied (Coleman et al. 2006). The intervention bundle included medication management, condition specific education, education on signs and symptoms to report, and primary care provider follow-up visit. The bundle was developed by transition coaches, who were advanced practice nurses, whose goal was to facilitate the roles of self-care for patients and their families. Initial contact with the patient was

made in the hospital before discharge, then they subsequently met with the patient and the primary caregiver in their homes within 48-72 hours' post-discharge. Finally following the home visit, continuity was maintained telephonically with three calls being made during the 28-day post-hospitalization period. This intervention resulted in statistically significant lower hospital readmission rates for patient at 30 and 90 days, and positively correlated with lower readmission rates for conditions that caused the index hospitalization at 90 and 180 days and mean hospital cost.

Pharmacy involvement in transitions of care can decrease hospital readmissions and emergency room visits as demonstrated in a prospective RCT by Phatak et al. (2016). Additionally, their study demonstrated that the interventions of face-to-face medication reconciliation, patient-specific education and counselling, and post discharge follow-up decreased medication errors and adverse drug events. Tested interventions to reduce readmissions include the following: reinforcement of the patients discharge instructions, ensuring that patients have and understand their medications, ensuring patients receive timely follow-up with their PCPs, know what signs and symptoms to look for, and who to call for help.

The effect of these interventions on reducing readmissions is further substantiated by a systematic review and meta-analysis of randomized trials that looked at preventing 30-day hospital readmissions (Leppin et al. 2014). They found that the most effective interventions were complex, often involving face-to-face encounters and focused on supporting patients and their caregiver's capacity for self-care. This correlation found by Leppin et al. (2014), between complex interventions that provide comprehensive and context-sensitive support and readmission reduction is also highlighted within several of the other studies analyzed (Bronstein et al. 2015; Melton et al, 2012).

The benefit of home visits is intrinsically understood by the TP clinicians for the information gained and the importance of face-to-face communication in facilitating a therapeutic relationship. Having the ability to make home visits, this TP differs from most of the other NCAL TP's and with the evidence demonstrating that home visits correlated positively with the reduction of readmissions this TP could potentially have better outcomes once the risk score has been fully operationalized. Incorporating home visits as part of the new TP processes is important to the TP staff and is supported by the evidence to assist in reducing readmissions. This review of the literature provides strong support of the interventions that need to be integrated in the new processes; the prioritizing of outreach phone calls, addressing MM needs of patients, and providing a multidisciplinary approach to transitional care that supports patients and their caregivers' capacity for self-care.

Rationale

Originally created to address inappropriate utilization of hospital services, the TP is now an interdisciplinary mix of nurses, social workers, and pharmacists with social workers outnumbering the other disciplines. Operationalizing the RR score tool as the primary source of referrals changes the original social model focus of the program and has implications for the current staff mix and how to best utilize current resources. As a small multidisciplinary program, everyone has an impact on the overall success of the team. The initial step of this change in practice project was the assessment of the microsystem. Performing a microsystem assessment informs the team of its strengths and weaknesses, creates more improvement opportunities, and is central to microsystem improvement processes. One framework that provides structure for the CNL to assess the microsystem and develop themes and aims is the 5Ps (purpose, patients, professionals, processes, and patterns) (King and Gerard, 2016, p. 185). Incorporating and

operationalizing the DORs predictive models and risk score protocol involves a refocus of the team purpose, the patient population, the multidisciplinary team and its skill mix, and the team processes and patterns. The new metric of concern is the 30-day hospital readmission rate and the new goal of reducing preventable readmissions. Implementing the readmission and MM risk scores prioritizes the need to develop new intake and assessment processes that ensures the timely outreach to patients discharging home from hospital and assessment for MM issues.

Previously the TP had a clearly defined intake process, referrals were received, reviewed, and assigned by the program manager on weekdays. The redesign of the intake process will necessitate both nursing and social worker clinicians to share the responsibility of the intake process as the program operates seven days a week with clinicians rotating to cover weekends. Additionally, the process for assessing patients for MM issues and involving the TP pharmacist in patients care to address these issues was neither defined nor standardized. Retrospective data on MM issues and how many patients received interventions to address these issues demonstrated that 93 percent of TP over a four-month period were identified as having MM needs with less than 50 percent of these patients receiving interventions to address these needs. On surveying staff, it was found that less than half felt confident in assessing patient's potential risk in this area. The microsystem assessment identified that a redesign of the intake process was necessary and that the MM needs of TP patients was an area that needed improvement. With redesign of the intake and initial assessment processes planned it was decided that addressing both issues simultaneously was feasible.

The cost of preventable readmissions is estimated at 15- 20 billion dollars annually (CMS, 2016) and addressing this problem is potentially the most important opportunity for decreasing waste in health care (NCQA, 2012, p. 3). Poor medication management is estimated to waste

billions of dollars annually (NEHI, 2011) and presents an additional opportunity for improved efficiency. The financial benefits of implementing this evidence-based change in practice project is important to consider. The project includes the redesign of TP processes and will require significant training for all staff. The cost is estimate as \$17,920, this includes staff in-services, CNL hours, and clinician orientation and training to the intake process. The average cost of a readmission is \$13,600 (AHRQ, 2013) therefore the prevention of 2 readmissions more than covers the cost of implementing this project. With other pilot sites already experiencing a 5-6 percent reduction in readmission rates the potential return of investment for this project is extremely favorable, and the cost of implementation will be covered quickly. The cost-saving analysis of the project (see Figure B1), does not include the cost-savings for the organization from reimbursement penalties nor from the prevention of adverse events which are beyond the scope of this project. The intangible benefits of quality care to members and their loved ones, improved job satisfaction for healthcare providers, and organizational accreditation are often difficult to quantify as monetary amounts (Penner, 2017, p. 218), but are also important considerations.

Methodology

With the areas of change in practice identified, the next step was to find, review, and appraise the literature, as described in the literature review section. As an aspect of an evidence-based practice project, integrated with patients' preferences and values, and incorporating clinical expertise, the literature helps to inform the team about what changes may result in an improvement for this microsystem. For this project the literature guides the redesign of the intake and initial assessment processes to achieve a timely response to new referrals, a multidisciplinary approach to the assessment and treatment of transitioning patients, and the importance of

assessing and intervening with MM issues in this population. Searching for literature inclusive of all the disciplines involved and engaging the team in the process of reviewing and critiquing the literature provided an informed base from where planning change could start.

In determining the microsystem readiness for implementing a performance improvement initiative the CNL completed a strengths, weaknesses, opportunities, and threats (SWOT) assessment (King and Gerard, 2016, p.186). Several microsystem strengths and opportunities were identified as mitigating factors affecting the success of the project and are described in the SWOT analysis (see Figure B2). Strengths include strong support from regional and local leadership, the use of a successfully piloted evidence-based tool to more accurately identify patient for TP follow-up, and the use of a validated tool for assessing patients MM risk. The weaknesses and threats to the project include an unbalanced skill mix for implementing a medical model risk score tool, a significant change in the program's operational goals and model, and the potential of the current transitions team being overwhelmed by the change in program goals, population, and practices.

The Institute for Healthcare Improvement's (IHIs) model for improvement was used as the framework for this quality improvement project incorporating a scientific method for testing the new interdisciplinary processes. The first of two parts of the model asks three fundamental questions; what are we trying to accomplish? How will we know that a change is an improvement? Finally, what changes can we make that will result in an improvement? The answers to these questions guides the formation of a project charter that serves as a guide to the design and implementation of this change in practice project and includes the goals, aims, measurement strategy, and data collection plan (see Appendix C). Involving the interdisciplinary TP team in goal and aim setting is a beneficial exercise to creating a sense of urgency. Creating a

driver diagram helps in identifying and clarifying a family of measures and a measurement strategy (see Appendix C, p.39). Describing and defining the measurement strategy focuses the team in thinking about changes to test, and informs the data collection plan which is critical in determining the effect of any changes (see Appendix C, p.42).

The second part of the model, the plan-do-study-act (PDSA) method, provides a scientific, disciplined, and efficient approach for testing small changes. Building on what is learned from each small change tested increases the likelihood of achieving a change that results in an improvement that can be implemented (Nelson, Batalden, & Godfrey, 2007, pp. 273-274). The PDSA method provides the TP a framework to test multiple changes rapidly to find a process that achieves the desired outcome and is effective and efficient considering the available resources. The first PDSA cycle tested involved the TP nurse outreaching and managing the identified high-risk score patients, with the social workers responsible for the medium-risk patients. In analyzing this test of change, it was determined that assigning patients to clinicians based solely on RR score was not an effective patient-centered means for patient outreach and it was often difficult to engage patients using this test of change and the team decided to abandon it. Attempting to identify a patient's potential primary need on discharge home and matching that to the appropriate discipline was hypothesized to result in improved patient-engagement with the program, a reduction in RR, and improved staff satisfaction with the process.

