

Medication Reconciliation in an Acute Rehabilitation Unit

Mercy Fadoju

University of Maryland School of Nursing

Doctor of Nursing Practice Project

05/12/2017

Medication discrepancy is a serious safety concern resulting in adverse drug events (ADEs). Brady, Malone and Fleming (2009) referred to medication errors as “the most common single preventable cause of ADEs” (p.680) and a “significant cause of morbidity and mortality” in patients admitted to the hospital (p.679). The Institute of Medicine (2006) report on preventing medication errors states that approximately 1.5 million preventable ADEs occur every year in the United States, of which 800,000 occurs in long-term care. The Institute of Medicine recognized the significance of medication safety, and emphasized that the focus should be on the system but not the providers (Pronovost et al., 2003). Medication discrepancies resulting in ADEs lead to prolonged hospital stays, increased mortality and morbidity, poor patient satisfaction, increased 30-day readmission (Koehler, et al. 2009), and an overwhelming health care burden (Brady, Malone, & Fleming, 2009). Brady et al. (2009) reported approximately 7,000 deaths annually from medication errors, which occurred in and out of hospital settings. The seminal Institute of Medicine (IOM) report titled “To Err is Human: *Building a Safer Health System*” described medication discrepancies as prevalent, costly, and a preventable cause of patient injury (IOM, 1999). Medication discrepancies and the adverse effects caused by them are particularly prevalent during transition of patient care from one center, service, or provider to another (Patient Safety Network, 2015). For this population, their vulnerability may be exacerbated by polypharmacy, cognitive and physical impairment, poor communication by the health care provider at discharge, and variables in health literacy (Gleason, 2012).

The Joint Commission (2016) National Patient Safety Goal 03.06.01 is “to maintain and communicate accurate patient medication information” (p.5). Medication reconciliation (MR) has been recommended by national standard setting bodies and internationally led initiatives, such as the Institute for Health Improvement (2011), The Joint Commission (TJC) (2013), and

the National Institute for Health and Care Excellence (2015), and the World Health Organization (2006). Medication reconciliation refers to the “process of avoiding such inadvertent inconsistencies across transitions in care by reviewing the patient's complete medication regimen at the time of admission, transfer, and discharge and comparing it with the regimen being considered for the new setting of care” (Patient Safety Network, 2015 para.1).

The Agency for Healthcare Research and Quality in collaboration with Northwestern University Feinberg School of Medicine and The Joint Commission developed the *Medications at Transition and Clinical Handoffs (MATCH)* toolkit for MR, which has been successfully implemented in various settings (Gleason et al., 2012). The goal of this toolkit is to put a process in place, review and implement current practices, and strengthen the process with the ultimate outcome of improved patient safety. The MATCH toolkit was primarily developed for the acute care setting; however, non-acute settings can adopt the tools, resources, and core processes to develop a standardized MR process. This adoption offers a successful approach for collecting and confirming home medication lists. Moreover, it ensures that complete medication information is documented and reconciled with the physician order from the inpatient, and ensures the medication list is accessible by the entire medical team (Gleason, 2012 p.21).

Skilled nursing facilities are particularly at risk for medication discrepancies. In one study of nurses caring for patients being transferred to a skilled nursing facility, staff responsible for the transition reported poor communication from the hospital staff, multiple medication discrepancies, variation in quality of transition, and increased stressed levels of admitting nurses clarifying information with the hospital physician and the facility attending physician (King et al., 2013). In another study of two skilled nursing facilities, patients were found to be physically and cognitively impaired with medical comorbidities and requiring multiple medications (Tjia,

Booner, Briesacher, McGee, Terrill & Miller, 2009). These factors make them more vulnerable to medication discrepancies upon transition from the hospital to an acute rehabilitation unit.

Other potential causes of MR errors across transition in care include performance deficits, and transcription and documentation errors making these a safety issue (The Joint Commission, 2016).

The leadership of the host skilled nursing facility for this project has identified the need for MR in an acute rehabilitation unit due to an increase in medication discrepancies, which is the focus of this project. The unit manager performs MR intermittently on patients with chronic medical problems, while the pharmacist performs MR every 30 days. Without using a policy or procedure for MR, this process alone was reported by the administration not to be effective. They reported several instances in which medication discrepancies have placed patients at risk for ADEs and serious complications post-hospitalization. These included incorrect medication dosages, failure to resume psychiatric medications, and inaccurate MR at transition of care leading to either continuation or discontinuation of medications that may have potentially resulted in ADEs. These discrepancies may have been avoided if there had been a standardized MR process in place to ensure patient safety and medication continuity during transition of care. The practice problem identified by the administration was a gap in medication safety and a lack of standardized MR process across transition of care for the patients in the acute rehabilitation unit.

An evidence-based intervention process was required to promote patient safety and improve communication of important patient medications among the unit's medical team. The purpose of this quality improvement project was to implement and evaluate a standardized MR process for patients in an acute rehabilitation unit. The MATCH toolkit was adopted to guide the

implementation of a standardized MR process focusing on patients, upon admission to the rehabilitation unit. The anticipated outcomes are to reduce medication discrepancies resulting in decreased adverse drug events, promote patient safety and improve the accuracy of the MR process upon admission. This will involve three stages: verification, clarification and evaluation and reconciliation (Institute for Healthcare Improvement, 2010).

Theoretical Framework

The Model for Improvement was used as the theoretical framework for this project. In 1990, the Associates in Process Improvement (API) developed the Model for Improvement that was later introduced to the Institute for Healthcare Improvement in 1995 (Langley et al., 2009). The API refers to the science of improvement that involve application of the interaction of system appreciation, psychology of change, understanding variation and the theory of knowledge to improve the performance of processes, services, organizations and communities. The Model for Improvement framework has been used by many organizations to implement quality improvement projects, improve clinical outcomes, and reduce healthcare costs. For example, this model has been used to improve patient wait times at a dental clinic, reduce adverse drug events, and avoid medication errors (Langley et al., 2009).

The model for improvement was based on a combination of the Plan-Do-Study-Act (PDSA) Cycle created by Deming in the 1920s. Three fundamental questions related to the Donabedian model of structure, process and outcome are: 1) what are we trying to accomplish? 2) How will we know if a change is an improvement? and 3) what changes can we make that will result in improvement? (Langley et al. 2009).

Providing answers to the above three questions guided the process and facilitate the project. With regard to the first question, “What are we trying to accomplish?”, this project was

designed to evaluate if the implementation of a MR process would reduce medication discrepancies, and reduced adverse drug events and potential harm to the patients in an acute rehabilitation unit during transition of care. The next question is, "What changes can we make that will result in improvement?". The implementation of the MR process at the acute rehabilitation unit includes the following strategies: identification of an interdisciplinary project team; reviewed the policy and procedure for MR; staff education and training; implementation and evaluation of the project to change current practice. The last question, "How will we know if a change is an improvement/Outcome?" was addressed. This process was evaluated through the measurement of the number of medication discrepancies, and adverse events using standardized metrics and audit tools as indicated in the MATCH toolkit, and comparing the number of ADE's pre-and post-implementation of the MR project.

