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Medication Reconciliation: Preventing Errors and Improving Patient Outcomes

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I. Process Description

Medication reconciliation is the process of obtaining a highly accurate list of all the patients' medications they are presently taking. The medication list would include: drug name, dosages, route and frequency and comparing this against the physician's orders regarding admission, transfer and discharge. The goal of this is to provide the correct medications for the patient at all times.

Medication errors can be prevented utilizing a systemic procedure to identify and correct medication errors during hospital admission, transfer and discharge. Errors can happen and do take place when staff employees have not administer this procedure correctly. Up to 67% of patients that are admitted to the hospital have medication discrepancies. Of the 67% it has been shown that 11% to 59% have a potential for discrepancies. Transitions in care put a patient at risk due to poor communication skills and the loss of vital information (Kwan, Sampson, & Shojanian, 2013).

The purpose of this research project is to bring attention to patient safety by focusing on medication errors during transition. One method of doing this is to compare the existing hospital policy for medication reconciliation against research studies and their recommendations for achieving patient safety. This project should inform all nurses about the current issues concerning medication reconciliation. Hospital management should review and update current hospital policy when needed and ensure that it is being enforced. Questioning all necessary medication issues concerning patient safety is a key for lessening discrepancies or in worse cause even death.

The current policy used in this facility was written to cover a wide range of areas. The broad categories of this policy are: Admission, Transfer and Discharge. Admission

covers areas such as direction admission, from another hospital, nursing homes, transitional care unit, outpatient centers, emergency department, labor and delivery, center for digestive health and TCU inpatient. Transfer areas include: To/from critical care units and surgery (in house only). Discharge includes areas such as: Inpatient discharge, outpatient centers, emergency department, and labor and delivery. Specific instructions are included in each of these major categories.

III. Theoretical Framework

This study was based on Jean Watson's caring theory. Watson viewed nursing as a science and an art. In her theory the role of the nurse included: using an holistic treatment approach including treating the mind, soul and spirit as well as the body, showing unconditional acceptance, establishing a caring relationship with the patient, spending uninterrupted time with the patient and promoting health through intervention and knowledge. Medication interventions done properly are a direct result of Watson's caring theory. One of the primary responsibilities of nursing is the correct administration of medications and reconciling them during admission and before transfer or discharge. Spending uninterrupted time during this process reduce the chance of error due to distraction and interruption. It is a well known fact that multitasking is a major contributing factor to human errors. A part of Watson's theory included practices to protect nurses from distraction and interruptions during the medication processes and suggested several practices for stopping and reflecting before going forward. One practice she suggested was that during medication administration/reconciliation activities, nurses wear brightly colored sashes as a symbol that during this activity they were not to be interrupted. Although the wearing of brightly colored sashes is not done today, the

idea of having uninterrupted time while doing this important activity is still considered a good one (AMITA Health Adventists Medical Center, 2014).

IV. Evidence

The first evidence-based article focused on unintentional discrepancies between preadmission medications and admission or discharge medications that had a potential for harm or potential adverse drug events (PADEs). The goal of this study was to measure the impact of information technology on medication discrepancies with potential for harm. The study took place at two large academic hospitals in Boston, Massachusetts and was composed of 322 patients admitted to 14 medical teams. This study was a clustered-controlled trial with randomized medical teams. Each medical team (6 at hospital 1 and 8 at hospital 2) consist of 1 attending physician, 1 junior or senior resident, 2 to 4 interns, and 1 or 2 medical students. The intervention was a computerized medication reconciliation tool and process redesign (IT application), involving physicians, nurses and pharmacists. A pre admission medication history was taken of all patients by one of two-study pharmacist at each hospital following a strict protocol. This pre admission medication list was then compared with the medication history taken by the medical teams, along with all admission medication orders, and all discharge orders.