The goal for the intake process was further defined by the team to include: having the right discipline to outreach to increase patient engagement, create a process where all staff felt competent in assigning patients based on their need, and create a consistent and effective process that can be used seven days a week. This led to another change to test: A daily huddle involving a brief interdisciplinary chart review of each patient performed by the nurse and social worker

assigned to intake. From this interdisciplinary review of new referrals, the decision of whom would initially outreach to the patient was made: The involved staff reported satisfaction with this test of change reporting that it was a patient-centered interdisciplinary approach that prioritized transition outreach based on clinical need. Through the daily interdisciplinary huddle the team could compile a list of interdisciplinary guidelines that helped standardize the process of assigning RR score patients based on patient need (see Appendix D). This process facilitates the effective assigning of risk score patients, guides clinicians' decision to engage other team disciplines in the care of TP patients, and supports the clinician's decision making process when working alone on weekends. The team decide to adopt this test of change and to continue with the daily interdisciplinary huddles until all participating clinicians felt competent with their new intake responsibilities and with the new process.

The MM risk score was compiled by the CNL and pharmacist champion using a modified version of the HbL Medication Risk Questionnaire which has been validated for use in identifying potential medication management problems in older adults (Barenholtz, 2003). The modification of the tool is evidence-based and designed to increase its reliability in the TP patient population. Implementing the MM risk tool as part of all TP initial assessments involved creating a smart phrase that all social workers and nurses add into their initial assessment. This populates a series of six questions to be answered creating a risk score for the patient with instructions for when to refer to the pharmacist also included (see Appendix E). Initially tested on a small scale the feedback included social workers' discomfort in identify high risk medications that a patient may be taking. Thus, the pharmacist champion created a reference list of all high-risk medications within the organization's formulary for the categories included in the MM risk score tool and distributed it to the team (see Appendix F). With this modification staff

felt this test of change should be adopted and all staff were educated on the process of utilizing this tool as part of their patient's initial assessments. This was an example of an effective PDSA cycle, where the proposed change was implemented on a small scale, identification of concern was brought forward, and actions were identified and addressed, the change was then adopted and implemented.

Having a theoretical framework to follow benefits the complicated process of initiating change, utilizing Kotter's eight-step process for leading change provided the CNL a systematic and strategic approach for implementing change in the TP microsystem. The eight steps as described by Pollack and Pollack (2015) and how they are applied to this project are as follows: (1) educating the multidisciplinary team about the RR score and MM risk assessment tools and plan for implementation to establish a sense of urgency for process changes. (2) Engaging champions from all TP disciplines to create a guiding coalition. (3) Developing a clear vision, (4) and consistently communicating this vision with staff. (5&6) Highlighting and celebrating accomplishment along the way to heighten momentum and demonstrate the viability of the change. (7) Involving staff in PDSA cycles and eliciting feedback to sustain continued focus on the proposed change. (8) Finally, documenting and educating all staff to the new processes and institutionalizing the practice change so that it becomes the standard practice incorporated into the TP policy. These steps address how to initiate the change process, how to build consensus, how to sustain the new process, and provides a framework that guides the CNL.

Developing new interdisciplinary process for the TP involves collaborating and communicating with the TP team, however, our processes are impacted by and impact other departments. The need for interdepartmental processes to be discussed, planned, and implemented with the involvement of all stakeholders is ongoing. Performing a stakeholder

analysis was an important step in understanding the most important stakeholders. These individuals have the power to remove potential barriers or undermine the project, knowing who they are and how to gain their support is an important consideration for the CNL (see Appendix G). The impact of operationalizing the DOR's RR scores on the current program cannot be understated. With the responsibility of leading the project of redesigning the intake and initial assessment processes the CNL needs to inspire and support the TP team. Actively involving the team in the change process will greatly increase the opportunities for success and sustainability. Effective collaboration and communication skills are fundamental to be able to lead the team during this period of change and uncertainty. With indebt knowledge of and experience with the team the transition to change agent and project leader was achieved.

Timeline

The timeline for this project (see Appendix C, p. 46) commenced at the beginning of May 2017 with a regional team kick off meeting with local stakeholders including inpatient coordination of care department leaders and continuum leaders representing the transitions program, home health, and skilled nursing facilities departments. In this meeting, the risk score was described with rationale for its implementation. A follow up meeting was arranged to introduce proposed high-level workflows. Operational management details were discussed to ensure all clinicians who needed assess to web risk site and e-consult would have access. Guidelines for interventions, timing of post-discharge call, and subsequent follow-up calls were presented. Implementation of the rick scores went live on June 14th, 2017, with team check-in meetings happening every 7-10 days to discuss the changes and any follow up needs. The process of implementing the MM risk assessment tool occurred concurrently with PDSA cycles implemented to test changes in the redesign of the intake and initial assessment processes. Data

collection was initiated at the time of implementation of the RR and MM risk score tools and is ongoing to monitor the effect of changes on the outcomes, process, and balancing measures number as described in the project charter. Data definitions, a description of the roles and responsibilities of the data collection team, and weekly review of data collection methods for ongoing analysis and process refining was initiated early in the process and are ongoing. PDSA cycles (see Appendix H) began on the implementation date and are ongoing with the plan to test and evaluate changes until it is determined that the most effective, efficient, and safe processes are in place.

Expected Results

The development of the new interdisciplinary intake and initial assessment processes will operationalize the RR and MM risk score tools. The incorporation of the DORs RR tool is expected to identify who is most at risk of readmission at discharge in real time, standardize the referral process to the TP from the hospital and from other levels of care, and prioritize TP response and interventions based on patient risk. Implementation of the MM risk tool will standardize the process for TP pharmacist referral, increase the number of TP patients at risk of MM issues who receive interventions to address them, and reduce poor outcomes in these patients. These improved standardized processes will ensure those who will benefit most from TP interventions will be offered these services and reduce current variation in care delivery. Operationalizing the DOR RR scores is projected to increase the number of referral to the TP. Implementing the MM risk tool is also projected to increase the number of TP patients that will receive intervention for MM issues. Ultimately by ensuring that the right patients receive the right intervention at the right time will improve patient outcomes, improve the quality of care, reduce preventable readmissions and reduce health care cost.

Results from operationalizing the predictive model are expected to reflect a reduction in the number of preventable readmissions as has been reported in the pilot sites who tested the RR score tool. However, in implementing the predictive models and the subsequent move towards a more standardized workflow may result in less opportunity to engage in the more complex and supportive interventions that the literature supports as being the most effective in reducing readmissions (Leppin et al., 2014). As a medical-based tool the predictive model does not capture patient with complex psychosocial needs, although the inpatient discharge planners and social workers can elevate an individual's risk score when complex psychosocial needs are identified, it is possible that some of these patients will fall through the safety net of the new process.

Nursing Relevance

Identifying the population that is most at risk of readmission and MM issues and providing focused intervention that address these issues will greatly improve patient safety, positively impact patient quality of life, and prevent adverse outcomes. Standardizing the delivery and documentation of care across NCAL TP's will assist in the provision of consistent levels of care across the organization and facilitate the implementation of a measurement strategy to evaluate individual program effectiveness. Reducing readmissions and improving the medication management of our patients has financial implication for the organization. Operationalizing the organizations DORs' RR score throughout NCAL will assist the organization in the ongoing testing and evaluation of the effectiveness of the RR score tool. If an effective system for reducing readmissions within a large organization can be clinically demonstrated, then the goal of becoming an industry leader in readmission reduction can be realized. Spreading this success to other organizations would greatly improve health care quality and efficiency.

Recognized as one of the most important opportunities for reducing waste in health care preventing hospital readmissions is an area of focus for CNL practice. “As outcome managers, CNLs often serve as the identifiers of concerns and marry project management, leadership, and quality improvement to bring disciplined evidence-based interventions to bear metrics viewed as stagnant or resistant to change” (Poys & Thomas, 2016, p. 313). Through utilizing nursing leadership, clinical outcomes management, and care environment management skills the CNL is perfectly positioned to advance the safety and quality of patient care in this area in addressing the problem of preventable readmissions.

Summary Report

Measures are critical to performance improvement work as without them it is impossible to determine or demonstrate what changes are effective. Collecting data can be time consuming so building measurement into the existing workflow where there is a durable documentation trail that can be easily audited is ideal. In collecting data for this project a small team of champions was formed who engaged in defining and documenting how data was to be collected, recorded, and reported, and each member’s role and responsibilities were identified to ensure clarity of purpose. This team met frequently to ensure the data collection methods were appropriate and to discuss and evaluate any issues with the data collection process. Having an effective data process is critical in the ongoing process of sustaining what has been achieved and continuing to measure the effect of changes in the processes.