The Plan-Do-Study-Act Cycles was used throughout the project and applied to the three stages of MR that include medication (1) verification (collection of medication history); (2) clarification (appropriate medication doses); and lastly (3) reconciliation (report changes in the orders) (Institute for Health Improvement, 2008). These processes were as follows: The first step was "Plan", which involved developing project team members, defined individual roles, and determined the best method used to verify patient medications. The next step in the cycle was "Do", which involved reviewing the new approved policy and procedures that guided the process of clarifying medication from the best source, such as the patient, family member or discharge summary. The third step was "Study", which entailed the following: identified and located one source of medication list accessible to the medical team; compared the patient's current medication regimen and reconciled them with the current physician order on admission; identified medication discrepancies and followed the procedure of reporting the discrepancies to

the physician for prompt correction. The last process of the cycle was “Act”, which required evaluation of the implementation process using the validated and reliable tool (Gleason et al., 2012) that determined if there was reduction in medication discrepancies, adverse drug events, and compliance rate during and post implementation. The PDSA Cycle served as the guide and road map to the model for improvement, such as the planning, organizing, implementation and evaluation of the project for successful quality improvement outcomes (Langley et al., 2009).

Literature Review

Medication reconciliation is a complex process affecting all patients during the transition of care in any health care setting. This literature review focus on the prevalence of medication discrepancy; identify contributing factors associated with medication discrepancies, and further examine the best evidence to support the standardized implementation and evaluation of MR following a care transition post hospitalization

The prevalence of medication discrepancies upon transfer from a hospital has been reported in the literature. Wong et al. (2008) studied medication discrepancies in patients who were being discharged and found 41% had at least one medication discrepancy. Most (55%) of these discrepancies were due to omission or incomplete prescriptions. There has been more limited research on the prevalence of medication discrepancies in skilled nursing facilities. In a study of two skilled nursing facilities that provided sub-acute care in Massachusetts, Tjia et al. (2009) reported that among 2,319 medications reviewed on admission, 21% had at least one medication discrepancy. Three out of four SNF admissions had medication discrepancies, which account for one in five medications prescribed.

The prevalence of medication errors in nursing home residents, who have been discharged from the hospital, has also been studied. Boockvar, LaCorte, Giambanco, Fridman

and Siu (2006) conducted a pharmacy-led MR study for reducing medication discrepancies related to adverse drug events (ADEs). This study was a quasi-experimental pre-post intervention design with a convenience sample of 168 nursing home residents discharged from the hospital after 259 hospital stays. The researchers identified 696 medication discrepancies. The intervention consisted of reconciliation between the pre-hospitalization medication and discharge medications ordered on admission to the facility. Medication discrepancies noted and recorded were categorized as omission, addition, and dose changes. Discrepancies were communicated to the physician for resolution using a pharmacy communication form. The physician reviewed the form, and made a determination of action in 598 (85.9%) of the 696 discrepancies. This study highlights the frequency of medication errors that may occur upon transfer from a hospital, and the value of a MR.

Brady et al. (2009) proposed the major contributing factors to medication errors as individual and system related factors, and other sub-factors which included: deviation from the organization policy, errors reconciling medication history, transcription and prescriptions, barriers of reporting medication errors, drug distribution system such as delay in processing and delivery of medication, inadequate 24-hours' pharmacy coverage, and delay in initiating treatment. The implication for nursing and organization management was to facilitate strategies of reducing medication discrepancies, such as implementing standardized processes of MR. Implementing MR should help in reducing medication errors, decreasing morbidity and mortality, and promoting safety.

Best practices for implementing and sustaining MR was a major topic of a 2009 conference of the Society of Hospital Medicine, which involved 29 stakeholders in at a Northwestern Medical campus in Chicago (Greenwald, 2010). The predominant theme from the

stakeholder meeting was the importance of shifting the focus of MR from accreditation mandate perspectives to view it as a patient safety concern. Proposed strategies for implementation of MR included the following: a) a clear definition of MR; b) use of a multidisciplinary approach including the leadership and key stakeholders, identification of team roles, and clarification of their responsibilities, c) development of standardized tools for measurement and sustainability; implementation of the intervention in step wise phases such as starting with one setting or clinical area; d) identification of the population at high risk for ADEs and high-risk medications; e) development of a risk stratification system for patients for identifying the likelihood of having medication discrepancies, including but not limited to the cognitively impaired patient, those with chronic comorbidities, and patients with multiple care providers; f) use of in-house pharmacy for tracking prescription medications, verifying and clarifying medications from the discharge physician, or contacting the rehabilitation unit physician for resolution of medication discrepancies; and g) partnerships with other organizations for successful implementation of MR such as community-based organizations, The Joint Commission, and the Agency for Healthcare Research and Quality.

Building on the general strategies for MR identified by the experts as proposed above (Greenwald, 2010), several organizations collaborated to develop the *Medications at Transition and Clinical Handoffs (MATCH)* toolkit for MR (Gleason et al., 2012). Gleason et al. (2012) referred to MR as a complex process that affects all patients during care transition to decrease medication discrepancies and patient harms. The toolkit was based on processes developed in acute-care settings but the process, resources, and tools may be used in non-acute care settings as well. The phases of implementation in the MATCH toolkit include: gaining the leadership and stakeholder's support within the organization; building the project team members; designing and

implementing the process; education and training; and evaluation and sustaining the project. The goal of following this toolkit was to facilitate a review of MR and improvement of current practices. The toolkit also contains audit forms for MR. The main objectives of the audits were to denote discrepancies and alert physicians to potential errors and also to identify barriers within the organization of the compliance rate of the implementation intervention. The effectiveness of the process using the audit form for compliance and outcome strengthens resulting data by providing evidence of quality professional practices. This process promotes a successful approach to medication management and reconciliation for the medical team.

In summary, this literature review supports the effectiveness of implementing MR interventions during the transition of care. This literature review has identified the prevalence of and contributing factors to medication discrepancies. The challenges and successful implementation of standardized MR intervention has been associated with reduction in medication discrepancies, related ADEs and potential harm to patients (Bergkvist et al., 2009; Boockvar et al., 2006; Chhabra et al., 2012; King et al., 2013; Knez et al., 2011; Mekonnen, McLachlan, & Brien, 2016). Therefore, having a standardized MR process enhances communication within the interdisciplinary team, improves the effectiveness of the reconciliation process, prevents omissions, and provides education and training opportunities. In conclusion, MR is a patient safety measure that is necessary to minimize medication errors in clinical settings. For the evidence review rating and grading table, please refer to the Appendix A.

Methods

Design

The purpose of this quality improvement project was to implement and evaluate a standardized MR process in an acute rehabilitation unit to reduce medication discrepancies that may result in ADEs. The project required multiple phases of implementation strategies such as identifying the project team, training and education of staff, implementation of MR, monitoring the progress of the project and evaluation of the project.