Discrepancies between pre admission medication history and admission or discharge orders were then identified and reason for changes were sought from the medical records. If necessary, pharmacist communicated directly with the medical team after discharge to verify intent. All discrepancies that were not clearly intentional were recorded and each medication discrepancy was then reviewed. Among 160 controlled patients there were 230 potential adverse drug events (1.44 per patient), while among 162 intervention

patients there were 170 potential adverse drug events. As the study shows the group without any intervention had more potential adverse drug events than the group that used the electronic medication reconciliation tool. The study recommended that institutions strongly considered adopting electronic medication reconciliation tools to help reduce potential adverse drug events (Schnipper et al., 2009).

The goal of the second evidence-based article was to describe the potential impact of the medication reconciliation process to identify and rectify medication errors at the time of hospital admission and discharge. This study was done at a Canadian community hospital and consists of sixty randomly selected patients who were previously enrolled at the time of admission. Previous patients records were compared with pre-admission medications at admission based on the medication vials and interviews with the caregivers, patients, and or outpatient healthcare providers. Records at the time of discharge, pre-admission and in patient medications were compared with discharge orders together with all written instructions complemented by staff. There were two classifications of variances: intended or unintended and were discussed with the prescribing physician. Unintended variances were considered medication errors. Overall, 60% of the patients had at least one unintended variance or medication error and 18% had at least one clinically important medication error. Of the 20 clinically important medication errors, 75% were intercepted by medication reconciliation before any patients were harmed. None of these medication errors had been detected by using clinical practice before medication reconciliation was conducted. After conducting this study they recommended using a medication reconciliation process. This process should included:

Process recommendations for medication reconciliation programs

- Identification process for patients at risk:
 - Medication use history unclear (e.g. cognitive impairment or unclear patient history).
 - Complex medication use history (e.g. 5 or more medications).
- Admission reconciliation by pharmacist or nurse as soon as possible after admission to minimize potential harm during hospitalization.
- Pharmacist or nurse reconciles unintended variances by discussion with physician.

At discharge, written instructions regarding pre-admission medications are included with discharge prescriptions.

The results of this study when added to the results of previous descriptive studies of reconciliation found that reduction of medication errors were reduced by 70% or more (Vira, Colquhoun, Etchells, 2006).

The third evidence based research article focused on the evaluation of 18 studies with 20 interventions done in Canadian and U.S. hospitals. Of the 18 studies 21,330 people participated. Five of these studies used randomized controlled designs, one study used quasi-experimental design (interventions delivered in alternating months), three had before-and-after design and nine reported post intervention data only. Seven interventions focused on high-risk patients based on advanced age, chronic illness and multiple medications. Seven studies compared medication reconciliation with methods of usual care. Two studies compared to different forms of medication reconciliation. All of these studies but two were done in academic medical centers. One study involved teaching and non-teaching settings and five-targeted admission to a hospital. Seven targeted discharge to home and one targeted in hospital transfers and seven targeted multiple care

transitions. These studies suggest that only a few had unintentional medication errors had clinical significance. Most patients had no unintentional medication errors. Therefore, the actual effect of medication reconciliation in the inpatient setting remains unclear (Kwan, Sampson, Shojania, 2013).

VI. Current Policy

The current policy in effect at this facility is policy number M5.9 on Medication reconciliation and is done in all patient care areas by licensed patient care providers. As stated above this policy covers broad areas and includes: admissions, transfers and discharges from different areas of care. The facility policy/procedure on medication reconciliation is seen below:

PURPOSE:

To provide a process for reconciliation of medications upon admission, at transfer of care and upon discharge.

POLICY STATEMENT:

In keeping with The Joint Commission's National Patient Safety Goal, medication reconciliation is an interdisciplinary process designed to decrease medication errors (omissions, duplications, dosing errors, drug interactions), reduce adverse drug events, and improve continuity of care and communication. Medication reconciliation encompasses the following components: obtaining and documenting a complete and accurate list of a patient's current medications upon admission, comparing this list to the prescriber's admission, transfer and/or discharge orders to identify and resolve discrepancies, communicating a medication list to the next provider of service, and supplying a medication list to the patient upon discharge (all medications if complete reconciliation performed or new short-term medications if modified reconciliation performed).