Preliminary analysis of the data on the new process for intake appears to be headed in the right direction, ensuring new TP referrals receive an outreach call within 48 hours of discharge (see Appendix I). In relation to the stretch goal 56 percent of patients to date received outreach telephone calls with 24 hours of discharge. The data on the outcome measure for the

implementation of the MM risk tool also shows that the percentage of TP patient receiving pharmacist interventions is increasing but the process measure data indicates this is not as a direct result of the MM risk tool being utilized in the initial TP assessment (see Appendix J). The results may be explained by an increase awareness among staff of the need for pharmacy involvement, but a lack of use of the tool due to many changes occurring simultaneously. With the referral rate from the risk score much less than anticipated, the process of assessing all measures will require more time to determine if the new processes are effective in achieving their intended outcomes as well as to assess if there are any resulting unintended consequences. The data was presented in time periods of a week due to a low number of referrals with some days not having data to report on.

This project is in the early stage of implementation with the expectation that referral rates will increase as other departments continue to refine their processes. The TP will continue data collection on all measures and continue with PDSA cycles, when the aim is achieved and sustained then the next step will be to standardize and implement the change. Sharing the data with the team at meetings and creating a data board will help in sustaining the initiative and keep the team motivated moving forward. Mapping the new process and educating all staff on the new workflow will be part of standardizing of the new process (see Appendix K). Incorporating the new processes into the departments policy and procedure manual and making it part of new employee orientation new employees is also an important aspect of sustaining the change in practice.

The process of implementing this project has resulted in valuable learned lessons. Knowledge of the microsystem through assessment and evaluation using the five “Ps” is essential to increase awareness of the infrastructure and functioning of the microsystem that can

lead to a diagnosis of what needs improving as well as informing the team of its' strengths and weaknesses. All quality improvement work needs to be team based to increase its chances for success. A diagonal communication style involving all team members will increase collaboration, the more involved the team is at every stage of the process the greater the likelihood for having shared understanding and of achieving the goal. Effective delegation within the team requires the knowledge of each disciplines roles and responsibilities, along with everyone's strengths and weaknesses, to maximize the potential for success.

Allowing staff time to be innovative with ideas creates opportunities for brainstorming and feedback, and encourages active participation and involvement in the change process. Identifying and discussing issues as a team can bring about positive short-term impacts, such as in this project with increasing referrals to the TP pharmacists. When developing global and specific aims, aligning them with the macrosystem goals will promote leadership support and assist with the measurement strategy and the availability of baseline data as existing measures are likely to be in place that can be utilized. Discussing plans for improvement projects with higher level leadership is important to identify potential conflict with other planned implementation and to gain stakeholder support. The process of performance improvement is just that – a process, and therefore, needs time to allow unfolding. There needs to be flexibility in the process, allowing for unexpected or unanticipated events. Using the project's aim is an excellent means of keeping the team focused.

There are many factors that impact preventable rehospitalization; and this project address two of them, correctly identifying and intervening with patients that are at risk of readmission and MM issues. Subsequent saving in health care dollars, from preventing avoidable readmissions, can be utilized in other quality health care initiatives and assist in providing lower

health care cost for everyone. This important work is timely considering the current level of federal scrutiny over the cost and quality of health care with a spotlight on readmissions. In addition, the public reporting of all-cause 30-day readmissions measures for certain conditions further underscores the urgency to reduce readmissions. In the development and implementation of new TP interdisciplinary processes that operationalize the DOR's RR tool and the MM risk tool the CNL addresses the national healthcare challenge of providing high quality, efficient care that improves the health of a population.

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Appendix A
Evaluation Tables

Conceptual Framework	Design/ Method	Sample/ Setting	Variables Studied and Their Definitions	Measurement	Data Analysis	Findings	Appraisal: Worth to Practice
Coleman, E. A., Parry, C., Chalmers, S., & Min, S. (2006). The Care Transitions Intervention: Results of a Randomized Controlled Trial.							
None	Randomized controlled trial	N = 750 Large integrated delivery system, Colorado. Community dweller, ≥65 years of age, working telephone, English-speaking. Excluded dementia, stroke, CHF, CAD, arrhythmias COPD, DM, spinal stenosis, hip fracture, PVD, DVT, and PE.	A bundle of care transitions interventions: medication management, condition specific education, signs and symptoms to report, follow-up visit with PCP, hospital visit and subsequent home visit and telephonic follow-up by transitional coach – impact on re-admission rates and hospital costs.	Non-elective readmission rates at 30, 90, and 180 days. Rate of readmission for the same condition as the index hospitalization at 30, 60, and 90 days. Mean hospital costs.	2 sample comparisons of both groups conducted using statistical tests. The Chi-squared test was used for dichotomous outcomes testing statistical significance between the intervention and control groups. Logistic regression analysis was used to adjust for possible imbalances in the randomization in the evaluation of primary and secondary outcomes. Cost data were analyzed using the median test.	Statistically significant at 30 (p=.048) and 90 days (p=.04) for non-elective readmissions in the intervention group & were less likely to be rehospitalized for same condition as index hospitalization at 90 and 180 days. Lower mean hospital cost for intervention group.	<p>Strengths: Strong methods used.</p> <p>Limitations: Large exclusion criteria, could be difficult to replicate. Effect of overall bundle evaluated unable to determine which of the bundle activities if any was more impactful. May not be easily adaptable to health care systems that are not integrated</p> <p>Feasibility: Improving care transitions can significantly reduce rate of subsequent hospitalization at 30 & 90 days. Intervention saves cost over longer period (180 days).</p> <p>L I B.</p>

Conceptual Framework	Design/ Method	Sample/ Setting	Variables Studied and Their Definitions	Measurement	Data Analysis	Findings	Appraisal: Worth to Practice
Escobar, G. J., Ragins, A., Scheirer, P., Liu, V., Robles, J., & Kipnis, P. (2015). Nonelective Rehospitalizations and Postdischarge Mortality							
None	Retrospective cohort study using split validation	N= 360,036 adults who experienced 609,395 overnight hospitalizations at 21 hospitals (Integrated health care delivery system) between June1 2010-December 31, 2013. Northern California	Age; sex; admission venue; admission LAPS2; illness severity at 08.00 on day of discharge (LAPS2 _{dc}); COPS2; care directives; total index hospital LOS; time and day of discharge; and if overnight inpatient hospitalization experiences in days 1- 7 and days 8-30 days preceding the index hospitalization	A composite outcome (death and/ or nonelective rehospitalization) within 7/ 30 days after discharge. Nonelective rehospitalization defined as \geq one of the following- Due to an ambulatory care, sensitive condition as defined by AHRQ &/ admission occurred through the ED&/ at readmission the patient had a LAPS2 \geq 60.	Models were tested using ANCOVA, saturated ANCOVA with smoothing logistic regression, random forests, conditional inference recursive partition, neural networks, recursive-partition-then-logistic regression, and a type of nearest-neighbor analysis. The best model was selected based on a high <i>c</i> -statistic with a penalty for the number of covariates and the model complexity.	Nonelective rehospitalization rates at 7 & 30 days were 5.8% and 12.4%; mortality rates were 1.3% and 14.9%. Using EMR 4 models were developed that can estimate risk of the combined outcome within 7 or 30 days. The 30-day discharge day model tested the best of the 4 models with a <i>c</i> -statistic of 0.756 (95% CI)	<p>Strength: Large study, method enhanced by use of split validation. Adds to a limited background of knowledge in an area very much in early development.</p> <p>Limitation: Difficult to replicate, models would need recalibration to be used in other settings.</p> <p>Feasibility: Based on a highly-integrated health care delivery system in a population where baseline adverse outcomes are likely lower than the general population.</p> <p>L I A</p>

Conceptual Framework	Design/ Method	Sample/ Setting	Variables Studied and Their Definitions	Measurement	Data Analysis	Findings	Appraisal: Worth to Practice
Bronstein, L. R., Gould, P., Berkowitz, S. A., James, G. D., & Marks, K. (2015). Impact of a Social Work Care Coordination Intervention on Hospital Readmission: A Randomized Controlled Trial							
None	Randomized controlled trial	N=85 adults ≥50 years of age with moderate to high risk of readmission post-discharge as determined by LACE (Length of stay, Acute admission through ED, Comorbidities, and ED visits in the past six months). Upstate New York	Impact of a social worker – led care coordination intervention within-30-day readmission rates. Addressing financial constraints, knowledge about PCP role, transportation issues. Implemented by follow-up call, home visit, and subsequent phone calls as needed up to 21 days’ post-discharge	Number of readmissions across both groups for 30 days’ post discharge	Contingency analysis was conducted in which the risk of readmission was determined (calculated as risk ratio [RR] intervention group/control group) and tested using χ^2 .	Intervention improved the likelihood of NOT being readmitted by some 22% (RR= 1.222; 95% CI = 1.063-1.405). The risk improvement with the intervention was highly statistically significant ($\chi^2 = 8.99$; $p = .003$).	<p>Strength: Strong design</p> <p>Limitations: Small sample. Large number of patients refused to participate or became ineligible during the study.</p> <p>Feasibility Licensed social workers are uniquely prepared to empower patients to become their own advocates and can provide post-discharge care coordination that can prevent rehospitalization for medium-high risk patients over the age of 50.</p> <p>LIB</p>