Setting and Sample

The setting of the project was a nonprofit organization in an acute rehabilitation unit of a long-term care facility. The facility served an adult population post-hospitalization often with functional or ambulatory dysfunction resulting from stroke, debility or prolonged hospitalization. The project used a convenience sample that included all patients admitted to the unit over a seven-week period.

Procedures

The project was implemented over a period of nine weeks. The first two weeks was focused on training and kicked off with a meeting of the project leader with the stakeholders, and facility leaders reviewed the implementation strategies and set a prospective date of the project. The project leader conducted individual training with the nursing supervisor and the unit managers using the training curriculum (see Appendix B). This training was focused on the importance of MR and further reviewed the key steps of MR. Notably; the training reviewed obtaining, verifying, clarifying and reconciling current medications orders on the hospital discharge summary upon admission to the facility with home medications, and medications from previous admissions, and notifying the provider of any discrepancies. The nursing supervisor

was trained on how to complete the *Medication Reconciliation Checklist* on admission to the facility (see Appendix C) and the *Home and Allergy Medication Record* (see Appendix D); while the unit managers were trained on how to complete the *Unit Manager's Medication Reconciliation Audit Form* (see Appendix E) within 48 hours of admission. The *Medication Checklist* and the *Home and Allergy Record* forms were placed in the pharmacy section of the chart. After instructing the nursing supervisor on how to complete the appropriate forms, the project leader supervised as he completed the forms with patients on admission, and provided additional training as needed until he was proficient in their completion. The initial trainings took approximately 30 minutes but the subsequent reinforcement training was individualized not more than 10 minutes.

At the completion of two weeks of training, the MR process commenced and continued for seven weeks on all patients that were admitted to the unit. During the implementation of the MR process, the nursing supervisor checked for a home medication list on the hospital discharge summary, and compared that list with discontinued and current medication orders, and also checked for discrepancies. For all the patients who were readmitted, the nursing supervisor compared the current medication orders to previous medication orders from the last admission and checked for discrepancies. The nursing supervisor then transcribed the orders from the hospital discharge summary to the physician order sheet, notified the attending physician via telephone of any discrepancies and documented any suggested recommendations. The nursing supervisor checked for allergies, or initiated new allergies list on the *Home and Allergy Record*. Within 48 hours of admission, the unit manager checked for a list of home medications noted on the hospital discharge summary. A current medication list from the physician order sheet was compared with the medication administration record (MAR) and checked for discrepancies

within 48 hours of admission. If the patients were readmitted, the unit manager compared current medication orders to previous medication orders from the last admission and checked for discrepancies. If discrepancies were noted, the physician was notified to make the correction. Whenever, the home medication list was not available, the nursing supervisor created one and followed the same procedures as noted above. The project leader evaluated the MR process three times a week and provided support to the nursing supervisor and unit managers using the forms as guided by the *Medication Reconciliation Process* policy and procedure (see Appendix F).

Data Collection

The project leader conducted weekly audits every Monday for seven weeks to assess the adoption of the MR process using the *Project Manager's Medication Reconciliation Audit Form*, which was a modified audit form from MATCH toolkit that has been used and validated by various setting that were successful in implementing MR process (see Appendix G; Gleason, 2012). The purpose of the audits was to monitor staff's compliance with MR and completing the forms.

Data Analysis

Data analysis occurred through the use of a metric method developed by the Illinois Hospital Association Medication Reconciliation Collaborative that has been validated to measure the effectiveness of a MR implementation process (Gleason, 2012). The measures consisted of: a) the percentage of patients that have a medication list documented in the MR form placed in the chart over the total number of patients admitted within 48 hours of admission, b) the percentage of patients that have the home medication list reconciled with the medication list in the hospital discharge summary over total number of admitted patients within 48 hours of admission, c) the percentage of patients who have a medication discrepancy over total number of

admitted patients within 48 hours, and d) the number of medication discrepancies resulting in adverse drug events from MR on admission.

Human Subjects Protection

The quality improvement project proposal was submitted to the UMB Institutional Review Board for a Non-Human Subjects Research determination. The facility's administrator provided verbal permission to conduct the quality improvement project, since neither the host facility nor the parent company had an Institutional Review Board. The project leader had access to patients' charts but there was no interaction with the patients. All data collected by the project leader contained no patient identifiers. The findings could not be generalizable to other settings or populations. The Health Insurance Portability and Accountability Act (HIPPA) national standard and professional code of conduct was strictly adhered throughout the implementation process.

Timeline

See Appendix H for project timeline.

Results

In preparation for implementing the DNP project, preliminary work was done that included the following: a) developing an evidence-based summary of the MR process in an acute rehabilitation unit, b) performing needs assessment of the rehabilitation unit's current process of MR, and c) building the project team and developing a policy and procedure to guide the MR process. The purpose of these processes was to ensure accountability for quality improvement of health care services and patients' safety. Developing an evidence-based summary was useful in guiding the process of the MR. While the needs assessment helped to identify the rehabilitation unit's procedures for collecting medication information from the patients and/or

family members on admission, and reconciling those medications with those taken at home by the patients or given to the patient on previous admissions. Based on the outcome of the needs assessment, it was discovered that the rehabilitation unit had no MR forms, policy or procedure and had no structure for monitoring medication discrepancies from what the patient was taking at home or previous admissions compared to the current regimen. Moreover, building an interdisciplinary project team guided the design of the MR stepwise process that included an approved organizational policy and procedure, the development of forms for MR, and established measurement strategies for better quality control and compliance with the procedure.

Once the policy and procedure were in place, the process of MR was begun on the rehabilitation unit with regular audits of the process conducted by the unit manager within 48 hours after each admission. The DNP project leader evaluated the result of the MR audit for new admissions over the seven-week period through an additional audit of the unit manager's report to be more precise with the process outcomes. A total of 37 patients were admitted to the rehabilitation unit during this time (see Table 1). Eighteen (48.6%) of these patients were readmissions to the unit. The number of weekly re-admissions ranged from 0-8 with a mean of 2.6 readmissions per week. Patients were considered to have re-admission status if they stayed more than 24 hours outside the rehabilitation unit of the facility. Common reasons for readmission as reported by the managers included post hospital procedure, altered mental status, urinary tract infection, chronic medical work up, or history of a fall.

The overall completion of the MR process for new admissions over a seven-week period was evaluated and found to be high (see Table 1). The compliance rate was 95% for the home medication list being completed, and also for it being reviewed and reconciled with current orders on admission. The compliance rate for review of the medications on the physician order

sheet and reconciliation with the MAR within 48 hours of admission was also very high, being maintained at 100% throughout the project period. In contrast, a compliance rate of 81% was noted for making corrections and notifying the physician, when patients had at least one medication discrepancy identified on admission.