As outlined in policy O18.65-MS – Orders and Prescriptions, a blanket continuation or reinstatement of orders for medications is not acceptable in any of the following conditions:

- a. Home medications.
- b. Nursing home medications.

- c. Post procedure orders where the medications are held prior to the procedures.

The specific medications (including dose, route, frequency) to be resumed will be clarified with the prescriber.

Definitions

- To reconcile is to compare and reach agreement. In the context of the National Patient Safety Goal, reconciliation is the process of comparing the medications that the patient has been taking prior to the time of admission or entry to a new setting with the medications that the organization is about to provide.
- The discharge medication list is not a doctor's order. It is a list of all medications that the patient will be using following discharge. The discharge list must be reviewed to determine whether there are any items that should be discontinued or that might interact with newly prescribed medications. Any new prescription medications to be taken after discharge will require a prescription from the physician. Medications that were previously prescribed by another physician or are available over-the-counter which are to be continued do not need to be re-ordered.
- Active medications are those taken by patient within past 7 days.

is seen below:

Admission

1. Obtain the most accurate list possible of a patient's current medications (prescription, OTC, herbal and dietary supplements) upon admission.
 - a. List will be obtained for all inpatients and patients seen in the Emergency Department, Labor and Delivery, Outpatient Center, Close Observation Unit, Outpatient Chemotherapy, and Center for Digestive Health.
 - b. Medication list will include medication name, dose, route, frequency, and date/time of last dose.
 - c. Sources of information include: patient, family, visual inspection of medications brought to facility, previous medical records, prescriber's office and outpatient pharmacy.
 - d. For patients admitted to Transitional Care Unit, the home medication list in the electronic admission database will be unchanged from original inpatient admission.
2. **Direct Admission**
 - a. Prescriber writes specific home medication orders or computer-generated orders from prescriber's office:
 - 1) Place patient sticker on order and fax to pharmacy for order entry.
 - 2) Review medication list with patient during admission.
 - 3) Enter/update medication list in the electronic admission database.
 - 4) Print Admission Medication Reconciliation report. Place in H&P section of chart.

- 5) Write clarification orders after reconciling differences with prescribers when applicable.
- b. From another hospital:**
 - 1) Enter/update medication list in the electronic admission database. Only include home medications – not medications started at other hospital.
 - 2) Print Admission Medication Reconciliation report from the electronic admission database.
 - 3) Place Admission Reconciliation report in order section of chart.
 - 4) If prescriber addresses, fax to pharmacy for order entry.
 - 5) If prescriber does not address, call for verified telephone order and document on Admission Medication Reconciliation report. Fax to pharmacy for order entry.
 - 6) Return report to order section of chart.
 - 7) Document verification and reconciliation on Admission Medication Reconciliation report.
- c. From Extended Care Facility/Nursing Home:**
 - 1) Enter/update medication list in the electronic admission database.
 - 2) Print Admission Medication Reconciliation report from the electronic admission database.
 - 3) Place Admission Reconciliation report in order section of chart.
 - 4) If prescriber addresses, fax to pharmacy for order entry.
 - 5) If prescriber does not address, call for verified telephone order and document on Admission Medication Reconciliation report. Fax to pharmacy for order entry.
 - 6) Return report to order section of chart.
 - 7) Document verification and reconciliation on Admission Medication Reconciliation report.
- d. From Transitional Care Unit:**
 - 1) Do not update medication list in the electronic admission database.
 - 2) Print Admission Medication Reconciliation report and place in H&P section of chart.
- 3. Entry/Admission from Outpatient Center (OPC) or Close Observation Unit (COU)**
 - a. OPC or COU nurse enter/update medication list in the electronic admission database.
 - b. Print Admission Medication Reconciliation report from the electronic admission database and place in order section of chart.
 - c. Prescriber indicates whether to continue or hold patient's current medications.
 - 1) Fax to pharmacy for order entry.
 - 2) Return report to order section of chart.
 - 3) Review medication list with patient during admission.
 - 4) Update list in the electronic admission database but do not reprint reconciliation report from the electronic admission database.
 - 5) Write clarification orders after reconciling differences with prescriber.
 - 6) Document verification and reconciliation on Admission Medication Reconciliation report.