Conceptual Framework	Design/ Method	Sample/ Setting	Variables Studied and Their Definitions	Measurement	Data Analysis	Findings	Appraisal Worth to Practice
<p>Leppin, A. L., Gionfriddo, M. R., Kessler, M., Brito, J. P., Mair F.S., Gallacher, K., Wang, Z., Erwin, P. J., Sylvester, T., Boehmer, K., Ting, H. H., Murad, M. H., Shippee, N. D., & Montori, V. M. (2014). Preventing 30-Day Hospital Readmissions: A Systematic Review and Meta-analysis of Randomized Trials.</p>							
<p>The cumulative complexity model (CuCoM) conceptualizes patient context as a balance between workload & capacity. It considers treatment burden on patient context, and illustrates how infeasible, unsupported and context-irreverent care can lead to poor health outcomes and reduced health care effectiveness.</p>	<p>A systematic review and meta-analysis of randomized trials.</p>	<p>47 RCT's from 46 reports from 1990 -2012, 42 contributed data for the primary meta-analysis and the remaining 5 were analyzed separately. Settings included countries from all over the world. Subjects were adults admitted from the community to an inpatient unit for at least 24 hours with a medical or surgical cause.</p>	<p>The effectiveness of peri-discharge interventions vs any comparison on the risk of early (within 30 days of discharge) all-cause or unplanned readmissions with or without out-of-hospital deaths. The intervention had to focus on hospital-to-home transitions, permit patients across arms to have otherwise similar inpatient experiences, and be generalizable to context beyond a single patient diagnosis.</p>	<p>1. "Net interventions" activities that occurred in the intervention arm but not in the control arm, coded using a taxonomy adapted from Hansen et al., 2011. 2. # of meaningful involved individuals (MII) and # of meaningful interactions (MI) these individuals had with patients. 3. Early all-cause or unplanned readmission with or without out-of-hospital death.</p>	<p>Random-effects meta-analyses was used to estimate pooled risk ratios and 95% confidence intervals for readmission within 30 days</p>	<p>Effective interventions are more complex -seek to enhance patient capacity to reliably access and enact post discharge care. Interventions in more recent studies were less effective. Finding were consistent with the CuCoM -that providing comprehensive and context-sensitive support to patients reduces the risk of early hospital readmission.</p>	<p>Strengths: Strong method, large comprehensive assessment of transitions interventions and effect on 30 day readmissions. Unpublished data from 18 trials Limitations: Many single center, smaller studies included Evidence of publication bias Feasibility: Good- Most interventions tested effective in reducing readmissions. Use of CuCoM support interventions that promote patients' capacity for self-care. L1 A</p>

Conceptual Framework	Design/ Method	Sample/ Setting	Variables Studied & Their Definitions	Measurement	Data Analysis	Findings	Appraisal: Worth to Practice
Melton, L.D., Foreman, C., Scott, E., McGinnis, M., & Cousins, M. (2012). Prioritized Post-Discharge Telephonic Outreach Reduces Hospital Readmissions for Select High-Risk Patients.							
None	Prospective randomized control study	Sample: 3998. All U.S States except Texas & CA. All subjects had active health insurance from the same carrier and were eligible for CM from their carrier. All subjects had a 3-day or greater LOS and ICD-9-CM major diagnosis of heart/ Circulatory Lower Respiratory or GI at initial discharge	Prioritized follow up of - 2 attempted post discharge phone calls by a CM within 24 hours of discharge, additional phone call attempt (if unsuccessful) the following day vs control of 3-day post discharge telephone follow-up attempt by CM. % of unique emergent (all-cause, unscheduled admissions following initial discharge) readmissions at 30 days and 60 days. Readmission rates per 1000.	All outcomes were derived from insurance claims data and CM utilization data including facility, professional, pharmaceutical, and CM call activity	Analysis of effectiveness was conducted on an intention to treat basis. Sample size calculated using power of 0.8 and 2-sided <i>p</i> value of .05. Statistical analyses with alpha set to 0.05	Readmission 30-day (all-cause) for intervention group was 5.7% vs 7.3% for control (<i>p</i> <.05) Readmission 60-day (all-cause) for intervention group was 7.5% vs 9.6% for control (<i>p</i> <.05). Readmit rate/1000 was lower by 6% and 12% for intervention group-statistically significant for the 60-day result.	<p>Strengths: Good method with calculated sample size.</p> <p>Limitations : Unobserved environmental factors that were difficult to control (e.g. Quality of hospitalization, prior or concurrent CM activity out of the carrier's domain).</p> <p>Feasibility: Timing of outreach/& intervention is a critical component in preventing readmissions. Telephonic CM encouraged the adoption of self-improvement skills</p> <p>L1 A</p>

Conceptual Framework	Design/ Method	Sample/ Setting	Variables Studied & Their Definitions	Measurement	Data Analysis	Findings	Appraisal: Worth to Practice
Phatak, A., Prusi, R., Ward, B., Hansen, L. O., Williams, M. V., Vetter, E., Chapman, N., & Postelnick, M. (2016). Impact of Pharmacist Involvement in the Transitional Care of High-Risk Patients Through Medication Reconciliation, Medication Education, and Postdischarge Call-Backs (IPITCH study)							
None	Prospective randomized single-period longitudinal study from Nov. 2012 - June 2013. Patients randomized using a random number generator to usual care/ intervention arm.	Sample 278 patients admitted to 2 designated internal medicine units on > 3 scheduled prescription, medication or at least 1 high-risk medication. Urban, tertiary, academic medical center, Chicago, Illinois.	Face-to-face medication reconciliation, patient-specific pharmaceutical care plan, discharge counseling, and post-discharge phone call on days 3, 14, and 30 to provide education and assess study endpoints. Classification of high risk medications - anticoagulants, antiplatelet, hypoglycemic, immunosuppressants, or anti-infective.	1-Decrease medication errors (MEs) 2-Adverse Drug events (ADEs) 3-Patients' knowledge related medications as measured by improvement in the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) scores. 4- 30-day all-cause inpatient readmissions and ED visits.	Multivariate logistic regression analysis was used to adjust for CCIS, LOS, # of medications on discharge, & payer type showed an adjusted OR of 0.55 (95% CI) in the intervention group compared to controls for 30-day readmission & ED visit	39% and 24.8% experienced readmission or ED visit in control and intervention groups respectively (p=0.01) 12.8% compared to 8% experienced an ADEs or MEs in control and intervention group respectively (p>0.05) HCAHPS improved 9% (p>0.05)	Strengths: Strong Methods used. Limitations Small single center study. Outcomes relied on participants report – not objective. Feasibility: Pharmacy involvement in transitions of care can have a positive impact on decreasing composite inpatient readmission and ED visits, statistical significant difference in medication-related events and HCAHPS scores were not observed. L1B

Appendix B

Figure 1: Cost Savings Analysis

Item	Details	Total Cost
CNL intern hours	220 hours x \$70*	\$15,400
All staff meetings	8 staff x 4 meetings	\$2,240
One-to –one orientation sessions	8 staff x 1 hour	\$560
Total cost of project implementation	236 hours	\$18,200
Readmission prevention	Cost savings of 1	\$13,600

*Average cost of hourly TP staff wage

Figure 2: SWOT Assessment of the TP Microsystem.

Positive or Benefit	Internal or Present		Negative or Cost
	Strengths: Support from leadership Evidence-based Successfully piloted Standardized workflow	Weakness: Imbalance in MSW-RN staff mix to implement medical model New roles and responsibilities for TP staff	
	Opportunities: Improved workflow Ability to case-find Reduction in readmissions Standardization across NCAL TPs	Threats: Inability of current team to meet demand Program failure Staff despondency due to changes in program	
External or Future			

Appendix C

Development of New Interdisciplinary Transitions Program Processes Incorporating Predictive
 Models to Identify Patients at Risk of Rehospitalization
 Clinical Nurse Leader Internship Project Charter

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Introduction

Improved transitions across the continuum of care reduces preventable hospitalizations as recommended by the Institute for Healthcare Improvement (IHI) published State Action on Avoidable Rehospitalizations Initiative (IHI, 2009). Organizations are highly incentivized to decrease readmission and increase the quality of care of patients by coordinating care transitions. Through the Hospital Readmission Reduction Program (HRRP) established in 2012 by The Affordable Care Act (ACA), the Centers for Medicare and Medicaid Services (CMS) reduces Medicare payments for hospitals with excess 30-day readmissions for certain conditions (CMS, 2016). With the goal of becoming the industry leaders in successfully transitioning patient from acute settings to home department of research (DOR) of this Northern California (NCAL) integrated healthcare organization, has built a tool that calculates each patient's individual risk score of rehospitalization or death with-in 30 days of discharge in real-time using the electronic health record (EHR) (Escobar et al. 2015).