Based on the audit, there were variations in the compliance rates over the seven-week period (see Table 2). The compliance rate for completing the home medication record ranged between 75-100%. The trend of compliance for this same procedure was 70-80% during the first and third week respectively, but peaked and remained at 100% until the end of the project. Similar trends were found for compliance in reconciling the home medication record with the discharge summary, and reconciliation of physicians' orders with the MAR. Of greater concern, the compliance rate for appropriately responding to medication discrepancies by correcting them and notifying the physician ranged between 33-100%. This compliance rate was 80% during the first week and dropped to 33% for second week. Even though, the compliance rate improved for the subsequent two weeks to 100%, it dropped again to 82% by the fifth week, which may have been a result of an increase in the number of new admissions to the unit. The compliance rate rose again to 100% for the final two weeks of the project.

As stated previously, compliance in completing a home medication list when it was not available on admission was 100%. However, only two (5.4%) of the patients had the need for the list to be initiated because that information was either not available on the discharge summary or could not be obtained from the patient or family members.

Finally, the number of adverse drug events on the unit was also calculated over the seven weeks project period and compared to the rate immediately prior and post the intervention for the same number of weeks. Prior to the implementation of the MR project, there were four identified

adverse drug events due to medication discrepancies on the rehabilitation unit as reported by the Quality Improvement Director. However, none were identified during the implementation process, and none were reported post intervention.

Discussion

The medication reconciliation compliance rate was at least 95% throughout the project. This may have been due to the presence of the DNP project leader who visited the rehabilitation unit three times a week, and rendered support and encouragement to the nursing supervisor who conducted the admission process, and the unit managers who performed the MR audit within 48 hours of every admitted patient. The high compliance rate may have also been due to the support of the Director of Nursing, who encouraged the staff to complete all necessary documents as guided by the policy and procedure approved for medication reconciliation during all patient admissions to the rehabilitation unit. For example, during the second week of the implementation process, when there were only three admissions to the unit, the director requested if the project could be extended to other units in the building to meet the targeted six admissions per week. The Director of Nursing emphasized that the medication reconciliation process might also enhance identification of medication discrepancies in all new admissions to other units. However, the DNP project manager declined the offer and recommended evaluating the process prior to expansion to other units.

A major finding of concern during the second week of the project was the low compliance rate (33%) by the nursing supervisor with making corrections and notifying the physician when medication discrepancies were found. This finding may have been due to the resistance from the nursing supervisor during the first two weeks of the project in assuming the additional task of completing the MR process of all patients admitted to the unit. The nursing

supervisor claimed there was not enough time to complete the forms or reconcile the medications on admission with the discharge summary. In response to this problem, the Director of Nursing provided a global mandate that all patients admitted to the unit must have the medication reconciliation process started on admission, and audited within 48 hours of the patient's admission to the unit. The compliance rate subsequently improved to 100% over the next two weeks. The intervention from the Director of Nursing was most likely effective because she was a key stakeholder bought into the project from the beginning. However, in week five of the project there was a similar drop in the compliance rate to 82%, when medication discrepancies were found. In this case, the decrease in compliance may have been due to an increased number of admissions ($n=11$) to the rehabilitation unit during that week.

For patients who were being readmitted to the unit, the rate of compliance with comparing medication orders on admission with medication orders from a previous admission and checking for discrepancies was calculated. It was found that four (22.2%) of the patients, who were readmitted back to the unit ($n = 18$), did not have their medication orders on admission compared to medication orders from their previous admission and checked for discrepancies (see Table 3). On reporting this finding to the nursing supervisor and unit manager, they suggested that the likely factors for not completing the MR process were due to the complexity of the patients' chronic medical conditions, an increase in staff workload, high medical acuity, a short hospital stay and polypharmacy. These causative factors for a lack of compliance were consistent with what Boockvar et al. (2006) found in a study of medication discrepancies among 168 nursing home residents, who had a short length of stay at a hospital. Therefore, implementation of a standardized MR process is particularly important among this population in possibly reducing medication discrepancies.

Medication reconciliation has been recognized as a major intervention to target and reduce the problem of medication discrepancies during transition of care. Boockvar et al. (2004) noted that patients are susceptible to medication discrepancies resulting in adverse events when admitted to the hospital or from the hospital from or to a long term care facility, and these discrepancies are often the result of changing the dosage of medications, discontinuations, or a change to formula per physician discretion. Boockvar et al. (2004) suggested that alterations in medication changes at the time of a hospital or nursing home admission may be due to changes in patients' clinical conditions, adherence to institutional formulary requirements, or temporary discontinuation of medications due to interactions or contraindications.

An unexpected finding in this project was the high percentage (81%) of patients, who were found to have had at least one medication discrepancy identified on admission by the nursing supervisor. Boockvar et al. (2004) reported that patients were susceptible to medication discrepancies resulting in adverse events when admitted to a hospital or from a hospital to a long-term care facility. However, this finding was considerably higher than that found by Wong et al. (2008), who reported that at least 41% of the discharged patients from the hospital and admitted to a skilled nursing facility had at least one medication discrepancy. In another similar study of medication discrepancies in two skilled nursing facilities, Tijai et al. (2009) reported that only 21% of the patients had at least one medication discrepancy noted on admission.

There were no previous records of medication discrepancies for the unit to compare with the current project results, which made it difficult to interpret if the high occurrence of medication discrepancies was an ongoing or a more recent problem. There were discussions among the DNP project director with the Director of Nursing, nursing supervisor and the unit managers about the high percentage rate of the medication discrepancies. They concluded that

the term “medication discrepancy” did not appear to have a consistent meaning among those involved in the MR process, and agreed there was a need to better define “medication discrepancy” as related to the rehabilitation unit. The group also discussed the need for ongoing coaching, audit and evaluation of the nursing supervisor and unit managers involved in the MR process.

Medication discrepancy has been described as intentional or unintentional medication errors (Almanasreh, Moles, & Chen, 2017; Boockavar et al., 2004). However, this description is open to individual interpretation as it may be challenging to read the thoughts of another person and conclude someone’s behavior to be intentional or not. A more useful operational definition of “medication discrepancy” may be “an addition or withdrawal of a drug, or a change to the dose or dosage” of the medication (Almanasreh, Moles, R., & Chen, 2017, p.647). The auditing process for the rehabilitation unit would be improved by a clearer definition of a medication discrepancy included in the *Medication Reconciliation Process Policy & Procedure*. In comparing the medications on the discharge summary with current medication orders on the discharge summary or the MAR, a medication discrepancy would be better defined as any differences in the name of the medication, doses, or frequencies. However, for patients who were readmitted, a medication discrepancy would be better defined as any deletion or change in the dose or frequency of a previous medication without a clear history of why the medication was no longer needed by the patient or required a change in dose or frequency, when comparing previous medication orders to the current medication orders as noted on the discharge summary or MAR.

Because it was difficult to determine the source of medication discrepancies, another recommendation for improvement in the audit process would be to separate finding medication

discrepancies that occurred in comparing the current orders on the MAR or physician order sheet with the hospital discharge summary from comparing current orders on the MAR or physician order sheet with previous medication orders. Examples of revised audit forms may be found in Appendices I & J. By differentiating between the two comparisons, the source of the discrepancy could be better determined and improvement processes put into place to reduce future discrepancies.