- d. If prescriber does not address the Admission Reconciliation report, review medication list with patient during admission.
 - 1) If the electronic admission database home medication list is accurate, use printed list to call prescriber for orders or leave in chart for prescriber to address.
 - 2) If the electronic admission database home medication list is not accurate, update list in the electronic admission database.
 - 3) Reprint Admission Medication Reconciliation report from the electronic admission database. Place original report from ED in shredder box.
 - 4) Place in chart for prescriber to address or call for verified telephone order.
 - 5) Fax to pharmacy for order entry once complete.
 - 6) Return report to order section of chart.
 - 7) Document verification and reconciliation on Admission Medication Reconciliation report.

4. Entry from Emergency Department (ED)

- a. ED nurse to enter/update medication list in ED electronic record.
- b. ED nurse to print Medication Reconciliation/Verification/Order Form (on admitted patients only).
- c. Prescriber indicates whether to continue or hold patient's current medications on the Medication Reconciliation/Verification/Order Form:
 - 1) Fax to pharmacy for order entry.
 - 2) Cross through the Continue at Discharge column.
 - 3) Return report to order section of chart.
 - 4) Review medication list with patient during admission.
 - 5) Update list in the electronic admission database but do not print reconciliation report from the electronic admission database.
 - 6) Write clarification orders after reconciling differences with prescriber.
 - 7) Document verification and reconciliation on the Medication Reconciliation/Verification/Order Form.
- d. Prescriber does not address the ED Medication Reconciliation/Verification/Order Form:
 - 1) Cross through the Continue in Hospital and Continue at Discharge columns and place in H&P section of the chart.
 - 2) Review medication list with patient during admission.
 - 3) Update the electronic admission database and print Admission Medication Reconciliation Report from the electronic admission database.
 - 4) Place in chart for prescriber to address or call for verified telephone order.
 - 5) Fax to pharmacy for order entry once complete.
 - 6) Return report to order section of chart.
 - 7) Document verification and reconciliation on Admission Medication Reconciliation report.

5. Entry from Labor and Delivery

- a. LDR nurse to enter/update medication list in electronic database.
- b. LDR to transcribe home medications to LDR Home Medications sheet from Optio.

- c. Prescriber indicates whether to continue or hold patient's current medications on the LDR Home Medications sheet:
 - 1) Fax to pharmacy for order entry.
 - 2) Return report to order section of chart.
 - 3) Review medication list with patient during admission.
 - 4) Update list in the electronic admission database but do not print reconciliation report from the electronic admission database.
 - 5) Write clarification orders after reconciling differences with prescriber.
 - 6) Document verification and reconciliation on LDR Home Medications sheet.
- d. Prescriber does not address the LDR Home Medications sheet:
 - 1) Cross through the Admission Orders column and place in H&P section of the chart.
 - 2) Review medication list with patient during admission.
 - 3) Update the electronic admission database and print Admission Medication Reconciliation Report from the electronic admission database.
 - 4) Place in chart for prescriber to address or call for verified telephone order.
 - 5) Fax to pharmacy for order entry once complete.
 - 6) Return report to order section of chart.
 - 7) Document verification and reconciliation on Admission Medication Reconciliation report.

6. Entry/Admission from Center for Digestive Health (CDH) or Outpatient Chemotherapy

- a. CDH or OP Chemotherapy nurse fill out the Home Medication Sheet from Optio.
- b. Inpatient nurse reviews medication list with patient during admission process and uses information to enter/update medication list in the electronic admission database. Place Home Medication Sheet in History & Physical section of chart.
 - 1) Print Admission Medication Reconciliation report from the electronic admission database.
 - 2) Place report in order section of chart.
 - 3) If prescriber addresses the Admission Reconciliation report, fax to pharmacy for order entry.
 - 4) If prescriber does not address the Admission Reconciliation report, call for verified telephone order and document on Admission Medication Reconciliation report. Fax to pharmacy for order entry.
 - 5) If prescriber addresses handwritten form, transcribe orders to Admission Reconciliation report. Reconcile any differences with prescriber. Fax to pharmacy for order entry.
 - 6) Return Admission Medication Reconciliation report to order section of chart.
 - 7) Document verification and reconciliation on Admission Medication Reconciliation report.