The organization aims to re-focus its NCAL transitions programs (TPs) on the goal of 30-60 post-discharge readmission reduction by; using the risk score tool to identify and prioritize outreach and interventions per patient's risk; standardizing documentation and intervention activities across its NCAL TPs; and on implementing a measurement strategy to evaluate program effectiveness. Aligning with the organization's goals the San Francisco (SF) transitions program (TP), plans to develop and implement a new interdisciplinary workflow to operationalize the organizations' DOR's predictive model, with the goal of reducing preventable readmissions by focusing interventions know to reduce readmission on the population at greatest risk. Focused intervention that include, timely post discharge follow up, medication management (MM), and assessment of the psychosocial barriers of health, delivered at transitions in care have

demonstrated in clinical trials to reduce subsequent readmissions and realize a saving in health care cost (Coleman, Parry, Chalmers, and Min, 2006). As an aspect of the workflow redesign the TP plans to standardize the process of assessing patient for MM issues to fully integrate the TP pharmacist in the interdisciplinary plan of care for TP patients.

Improvement Theme

Designed to improve patient safety, quality of care, and reduce preventable hospitalizations this evidence-based change in practice project aligns with the macrosystem purpose of providing quality, cost effective, efficient, and equitable health care for its' members and addresses the six quality dimensions for changing the health care system from the Institute for Medicine (IOM) report, Crossing the Quality Chasm (IOM, 2001). Operationalizing the DOR's predictive models for proactively identifying patients at risk of rehospitalization will ensure that the right individual is receiving intervention from the SF TP. The development a new interdisciplinary evidence-based workflow needs to ensure the right individual receives the right care at the right time.

An aspect of the new workflow design will the utilization of TP clinicians, nurses, social workers, and pharmacists in improving the health outcomes of patients transitioning home from the hospital. Similar to issues in transitions in care, medication management issues are also linked to poor health outcomes (Ho, Magid, Mandoudi, McClure, and Rumsfeld, 2006), avoidable hospitalizations (Albert, 2008), and a wasted expenditure of \$290 billions of dollars annually (NEHI, 2011). In developing a new interdisciplinary TP workflow that incorporates both RR score and medication management risk scores will help optimize the TP ability to reduce avoidable rehospitalizations.

Global Aim: To develop, test, and implement a new evidence-based interdisciplinary TP workflow that operationalizes the DOR's predictive models and reduces rehospitalizations.

Project Aim Statement: The specific aim for this project is to develop a new interdisciplinary intake and initial assessment process incorporating the risk score that ensures 70% of all high and medium-risk score patients referred to the TP for care, receive a post discharge follow-up call within 48 hours and are assessed for their risk of MM issues as part of their initial assessment by the end of July 2017.

Background: An initial microsystem assessment using The Dartmouth Institute (2015) Microsystem assessment Tool revealed that TP patients had a mean age of 77.18 years, 70% were 76 years or older. Patients discharging from the hospital are the biggest source of TP referrals (66%), these patients are also at the highest risk of readmission. In assessing for professional involvement with patients for the last quarter in 2016, 65% of patients did not receive nursing or pharmacy assessment nor intervention. In assessing the TP processes, it was identified that the process of interdisciplinary involvement with patients and intervention steps for patient care neither defined nor documented. The lack of a defined standardized process means that many of the TP patient may not be receiving needed care interventions. Improving this aspect of TP care would have a positive impact for our patients and help achieve the microsystem and microsystem goal of reducing preventable hospitalizations.

The TP has a clearly defined intake process, where referrals are received, reviewed, and assigned by the program manager or program nurse, usually on weekdays only. The plan to implementing the DOR predictive models, which requires outreach to patients within 24 – 48 hours' post discharge the intake process will require redesign. Both nursing and social work clinicians will need to be involved in the intake process as the program operates seven days a

week with clinicians rotating to cover weekends. Baseline data on what percentage of transitions program (TP) patients are at risk of medication management (MM) issues and how many patients received interventions to address MM issues was also collected. The results demonstrated that 93% of patients reviewed for MM issues using a modified validated risk assessment tool were identified as potentially being at risk of MM issues. In addition, retrospective data collected on all TP patients discharge over a four-month period found that < 50% of TP patients received intervention to address MM issues. On surveying staff, it was found that < 50% of TP staff felt confident in assessing patient's potential risk in this area.

Summary: Operationalizing the DOR predictive models will standardize the process of referral to the TP and will require workflow changes for all TP clinicians. It is projected that the use of the predictive models, risk of readmission tool will at least double the current number of referral to the program. Responding and outreaching to patients within 48 hours is a critical aspect of operationalizing the new tool and will require a complete redesign of the TP intake process involving the nurses and social workers.

MM issues in older adults is a considerable contributory factor to poor health outcomes, quality of life, avoidable hospitalization, and avoidable healthcare cost to the individual, the organization, and the healthcare system. Developing and implementing a standardized process for assessing all TP patients risk for MM issues and intervening to address identified risk will ultimately improve patient safety, quality of care our members receive, and will lead to a reduction in preventable hospitalization and cost savings. The goals for this project include:

1. Daily interdisciplinary huddles to assess new risk score referrals
2. The creation of multidisciplinary guidelines for assessing and assigning new referrals
3. Standardized assessment of all patients' potential MM risk

4. Develop process map and guidelines for new processes and testing them.
5. Educate staff on the new process and guidelines for triaging and assigning new TP patients.

Driver Diagram

Aim	Primary Drivers	Secondary Drivers
<p>1-Develop a new interdisciplinary intake process incorporating the risk score that ensures 70% of all high & medium risk patients transitioning from hospital to home, receive a post discharge follow-up call within 48 hours by the end of July 2017.</p> <p>2- Develop a process that ensures 70% of TP patients are assessed for medication management (MM) issues, and receive TP pharmacist follow up if indicated, by the end of July 2017.</p>	<p>-Redesign the process of triaging & assigning TP referrals that involves nursing and social worker clinicians.</p> <p>-Incorporate MM risk assessment in all clinicians' initial assessment</p>	<p>- Engage TP clinicians in developing the new intake process of referrals</p> <p>- Create discipline guidelines for triaging and assignment of patients</p> <p>- Develop project measures and collection plan. Test new workflow and processes.</p> <p>- Educate all clinicians in the use of program for receiving referrals</p> <p>- Develop and test a MM risk tool for assessing patients' risk of MM issues.</p> <p>- Educate staff on new workflow and processes</p>
<p>← ← Causality ← ←</p>		

Family of Measures

Measure	Data Source	Target
Outcome		
% of high & medium risk score patients who receive a follow-up call within 48 hours' post-discharge	Chart review- Health Connect	70%
% of TP patients who receive pharmacist intervention to address medication management (MM) issues.	Chart Review- Health Connect	70%
Process		
% of high & medium risk score patients with documented attempts to outreach within 48hrs of discharge home from hospital	Risk score web site, hospital discharge report, and Health Connect	70%
% of TP patients assessed on admission for medication management (MM) risk using MM risk tool.	Chart Review – Health Connect	70%

Balancing		
Lack of RN & / MSW staff to respond to referrals within 48 hours' post discharge	Chart Review – Health Connect	Total # of initial outreach assessment calls per intake clinician per day ≤ 4
Lack of pharmacy staff to respond to patients identified with MM risk	Weekly summary of patients responded to / waiting to be responded to.	Response from pharmacist ≤ 1 week of patient being identified as “at risk”

Team Composition & Sponsors

Team

CNL intern	Tara O’Connor
RN Champion	Rich Cocadiz
Pharmacist Champion/ Data collector champion	Bailey Nguyen
Medical Social Worker champions	Karla Ferrufino Ana Abaunza
Public Affairs Representative/ Data collector champion	Keilani Luu

Sponsors

Continuum Administrator	Pam Johnson
CNL Preceptor	Dr. Nancy Taquino
Transitions Program Manager	Jill Jarvie

Measurement Strategy

Population Criteria. All patients admitted to the TP

Data Collection Method.

The risk score web site calculates each patient's individual risk score of rehospitalization or death with-in 30 days of discharge in real-time using the electronic health record (EHR) (Escobar et al. 2015). The MM risk score is compiled using a modified version of the HbL Medication Risk Questionnaire which has been validated for use in identifying potential medication management problems in older adults (Barenholtz, 2003). The modification of the tool is evidence-based and designed to increase its reliability in the TP patient population. The use of both risk scores, patients' risk of readmission and patients' risk of MM issues, can also be utilized by responding TP clinicians to prioritize patient for interventions.