Although the concept of MR appears to be straightforward, the project demonstrated that the implementation process may prove to be complex and challenging. It is important to pilot the process, and then evaluate it for facilitators and barriers with the optimum goal of implementing a successful standardized MR process during patient admissions to the rehabilitation unit. MR remains a critical patient safety activity that is supported by different international organizations such as The Joint Commission and National Patient Safety Goal with missions to enhance patient medication safety at transition of care. This project design was based on the strategies for MR developed by several organizations and experts, the *Medications at Transition and Clinical Handoffs (MATCH)* toolkit. Although, the toolkit was developed for the acute-care setting, it has been demonstrated through this project that may also be implemented in the non-acute care setting (Gleason et al., 2012).

A limitation of this project was the potential for bias since there was only one nursing supervisor who was responsible for completing medication reconciliation on admission, as well as bias with the unit managers' audit, since they may have only wanted to show the unit in a positive light, which may have led to lower accuracy and reliability in the findings of the audit. However, it is unlikely that bias occurred given the high number of medication discrepancies found and reported in the audit.

Conclusions and Summary

There may be many challenges associated with the implementation of effective standardized medication reconciliation programs across the continuum of care. The use of the MATCH toolkit provided a framework to capture complete and accurate medication information, improve communication of medication information across continuum among health care providers, and thus empower the patient/family member to be acquainted with their medications.

The implications of this MR project for clinical practice are for similar clinical sites to first identify strategies for standardization of the MR implementation process. For example, it is imperative to have a MR reconciliation policy and procedure in place, and clearly define terms, such as “medication discrepancies” that are important measures related to MR process. Overall, it is important that the managers, multidisciplinary team and the organization implement strategies to reduce medication discrepancies such as: 1) establishment of reporting systems, 2) promoting consistency between healthcare professional as to what constitute medication discrepancies and 3) intermittent evaluation and auditing of the process (Brady et al., 2009).

In summary, developing and implementing effective MR programs may be complex considering the various site of care, the need for standardization in the process, and the importance of including multidisciplinary team in the process that assist with the design and approved the policy and procedure. Furthermore, garnering executive leadership and support, obtaining physician and nurse understanding of the need and process for medication reconciliation, and actively participating in the design and implementation of programs may be difficult in many organizations where nursing staff already feel burdened. There is a time commitment in both obtaining the medication history and completing the reconciliation process. Implementing a standardized medication reconciliation process using the stepwise fashion of the

MATCH toolkit and being able to sustain the program involves collaborative effort as in both acute and non-acute settings to reduce medication discrepancies resulting in adverse events.

References

- Almanasreh, E., Moles, R., & Chen, T. F. (2016). The medication reconciliation process and classification of discrepancies: A systematic review. *British Journal of Clinical Pharmacology*, 82(3), 645-658. doi:10.1111/bcp.13017
- Bergkvist, A., Midlöv, P., Höglund, P., Larsson, L., Bondesson, Å. & Eriksson, T. (2009). Improved quality in the hospital discharge summary reduces medication errors—LIMM: Landskrona Integrated Medicines Management. *European Journal of Clinical Pharmacology*, 65(10), 1037-1046. doi: 10.1007/s00228-009-0680-1
- Boockvar, K. S., Carlson LaCorte, H., Giambanco, V., Fridman, B., & Siu, A. (2006). Medication reconciliation for reducing drug-discrepancy adverse events. *American Journal of Geriatric Pharmacotherapy*, 4(3), 236-243. doi: 10.1016/j.amjopharm.2006.09.003
- Brady, A., Malone, A., & Fleming, S. (2009). A literature review of the individual and systems factors that contribute to medication errors in nursing practice. *Journal of Nursing Management*, 17(6), 679-697. doi: 10.1111/j.1365-2834.2009.00995.x
- Chhabra, P. T., Rattinger, G. B., Dutcher, S. K., Hare, M. E., Parsons, K. L., Zuckerman, I. H., . . . Gandhi, T. K. (2012). Medication reconciliation during the transition to and from long-term care settings: A systematic review. *Research in Social and Administrative Pharmacy*, 8(1), 60-75. doi: 10.1016/j.sapharm.2010.12.002
- Gleason, K.M., Brake, H., Agramonte, V., & Perfetti, C. (2012). *Medications at Transitions and Clinical Handoffs (MATCH) Toolkit for Medication Reconciliation*. Retrieved from <http://www.ahrq.gov/sites/default/files/publications/files/match.pdf>

Greenwald, J. L., Halasyamani, L., Greene, J., LaCivita, C., Stucky, E., Benjamin, B., ...

Williams, M. V. (2010). Making inpatient medication reconciliation patient centered, clinically relevant and implementable: A consensus statement on key principles and necessary first steps. *Journal of Hospital Medicine* 5(8), 477-485. doi:10.1002/jhm.849

Institute for Healthcare Improvement (2011). How-to guide: Prevent adverse drug events by implementing medication reconciliation. Retrieved from

<http://www.ihl.org/resources/pages/tools/howtoguidepreventadversedrugevents.aspx>

Institute of Medicine (1999). *To Err Is Human: Building a Safer Health System*. Washington, DC: National Academies Press.

Institute of Medicine (2006). *Identifying and Preventing Medication Errors*. Washington, DC: National Academies Press.

King, B.J., Gilmore-Bykovskiy, A.L., Roiland, R.A., Polnaszek, B.E., Bowers, B.J., & Kind, A.J.H. (2013). The consequences of poor communication during hospital to skilled nursing facility transitions: A qualitative study. *Journal of American Geriatric Society* 61(7), 1095–1102. LOE 6.

Knez, L., Suskovic, S., Rezonja, R., Laaksonen, R., & Mrhar, A. (2011). The need for medication reconciliation: A cross-sectional observational study in adult patients.

Respiratory Medicine, 105, S60-S66. doi: 10.1016/S0954-6111(11) 70013-0

Koehler, B. E., Richter, K. M., Youngblood, L., Cohen, B. A., Prengler, I. D., Cheng, D. & Masica, A. L. (2009), Reduction of 30-day postdischarge hospital readmission or emergency department (ED) visit rates in high-risk elderly medical patients through delivery of a targeted care bundle. *Journal of Hospital Medicine* 4(4), 211–218. doi: 10.1002/jhm.427

Langley, G.J., Moen, R.D., Nolan, K.M., Nola, T.W., Norman, C.L., & Provost L.P., (2009). The improvement guides. A practical approach to enhancing organizational performance, (2nd ed.), San Francisco, CA: Jossey-Bass.