7. Admission to TCU from Inpatient

- a. Fax completed Transfer Medication Reconciliation report to pharmacy.
- b. Do not update medication list in the electronic admission database (keep original list from hospital entry).
- c. Print Admission Medication Reconciliation report and place in H&P section of chart.

Transfer

1. To/From Critical Care Units

- a. Begin with a Medication Reconciliation report (available daily in progress note section or generate on demand from the electronic admission database). Contact prescriber for orders to continue or discontinue medications if not done and document verified telephone orders.
- b. Reconcile the medication list by identifying any discrepancies or unclear orders.
- c. Contact prescriber to resolve discrepancies and write any clarification orders.
- d. Document reconciliation and verification by signing the Medication Reconciliation report.
- e. Return report to order section of chart.

2. Surgery (in house patients only)

- a. According to policy O18.65-MS Orders and Prescriptions, previous orders are cancelled and new orders must be written immediately post-operatively when a patient requires general anesthesia.
- b. Pharmacy or nursing to generate a Medication Reconciliation report prior to surgery (patient in SPA or critical care unit).
- c. Pharmacy to discontinue all medications from patient's profile in HMM upon notification from SPA or critical care unit via the Pharmacy Procedure Notice.
- d. Medication Reconciliation report placed in patient's chart and flagged for the prescriber to address post-operatively in PACU or in critical care unit.
- e. Reconcile the medication list by identifying any discrepancies or unclear orders. Contact prescriber for orders to continue or discontinue medications if not done and document verified telephone orders.
- f. Contact prescriber to resolve discrepancies and write any clarification orders.
- g. Document reconciliation and verification by signing the Medication Reconciliation report.
- h. Return report to order section of chart.

Discharge

1. Inpatient Discharge

- a. Compile all information provided by prescriber at time of discharge (completed Medication Reconciliation report, new orders and prescriptions).
- b. Begin with a Medication Reconciliation report (available daily in progress note section or generate on demand from the electronic admission database).
- c. Add any new prescriptions or orders to the Medication Reconciliation report (additions or changes section).
- d. Reconcile the medication list by identifying any discrepancies or unclear orders.
- e. Contact prescriber to resolve discrepancies and write any clarification orders.
- f. List all medications to be continued after discharge in Logicare. Full-detail instructions included for all new medications (select "new medication" option in Logicare). Abbreviated instructions included for home medications (select

- “current medication” option in Logicare).
- g. Provide patient with complete medication list (Logicare instructions).
 - h. Document reconciliation by signing the Medication Reconciliation report.
 - i. Return all reconciliation sheets and copies of discharge instructions to the patient’s chart.
 - j. Complete medication list provided to the next provider of care via Logicare physician letters. Complete medication list is also available through electronic medical record system.
 - k. Discharged to Transitional Care Unit (TCU)
 - 1) TCU Admission Coordinator compiles all information provided by prescriber at time of discharge and documents reconciliation by signing the Medication Reconciliation report.
 - 2) Make copies of all reconciliation sheets and return to the patient’s chart. Use originals for admission order sheets in TCU chart.
 - 3) Inpatient nurse to list all medications in Logicare.
 - l. If discharged to extended care facility, list all medications only in Logicare and provide list to patient.
2. **Outpatient Center (OPC), Center for Digestive Health (CDH), and Close Observation Unit (COU) Discharge to Home**
- a. If criteria for Modified Reconciliation met, provide a list of new short-term medication additions for continuation after discharge to patient/family.
 - 1) List new medications to be continued after discharge in Logicare with full-detail instructions.
 - 2) Document reconciliation by signing the Medication Reconciliation Sheet.
 - b. If criteria for Complete Reconciliation met, compile all information provided by prescriber at time of discharge (completed home medication list, new orders, and prescriptions).
 - 1) Reconcile the medication list by identifying any discrepancies or unclear orders.
 - 2) Contact prescriber to resolve discrepancies and write any clarification orders.
 - 3) List all medications to be continued after discharge in Logicare. Full-detail instructions included for all new medications (select “new medication” option in Logicare). Abbreviated instructions included for home medications (select “current medication” option in Logicare).
 - 4) Provide patient with complete medication list (Logicare instructions).
 - 5) Document reconciliation by signing the Home Medication Sheet.
 - 6) Return all reconciliation sheets and copies of discharge instructions to the patient’s chart.
 - 7) Complete medication list provided to the next provider of care via Logicare physician letters. Complete medication list is also available through electronic medical record system.