The data collection responsibilities will be shared by the CNL intern, the pharmacist champion, and the associate public affairs representative (APAR). The data source for the measures relating to risk score will be collected from the TP referral tool, known within the organization as eConsult, and from the electronic health record, known as Health Connect. The TP pharmacist champion is already recording data on TP patients and will add the additional data measures required for this project to their current collection process. The data collection team will meet weekly to discuss any issues with the data collection methods and tools. Measurement for the balancing measure will be the responsibility of APAR and pharmacist champion, and will include TP staff feedback elicited by the CNL intern.

Measures Descriptions & Data collection responsible party

Measures	Measure definition	Data collection description	Responsible party
Outcome			
#of high & medium risk score patients who receive a follow-up call within 48 hours' post-discharge	N= # of risk score patients who receive follow-up call within 48 hours D = # of risk score patient enrolled in the program	Retrospective chart review of initial assessment and program census	Associate Public Affairs Representative (APAR)
# of TP patients who receive pharmacist interventions for MM issues	N = # of TP patients who receive pharmacist interventions to address MM issues D = # of patient admitted to TP	Retrospective chart review of initial assessment and program census	CNL intern
Process			
# of high & medium risk score patients with documented attempts to outreach within 48hrs of discharge home from hospital	N = # of high & medium risk score patients with documented outreach within 48 hrs., of discharge D= # of high & medium risk score patients referred to the TP	eConsult and program census record Risk score web site & Daily discharge report	APAR

#of patients with documented risk MM assessment score documented in initial assessment	N = # of patients with MM risk assessment documented in initial assessment D = # of patient admitted to TP	Retrospective chart review of initial assessment and program census	CNL intern
Balancing			
#of patients per clinician for outreach call per day.	N- # of assigned initial outreach calls /clinician/day ≥ 5 D -# of assigned initial outreach calls per clinician/day ≤ 4	eConsult daily summary	APAR TP Staff Feedback
# of MM risk patients requiring pharmacist intervention	N = # of patient identified as “at risk” and responded ≤ 1 week of assessment D = # of patient identified as “at risk”	Pharmacist census report and chart review	Pharmacist champion

Recommendations for Changes

The use of change concepts enhances the process of brainstorming ideas for change. With the goal of 30-60 post-discharge readmission reduction by; using the risk score tool to identify and prioritize outreach and interventions per patient’s risk and standardizing the assessment of TP patients’ MM issues on initial assessment, the change concepts of managing variation, eliminating waste, and changing the work environment are applicable to this project (Nelson, Batalden, and Godfrey, 2007, p.p. 333-335). Utilizing the risk score for TP referrals standardizes

this process to ensure all patient transitioning home from hospital at risk, receive intervention know to reduce readmission. Creating a standardized process of assessing TP patients' risk of MM issues will reduce the variation in care that TP patients currently receive. Eliminating waste through standardizing work process will ensure that TP services and intervention are being received by those patients who have the greatest need therefore providing the greatest benefit.

Changing the work environment using evidence-based tools with a focus on core processes and purpose will assist and enable the TP team in achieving the overall aim of improving patient safety, quality of care, and reducing readmissions. The utilization of data will enable the team to assess the impact of planned changes in the microsystem.

Changes to test discussed by the team include:

- A new intake process where all team members will rotate to perform the intake responsibilities.
- Process to ensure outreach to discharged RR score patients within 48 hours.
- Creating interdisciplinary guidelines to assist in discipline assignment of new TP referrals.
- Testing of the MM risk tool in identifying patient's level of risk.
- Review, evaluate, and validate initial risk scores accuracy in detecting MM risk in TP population through a comprehensive assessment by TP pharmacist.

Timeline

Week	5/1	5/15	5/29	6/12	6/26	7/10	7/24
Regional kick off with local stakeholders							
Document current state workflows. Initiate PDSA to test MM risk tool.							
Describe & define data collection team, items, & process. Meet weekly for ongoing analysis and process refining.							
Meet with team and to brainstorm ideas for new intake process & evaluate and modify MM risk tool process and how to implement							
Go live with risk score (6/14) and implement PDSA cycles for new intake process and new process of MM assessment.							
Meet weekly with team to discuss successes and failures of new process. Recognize and reward staff efforts							
Continue to work with PDSA cycles for new intake process. Synthesis data collection results.							
Define, describe, and process map new workflow and processes. Educate all staff on new workflow and processes.							

Lessons learned**Know your microsystem.**

- Assessment and evaluation of the microsystem using the five “Ps”, purpose, patients, people, processes, and patterns is essential to increase awareness of the infrastructure and functioning of the microsystem that can lead to the diagnosis of what needs improving.
- Involvement of all staff in process changes is key to the success of change in practice.
- Identifying and discussing an issue as a team can bring about a positive short-term impact.

Align efforts with organizational goals.

- When developing a global and specific aims aligning them with macrosystem goals will promote leadership support, and assist with the measurement strategy and the availability of baseline data as existing measures are likely to be in place that can be utilized.
- Discuss plans for improvement projects with higher level leadership to identify potential conflict with another planned implementation.

Get the best measures possible.

- Measures are critical to any performance improvement project as without them it will be impossible to determine, or demonstrate if a change is effective or not. Collecting data can be time consuming so building measurement into the existing workflow where there is a durable documentation trail that can be easily audited is the ideal.
- In collecting data create a small team of champions. Define and document how data will be collected, recorded, reported, and who is responsible for which tasks.

Communication and delegation.

- Any quality improvement project needs to be team based to increase its chances for success.
- Diagonal communication style involving all team members will increase collaboration, the more involved the team is at every stage of the process the greater the likelihood for having shared understanding and of achieving the goal.
- Effective delegation within the team requires the knowledge of, each disciplines roles and responsibilities, along with everyone's strengths and weaknesses, to maximize the potential for success.
- Allow staff time to be innovative with ideas, create opportunities for brainstorming and feedback.

Stay focused and be patient.

- The process of performance improvement is just that – a process, and therefore needs to be allowed to unfold. There needs to be flexibility in the process, allowing for unexpected or unanticipated events.
- Using the project's aim is an excellent means of keeping the team focused.

CNL Competencies

The clinical nurse leader (CNL) role in quality improvement, clinical outcomes management, and patient safety provides a basis for the clinical leadership necessary for implementing quality performance improvement at the point-of-care. As a point-of-care provider with competencies and skills in leadership, lateral integration of clinical care, and interdisciplinary collaboration to improve patient care outcomes (AACN, 2007) the CNL intern is ideally positioned to lead the

redesign of microsystem interdisciplinary processes. In facilitating the lateral integration of predictive models across the continuum of care through horizontal leadership, outcomes management, and team manager, the CNL intern leads the transitions program (TP) team in developing a new workflow to facilitate transitions across care setting to support patients and families and reduce avoidable recidivism to improve care outcomes (AACN, 2013).

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Appendix D
TP Intake Guidelines

RN Assignment Considerations	MSW Assignment Considerations
<ul style="list-style-type: none"> • Previous relationship with patient • Referral specifies RN need priority • New diagnosis during hospitalization • Documented adherence issues • Documented lack of understanding of medical conditions/ instructions/ medications • New home oxygen • New caregiver in home • Need for disease specific education/ disease trajectory • Life care planning needs 	<ul style="list-style-type: none"> • Previous relationship with patient • Referral specifies MSW need priority • Documented psychosocial barriers documented during recent hospitalization • Documented food insecurity, transportation issues, medical benefit issues, housing issues, IADL issues • Priority for mental health screening • Need for community resources • Long term planning • Life care planning needs

Appendix E

Medication Risk Assessment Questionnaire

1. Are you older than 65 years old?.....YES/NO***

2. Do you take 5 more medications?.....YES/NO***

3. Do you take any of the following high risk medications? YES/NO***

- Anti-clotting medicines
- Insulin
- Strong pain killers
- Medicines for nerves, anxiety, or sleep
- Medicines for heart rate

4. Do you have any of the following health problems?.....YES/NO***

- Diabetes
- COPD
- CHF / Heart Problems
- Memory Problems
- Vision / Hearing Problems