Mekonnen, A.B., McLachlan, A.J., & Brien, J.A. (2016). Pharmacy-led medication reconciliation programs at hospital transitions: a systematic review and meta-analysis. *Journal of Clinical Pharmacy Therapeutics*, 41(2), 128-144. doi: 10.1111/jcpt.12364

National Institute for Health and Care Excellence. (2015). Medicines optimisation: The safe and effective use of medicines to enable the best possible outcomes. Retrieved from <https://www.nice.org.uk/guidance/ng5>

Patient Safety Network. (2015). Medication reconciliation. *Patient safety primer*. Retrieved from <https://psnet.ahrq.gov/primears/primer/1>

Pronovost, P., Weast, B., Schwarz, M., Wyskiel, R. M., Prow, D., Milanovich, S. N., . . . Lipsett, P. (2003). Medication reconciliation: A practical tool to reduce the risk of medication errors. *Journal of Critical Care*, 18(4), 201-205. doi:10.1016/j.jcrc.2003.10.001

Redmond, P., Grimes, T.C., McDonnell, R., Boland, F., Hughes, C., & Fahey, T. (2013). Interventions for improving medication reconciliation across transitions of care. *Cochrane Database of Systematic Reviews*, 2013 (10). doi:10.1002/14651858.CD010791

The Joint Commission (2016). National Patient Safety Goals. Improve the safety of using medications. https://www.jointcommission.org/assets/1/6/2016_NPSG_HAP.pdf

Tjia, J., Bonner, A., Briesacher, B. A., McGee, S., Terrill, E., & Miller, K. (2009). Medication discrepancies upon hospital to skilled nursing facility transitions. *Journal of General*

Internal Medicine 24(5), 630-5. Doi: 10.1007/s11606-009-0948-2 Retrieved from
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2669872/>

World Health Organization. (2006) Action on Patient Safety - High 5s. Retrieved from
<http://www.who.int/patientsafety/implementation/solutions/high5s/en/>

Wong, J.D., Bajcar, J.M., Wong, G.G., Alibhai, S.M., Huh, J. H., Cesta, A. ...Fernandes, O.A.
(2008). Medication reconciliation at hospital discharge: Evaluating discrepancies. *Annals
of Pharmacotherapy* 42(10), 1373-1379. doi: 10.1345/aph.1L190Ann

Table 1. Compliance with the medication reconciliation process for new admissions over a 7-week period ($N = 37$)

Criteria	Percentage per Total Number of New Admissions
Home medications list completed on admission	35 (95%)
Home medication list reviewed and reconciled with current orders on admission	35 (95%)
Medications on physician order sheet reviewed and reconciled with the medication administration record within 48 hours of admission	37 (100%)
When discrepancies found, corrections made and physician notified	30 (81%)

Table 2. Compliance with the medication reconciliation audit for new admissions per week (N = 37)

Criteria	Week 1 Compliance (n = 5)	Week 2 Compliance (n = 3)	Week 3 Compliance (n = 4)	Week 4 Compliance (n = 4)	Week 5 Compliance (n = 11)	Week 6 Compliance (n = 6)	Week 7 Compliance (n=4)
Home medications list completed on admission	80%	100%	75%	100%	100%	100%	100%
Home medication list reviewed and reconciled with current orders on admission	80%	100%	75%	100%	100%	100%	100%
Medications on physician order sheet reviewed and reconciled with the medication administration record within 48 hours of admission	100%	100%	100%	100%	100%	100%	100%
When discrepancies found, corrections made and physician notified	80%	33%	100%	100%	82%	100%	100%

Table 3. Results of medication reconciliation audit for re-admissions completed by project manager (*n* = 18)

Criteria	Week 1 Compliance (<i>n</i> = 1)	Week 2 Compliance (<i>n</i> = 0)	Week 3 Compliance (<i>n</i> = 1)	Week 4 Compliance (<i>n</i> = 4)	Week 5 Compliance (<i>n</i> = 8)	Week 6 Compliance (<i>n</i> = 0)	Week 7 Compliance (<i>n</i>=4)
Medication orders on admission compared to medication orders from previous admission and checked for discrepancies	100%	N/A	100%	50%	75%	N/A	100%

Appendix A

Evidence Summary Table

Author	Date	Evidence Type	Sample & Sample Size	Results/Recommendations	Limitations	Rating
						Strength
						Quality
Almanasreh, Moles, & Chen	2016	Systematic Review of the classification of medication discrepancies and medication reconciliation process	95 studies, 48/95 conducted in USA, others in 14 other countries, 71% MR conducted by the pharmacy, 9.5% nurses while 2.1 % conducted by the physicians	<p>Multidisciplinary staff developed the MR procedure The nursing home had onsite pharmacy MR done by the pharmacist within one day of hospital return</p> <p>MR intervention instituted upon hospital return to the nursing home proved to be effective in reducing discrepancy related ADE, enhanced inter-facility communication with physician, and drug transcribing and ordering errors are preventable in most setting, situation and populations.</p> <p>Pharmacy-led medication reconciliation and communications with the physician reduced medication discrepancy and related ADEs</p>	Selection bias such as only English language studies, and quality assessment were not done on the studies.	2/A

Author	Date	Evidence Type	Sample & Sample Size	Results/Recommendations	Limitations	Rating
						Strength
						Quality
Boockvar et al.	2006	<p>Quasi-experimental study</p> <p>Pre-and Post-intervention studies</p> <p>Medication Reconciliation for reducing drug – discrepancy related adverse events (2002 to 2004)</p> <p>During the pre-intervention, there is no standard procedure or documentation of medication reconciliation.</p> <p>Post intervention involve use of standardized MR procedure upon hospital return to the nursing home</p>	<p>696 medication discrepancies in 168 nursing homes residents that had 259 hospital stays</p>	<p>Medication errors refer to as the most common single preventable cause of ADEs. The factors can be individual and /or system related that includes Medication reconciliation errors, deviation from medication administration procedures, inadequate knowledge and skills, barriers to reporting and drug distribution systems. The factors are more prominent due to changes in our health care delivery such as higher medical acuity, greater complexity of patients, multiple prescriptions, higher patient turnover and short hospital stay. The studies endorsed structured and systematic approach to MR, involving the medical team such as the nurses, Pharmacy and Physician at every transition of care and emphasized on Patient and family education, training of the staff involving in-patient care and most especially medication management</p>	<p>- Threat to internal and external validity such as selection bias, testing bias and population validity.</p> <p>- This study cannot be generalized due to the setting, one nursing home from preferred hospital, resident with multiple chronic medical problems, comorbidities and multiple medications.</p>	2/B

Author	Date	Evidence Type	Sample & Sample Size	Results/Recommendations	Limitations	Rating
						Strength
						Quality
				<p>Developing medication administration policy to guide MR. Promoting communication, consistency</p> <p>And compliance will increase accuracy. Protocol for reporting errors and prompt resolution of medication errors. Focus on reducing medication errors, decrease morbidity and mortality in hospitalized patients and promote patient's safety and health outcome.</p>		
Brady, Malone & Fleming	2009	Literature review identifying contributing factors to medication errors in clinical practice – individual or system related.	26 qualitative and quantitative studies	<p>Recognized as three-step process including verification which means collection of patient's medications, then Clarification that is appropriate medication doses, route and instructions and last step is reconciliation which indicates documentation of changes in medication orders.</p> <p>At transition of care about 50% of preventable ADEs are accountable of all medication errors.</p>	Selection Bias otherwise no other limitation	3/B