3. **Emergency Department Discharge to Home**

- a. ED nurse to print General Instructions from ED electronic system.
- b. Provide copy of instructions and prescriptions to patient.
4. Labor and Delivery Discharge to home or another hospital
 - a. Compile all information provided by prescriber at time of discharge (medication list from electronic database, new orders and prescriptions).
 - b. Reconcile the medication list by identifying any discrepancies or unclear orders.
 - c. Contact prescriber to resolve discrepancies and write any clarification orders.
 - d. List all medications to be continued after discharge in Logicare. Full-detail instructions included for all new medications (select “new medication” option in Logicare). Abbreviated instructions included for home medications (select “current medication” option in Logicare).
 - e. Provide patient with complete medication list (Logicare instructions).
 - f. Document reconciliation in electronic database.
 - g. Return all reconciliation sheets and copies of discharge instructions to the patient’s chart.
 - h. Complete medication list provided to the next provider of care via Logicare physician letters. Complete medication list is also available through electronic medical record system.

Radiology/Imaging Department (Outpatient)

1. For patients receiving contrast, medication list and allergy information are obtained from the patient upon admission.
2. Patients are screened for contraindications using an approved checklist by the technician. If a conflict is identified, the Radiologist is consulted for specific instructions.
3. If medication changes are made at discharge (i.e. hold metformin), a complete updated medication list is provided to the patient.
4. If no medication changes are made but the patient has no list, a complete updated medication list is provided to the patient.

Respiratory (Outpatient)

1. For patients receiving albuterol, medication list and allergy information are obtained from the patient upon admission.
2. Prior/first-dose review conducted by pharmacist.
3. If medication changes are made at discharge, a complete updated medication list is provided to the patient.
4. If no medication changes are made but the patient has no list, a complete updated medication list is provided to the patient.

VI. Proposed Policy/Procedure and Implementation into Practice

According to the research, the policy in place at the facility is very detailed and meets the joint commission nation safety goal and does not need to be updated at this time. Reinforcing this policy/procedure and educating staff members through shift turnovers, staff meetings or one on one as the situation determines such as floaters, is a recommendation. The staff needs to be properly informed of any medication reconciliation policy/procedure changes when moving their work location from one part of the hospital to the next. Although most of the policy/procedure is the same throughout the different areas of the hospital, there are differences in procedure depending upon which area you are working in. The hospital staff needs to be aware of these differences in policy and procedure so they are less likely to make mistakes. Management should insure that any changes to medication reconciliation policy/procedure in their area are passed on to the patient care providers.

VIII. Summary/Conclusion

It is clear that lack of communication and information during hospital transfers and discharge are common and may affect patient care. This facility has initiated interventions in the form of computer-generated summaries through their use of an electronic admission database and printed reports. This action is one of the recommendations listed in the research. Education is also an important tool; insuring

hospital staff members are up to date on the current policy and how to implement it.

Research has shown that an educated staff using current policy along with the electronic database system will result in a decrease in medication errors.

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