5. Do you take your medications more than 2 times a day?.....YES/NO***

6. Do you worry about the financial cost of your medications?.....YES/NO***

SCORE (1 point for each yes): ***PLEASE NOTE THAT A SCORE \geq 3 REQUIRES

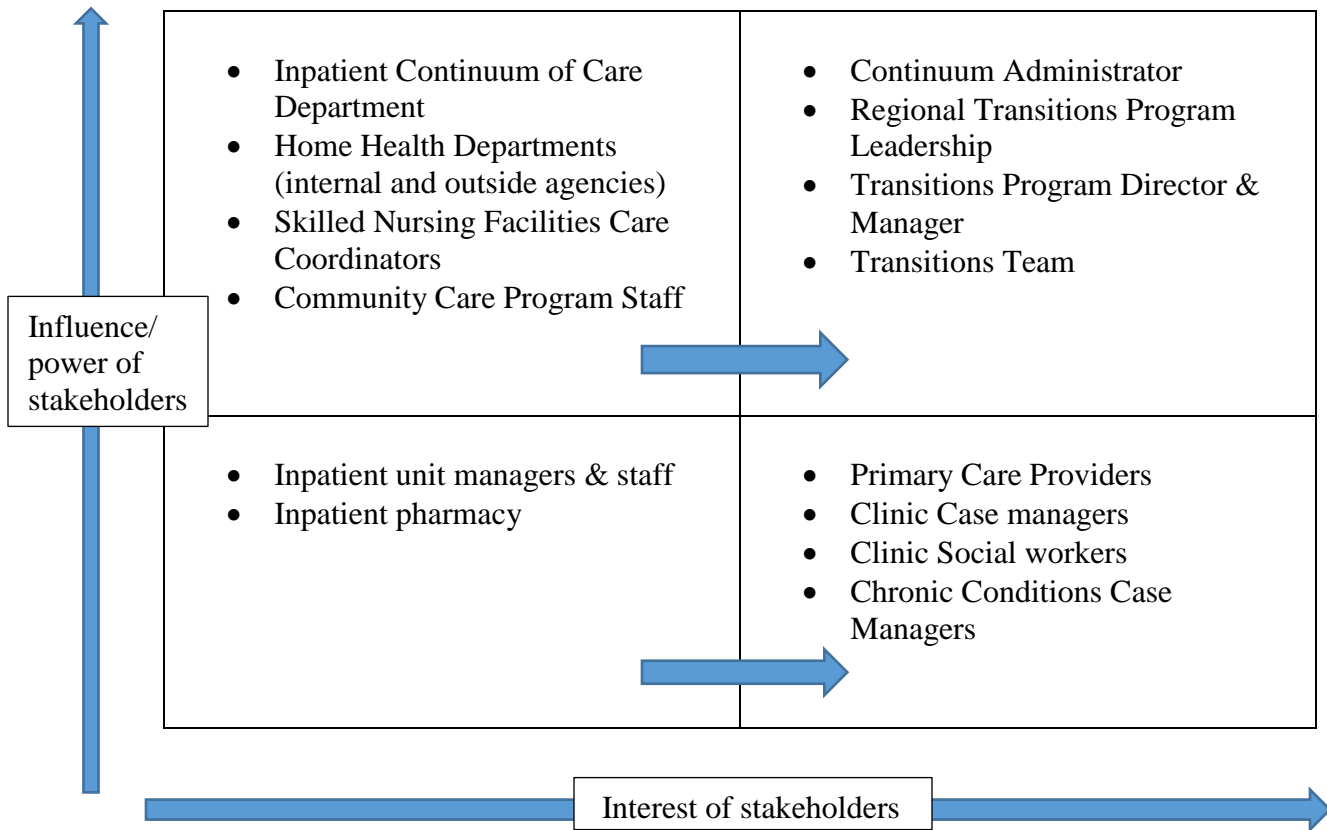
PHARMACIST REFERRAL

Use smart phrase. TP MEDRISKQUESTIONS to populate the medication risk questionnaire into initial assessment for all TP patient

Appendix F

High-Risk Medications	Generic/Brand
Anticlotting / Anticoagulants	Warfarin (Coumadin □)
	Enoxaparin (Lovenox □)
	Dabigatran (Pradaxa □)
	Rivaroxiban (Xarelto □)
	Fondaparinux (Arixtra □)
	Heparin
Insulin	Insulin Lispro (Novlog □)
	Insulin Aspart (Humalog □)
	Insulin Regular (Novolin R □ □ Humulin R □)
	Insulin Glulisine (Apidra □)
	Insulin NPH (Humulin N □ □ □ Novolin N □)
	Insulin NPH / Regular (Humulin 70/30 □ □ □ Novolin 70/30 □)
	Insulin Glargine (Lantus □)
	Insulin Detemir (Levemir □)
Strong Pain Killers / Opioids	Fentanyl (Duragesic □)
	Hydromorphone (Dilaudid □)
	Meperidine (Demerol □)
	Methadone (Dolophine □)
	Morphine (Kadian □, MS Contin □, Roxanol □)
	Oxymorphone (Opana □)
	Oxycodone-Acetaminophen (Percocet □)
Nerves, Anxiety, Sleep / Hypnotics	Ambien (Zolpidem □)
	Lorazepam (Ativan □)
	Temazepam (Restoril □)
	Chlordiazepoxide (Librium □)
	Diazepam (Valium □)
	Alprazolam (Xanax □)
	Clonazepam (Klonopin □)
	Clorazepate (Tranxene □)
	Triazolam (Halcion □)
	Eszopiclone (Lunesta □)
	Zaleplon (Sonata □)
Heart Rate	Digoxin (Lanoxin □)
	Quinidine
	Disopyramide (Norpace □)
	Sotalol (Betapace □)