Author	Date	Evidence Type	Sample & Sample Size	Results/Recommendations	Limitations	Rating
						Strength
				<p>Providers should communicate important information to patient, family, health care providers at all transition of care This includes patient's medication history, medication changes or received during stay and discharged medications. Considering this negative factor of medication errors at transition of care involving long-term care setting, it is imperative to develop structured systematic strategies of MR intervention with potentials of reducing medication discrepancies and adverse drug events thereby promote patient safety.</p> <p>Strength includes use of Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) guidelines for the best literature review</p> <p>Focus on transition of care involving LTC settings Comparison of intervention both in and outside the United States</p>		Quality

Author	Date	Evidence Type	Sample & Sample Size	Results/Recommendations	Limitations	Rating
						Strength
				Effectiveness of the intervention were measured using Medication Appropriateness Index (MAI) lower rate of medication discrepancies related ADEs (adjusted OR =0.11, p=0.5) with medication intervention group.		Quality
Chhabra et al.	2012	A systematic literature review to evaluate medication reconciliation intervention in patients during the transition to and from long-term care settings	Seven studies, four studies from the United States and three from other countries. Three studies were quasi experimental design, one RCT study and others pre/post intervention. Studies that evaluated MR intervention in patients transferred in Long-term care setting such as NHs, SNFs,	Effectiveness of standardized MR as component of patient safety goals Step by step guide to MR process Facilitate a review and improvement of current practices Incorporated lesson learned and experiences from other facilities that have implemented the MATCH toolkit prove successful outcome of patient's safety	- Threats to internal and External validity due to selection method biases and flaws such as small sample size, and incomplete blinding in one of the study (Koehler et al. 2009) and Non RTC in six of the studies - Publication bias - Exclusion of studies published before 2000 or those published in non-English languages	3/B

Author	Date	Evidence Type	Sample & Sample Size	Results/Recommendations	Limitations	Rating
						Strength
						Quality
			Residential, ALF, Homes for the aged and hospice care		Studies cannot be generalized to other settings or population	
Gleason et al.	2012	Toolkit for medication reconciliation at transition and clinical handoffs (MATCH)	National Guideline from the Agency for Healthcare Research and Quality, The Joint Commission and North-Western University Feinberg school of medicine	Address MR as a Complex processes but a vital point of reducing ADEs Principal drivers involve patient safety and patient/family centered approach Goal is for patient to receive appropriate medication at any transition of care Identify the three steps of MR such as Verification, clarifications and reconciliation Identify and address the following: 1. barriers to implementation of MR 2. Best practices of MR, 3. Role of partnerships among healthcare setting and providers 4. Process of measuring the intervention using the metrics tool to ensure utility and	None	/A 1

Author	Date	Evidence Type	Sample & Sample Size	Results/Recommendations	Limitations	Rating
						Strength
				sustainability Developed ten steps to guide the process of implementation the above four goals.		Quality
Greenwald, et al.	2010	Qualitative studies from consensus statements by key stakeholders, and regulatory organizations to identify barriers to implementation of medication reconciliation and develop implementation strategies towards effective intervention in the hospital setting	26 organizations committed to patient safety and medication reconciliation as a safety measure.	Comprehensive and quality discharge summary, complete medication reconciliations and effective communication from one setting or provider during care transition will improve patient safety and effective hospital to SNF transition. Reduced stress level of the admitting nurse to SNF. Reduce 30- day readmission Use of the Interventions to reduce Acute Care Transfers 11 (INTERACT) program to improve collaboration of care and handoff during transition of care	No limitation identified but expert opinion	1/A
King et al.	2013	Qualitative studies, grounded Dimensional Analysis Measuring the effect of poor	27 registered nurses from five skilled nursing facilities	Defined medication discrepancies and the different between intentional and unintentional discrepancies. Intentional and unintentional medication discrepancies	Cannot be generalized to other setting or other patients, limited number of nurses working in a certain	3/B

Author	Date	Evidence Type	Sample & Sample Size	Results/Recommendations	Limitations	Rating
						Strength
		communication during transition of patients from the hospital to skilled nursing facility		<p>occurred during admission, in-patient and at discharges constitute a safety issues during transition of care for adult population. Medication history were obtained on admission, reconciled during in-patient and discharges to capture the medication discrepancies 74.3% (654/880) of the medications on admission, Intentional 85.6% (560/654, at least one medication error recorded 33.7% (34/101) patients. The number of MEs in the in-patient were correlated with the numbers of drugs in patients' pre-admission (Pearson's $r = 0.558$, $p < 0.001$ and with the number of discrepancies according to the medical record ($r = 0.428$, $p < 0.001$).</p> <p>Recommendations include implementation of medication reconciliation practices to improve patient safety, reduce medication discrepancies,</p>	<p>geographical location.</p> <p>The demographic information of the nurses was not addressed such as education, years of experience and past work experience which may contribute to the quality of the study</p>	Quality

Author	Date	Evidence Type	Sample & Sample Size	Results/Recommendations	Limitations	Rating
						Strength
						Quality
				minimize adverse drug events, and ensure continuity of care throughout patient stay and at transition.		
Knez et al.	2011	Prospective, descriptive Cross-sectional observational study addressing the need of medication reconciliation by evaluating the number of medication discrepancies between pre-admission, in-patient and discharge and implication on patient safety	101 patients, mean age 73 years	Systematic review found Pharmacy-led medication reconciliation intervention usually reveals reduction in medication discrepancies. Greater impact when conducted at admission or discharge in a single transition but less effective during multiple transition of care. While the meta-analysis has 66% reduction in medication discrepancies. Large sample size 11 RCT, 7 non-RCT Use PRISMA guidelines	Non-generalizability of the outcome. It was done in one hospital at Slovenia, first study to address this problem. Selection Bias by the clinician.	3/B
Mekonnen, McLachlan et al.	2016	Systematic review and meta-analysis Pharmacy-led medication reconciliation	19 studies, 15525 patients	Little is known about the prevalence of medication discrepancies upon admission to SNF for sub-acute care. Estimated 40-70% had unintentional medication	There is clinical heterogeneity – that is variability in the studied interventions , - Selection Bias -	

Author	Date	Evidence Type	Sample & Sample Size	Results/Recommendations	Limitations	Rating
						Strength
						Quality
		programs at hospital transitions		<p>discrepancies upon discharge from the hospital; 41% had at least one medication discrepancy post discharge; 142 of 199 (71.4%) three out of four SNF admission accounted for one in five medications prescribed on admission. 495 (21.3%) medication discrepancy, other discrepancies include missing information, disagreement between the discharge summary and patient referral care form to SNF occurred over 50% of admission and over 60% of medication discrepancies, prior MARs, home medication list and SNF orders.</p> <p>86.7% of medication reconciled within 24 hours of admission</p> <p>Recommendations include: improved handoff communication from the hospital to SNF, complete medication reconciliation compliance on admission to SNF, consistency of inter-institutional communication</p>	<p>only adult</p> <ul style="list-style-type: none"> - Variability with the method of measuring outcomes. - Threat to internal validity such as history bias - medication sources - Variations in definitions and terminologies of medication discrepancies 	