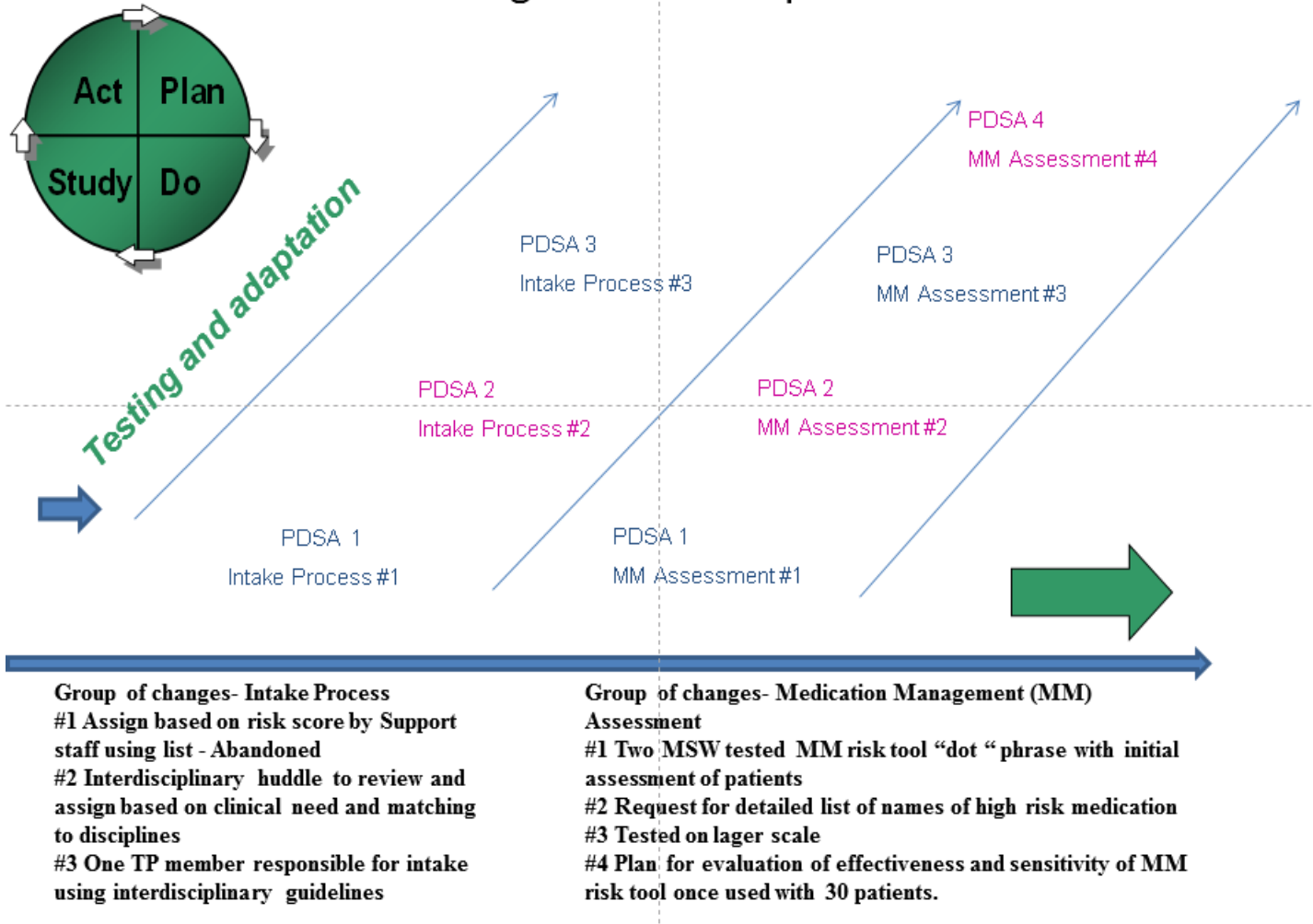
Appendix G
Stakeholder Analysis



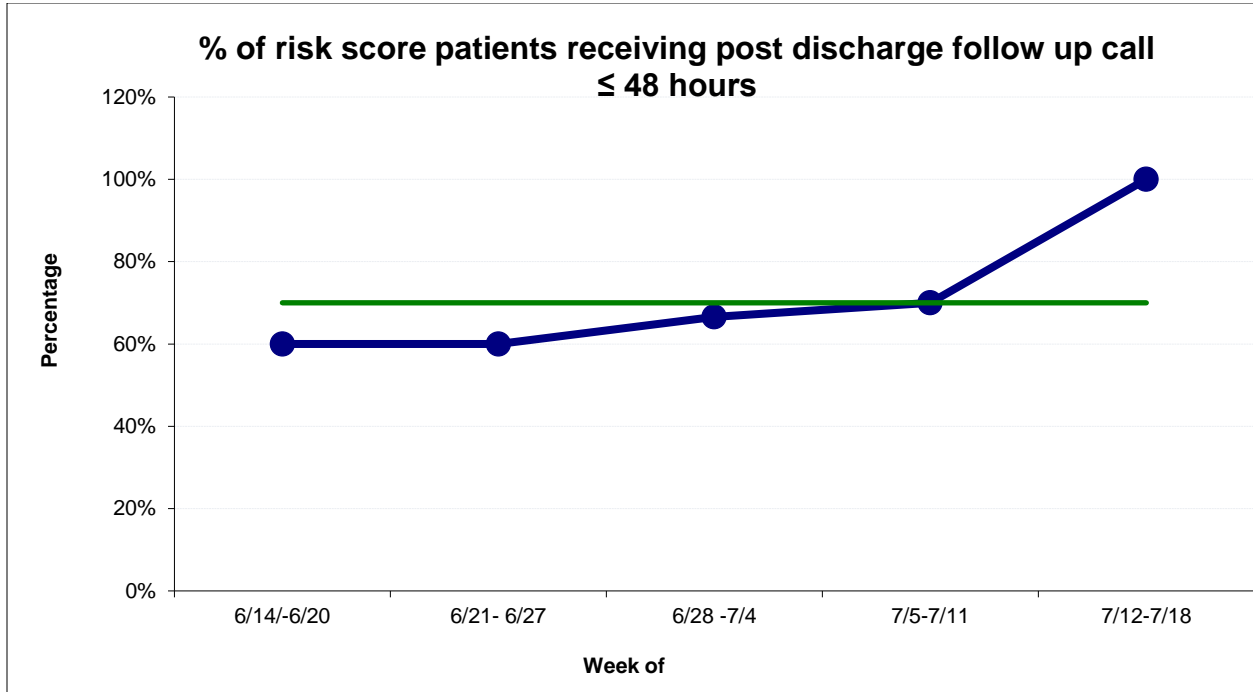
Appendix H

Plan-Do-Study-Act Cycles

What Changes Lead to Improvement?



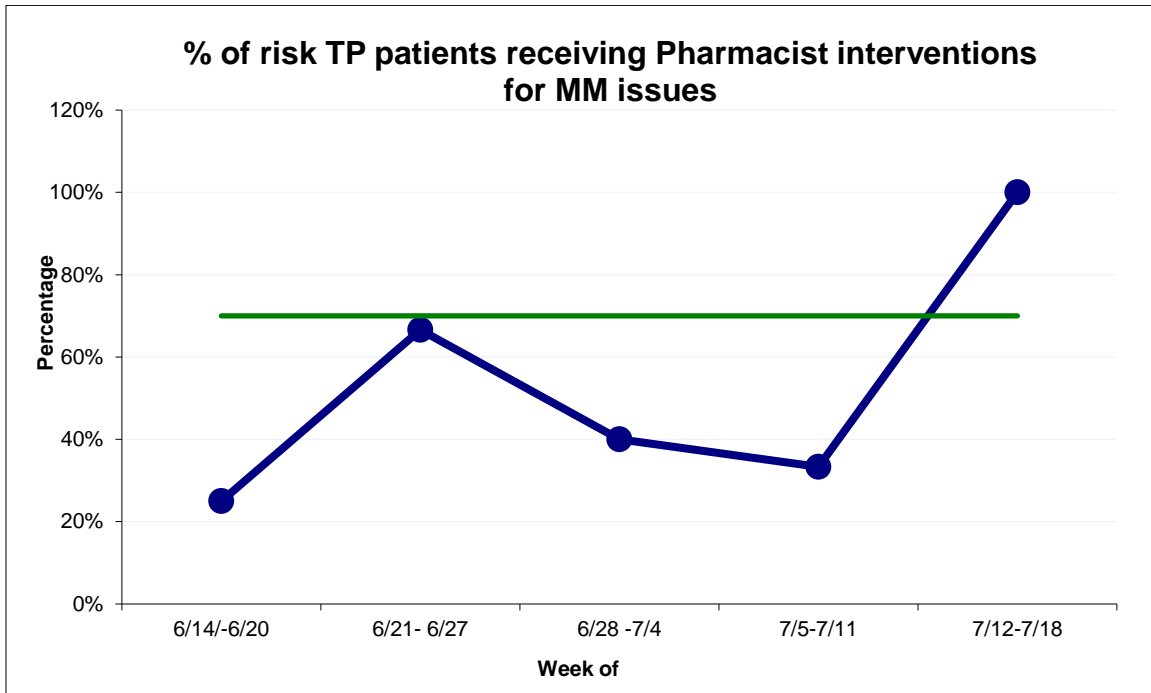
Appendix I
Outcome Measure # 1



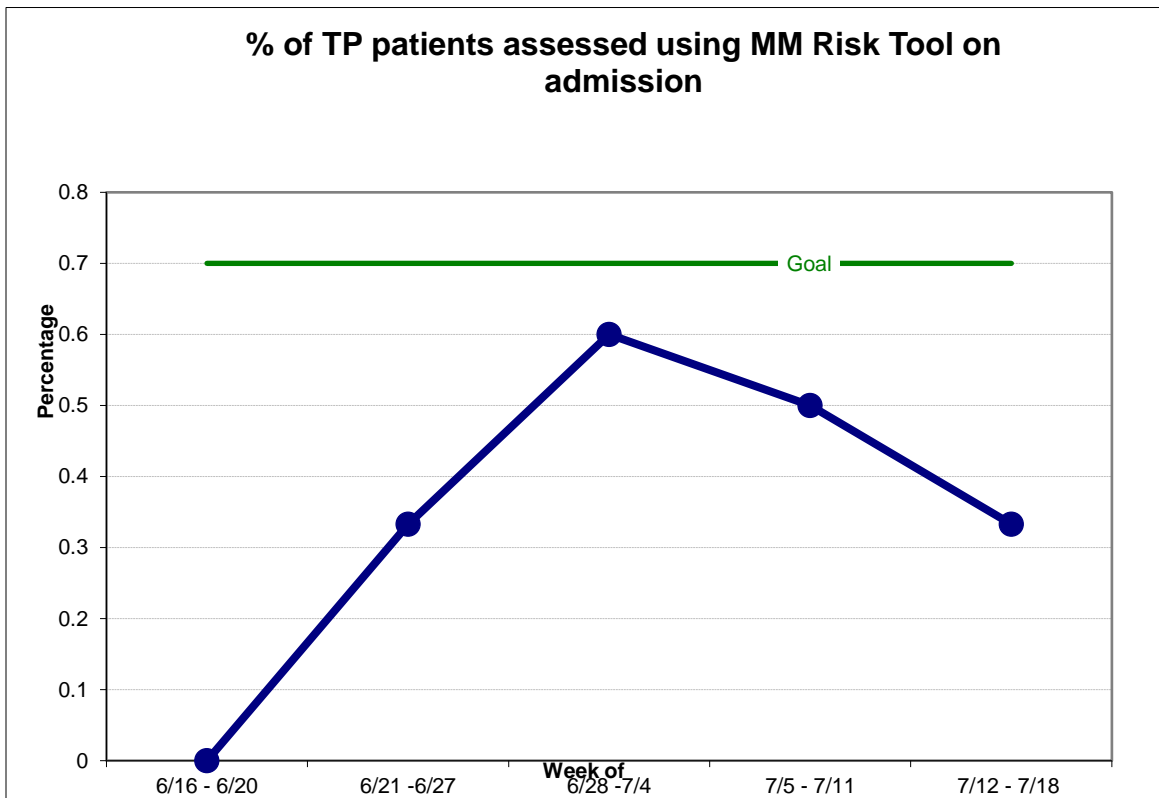
Go-Live Date 6/14/2017

Goal 70%

Appendix K
Outcome Measure #2



Process Measure #2



Go-Live Date 6/14/2017

Appendix L
Proposed Discharge to Home with Transitions Program Follow-up Intake and Initial Assessment
Workflow for RN or MSW