Author	Date	Evidence Type	Sample & Sample Size	Results/Recommendations	Limitations	Rating
						Strength
Tjia et al.	2009	Cross sectional study. The study addressed the prevalence of medication discrepancies during transition of care to skilled nursing facility	2,319 medication record reviewed on admission		The study was geographical Limited to two long-term facilities in Massachusetts predominantly white. This limit the generalizability of the findings	Quality 2/B

Appendix B

Goals and Objectives for Training the Unit staff

Goal

To create awareness of the nursing supervisor and unit managers' roles and responsibilities in the medication reconciliation process

Objectives

The participants in the training will be able to:

- Identify a common place for the medication reconciliation forms in the chart

Complete the medication reconciliation checklist and audit forms

Curriculum

- Obtaining and documenting patient home and current medication list on admission
- Comparing the home medication list with discontinued and current medication orders for discrepancies
- Comparing current medication orders with previous medication orders for discrepancies, if patient is a readmission
- Identifying medication discrepancies such as omission, missing, deletion or changes
- Resolving unintended medication discrepancies by prompt notification of treating provider

Appendix C

Medication Reconciliation Checklist

Patient's Name: _____

Medical Record Number: _____

Date of Admission: _____

- _____ Checked if patient has a list of home medications on discharge summary
- _____ If a home medication list available, compared list with discontinued and current medication orders and checked for discrepancies
- _____ If patient is a readmission, compared current medication orders to previous medication orders from last admission and checked for discrepancies
- _____ Transcribed orders from the discharge medication list to the Physician order sheet
- _____ Notified provider of discrepancies and made corrections

Date: _____

Completed by: _____
Nursing Supervisor

Appendix E

Unit Manager’s Medication Reconciliation Audit Form

Patient’s Initial			
Coded Medical Record Number			
Date of Admission			
	Yes	No	NA
List of home medications was noted on discharge summary			
If a home medication list is available, list was compared with discontinued and current medication orders and checked for discrepancies within 48 hours of admission			
If a home medication list is not available, Home and Allergy Medication Record was initiated or updated			
If patient is a readmission, current medication orders were compared to previous medication orders from last admission and checked for discrepancies			
Current medication list from the physician order sheet was compared with the medication administration record (MAR) and checked for discrepancies within 48 hours of admission.			
Provider was notified of discrepancies and they were corrected			

Date: _____

Completed by: _____
 Unit Manager’s Signature

Appendix F

Policy and Procedure

MEDICATION RECONCILIATION PROCESS

Medication reconciliation is a management process that facilitates improved patient safety during transition of care from one facility to another

PURPOSE:

To create standardized medication reconciliation process for the medical team to identify, document, resolve, and follow-up of unintended discrepancies and reduce related adverse drug event and patient harm

POLICY:

To develop standardize and simplify process of medication reconciliation during admission to the facility and eliminate unnecessary discrepancies

Build a single medication list shared by all disciplines for documenting the resident's current medications

The list should be centrally located and easily accessible within the patient's medical record

All disciplines caring for the patient should be working from the same medication list.

The medication list should be the reference point for medication ordering decisions and reconciliation, during transition of care.

The Registered nurse/Nurse practitioners/Physician Assistant/Physician should have the ability to update the home medications as new or when more reliable medication information becomes available.

Changes can be made or modified but dated, timed and signed

EXPECTED OUTCOME:

Increase the number of medication reconciliations upon admission to the Acute Rehabilitation unit

Decrease medication discrepancies that result in adverse drug events and promote patient safety

Prompt report of intentional or unintentional medication errors to the physician for resolution in a timely manner

PERFORMED BY:

Nursing supervisor (or designee), Unit manager, Nurse Practitioner or Attending Physician

PROCEDURE:

On admission, the nursing supervisor (or designee) will check for a list of home medications noted on discharge summary.

If a home medication list is available, the nursing supervisor (or designee) will compare the list with discontinued and current medication orders for discrepancies.

If the patient is a readmission, the nursing supervisor will compare current medication orders to previous medication orders from the last admission and check for discrepancies.

If discrepancies are noted, the provider will be notified to make the corrections.

Within 48 hours of admission, the unit manager will check for a list of home medications as noted on discharge summary.

If a home medication list is available, the unit manager (or designee) will compare the list with discontinued and current medication orders on admission for discrepancies.

If the patient is a readmission, the unit manager will compare current medication orders to previous medication orders from the last admission and check for discrepancies.

The unit manager will compare the current medication list from the physician order sheet with the medication administration record.

If discrepancies are noted, the provider will be notified to make the corrections.

The medication reconciliation forms will be placed in the pharmacy section of the patients chart to be available for all disciplines

Approved by: -----

Vice-President, Clinical Director

Original Date

Appendix H

Timeline

Submit Proposal to committee members by December 2016.

Present Proposal to committee members on December 2016.

Submit project proposal to UMB and hospital Institutional Review Boards IRBs by December 2016.

Implement project from January April 2017.

Analyze, synthesize and evaluate data by May 2017

Submit final scholarly project manuscript to committee for review by May 2017.

Present final scholarly project report to Committee by June 2017.

Appendix I

Revised Medication Reconciliation Checklist

Patient's Name: _____

Medical Record Number: _____

Date of Admission: _____

Yes No

____ ____ Checked if patient had a list of home medications on the discharge summary

____ ____ If a home medication list was available on the discharge summary, compared list with current medication orders on discharge summary and checked for discrepancies

____ ____ Found medication discrepancies in comparing home medication list with current medication orders on discharge summary

____ ____ If patient was a readmission, compared current medication orders to previous medication orders from last admission and checked for discrepancies

____ ____ Found discrepancies in comparing current medication orders to previous medication orders from last admission

____ ____ Notified provider of discrepancies and made corrections

____ ____ Transcribed orders from the discharge medication list to the Physician order sheet

Date: _____

Completed by: _____
Nursing Supervisor

Appendix J

Revised Unit Manager’s Medication Reconciliation Audit Form

Patient’s Initial			
Coded Medical Record Number			
Date of Admission			
	Yes	No	NA
List of home medications was noted on discharge summary			
If a home medication list was available, list was compared with current medication orders on discharge summary and checked for discrepancies within 48 hours of admission			
Medication discrepancies were found in comparing home medication list with current medication orders on discharge summary			
If a home medication list was not available, Home and Allergy Medication Record was initiated or updated			
Current medication list from the physician order sheet was compared with the medication administration record (MAR) and checked for discrepancies within 48 hours of admission.			
Medication discrepancies were found in comparing current medication list from the physician order sheet with the medication administration record (MAR)			
If patient was a readmission, current medication orders on MAR were compared to previous medication orders from last admission and checked for discrepancies within 48 hours of admission			
Medication discrepancies were found in comparing current medication orders on MAR to previous medication orders from last admission			
Provider was notified of discrepancies and they were corrected			

Date: _____

Completed by: _____
 Unit Manager’s Signature