Managing the Medication Reconciliation Process

Developing a Robust Reconciliation Process for an Institution Using Mixed Electronic/Paper Medical Records

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National Patient Safety Goals, medication reconciliation, CPOE, admission, transfer, discharge.

ABSTRACT
One of the most difficult National Patient Safety Goals to master is to accurately and completely reconcile medications across the continuum of care. All healthcare providers can agree that reconciliation is valuable, but developing a process that will ensure this is being done at admission, transfer and discharge is difficult. Is there a provider role that should logically take ownership of this process? How can this be seamlessly incorporated into current workflow? As institutions are transitioning to electronic medical records, in a mixed electronic and paper environment, what tools need to be developed to assure that the process is followed consistently? This article will review the process used by a multidisciplinary group to develop a robust medication reconciliation process in an institution which uses a mixed electronic/paper medical record and provides both ambulatory and inpatient care.

Many institutions have put significant effort into the medication reconciliation process, and while many have made a great deal of progress, few have effectively implemented the process across the continuum of care. Why is this? At admission, getting an accurate medication history that includes medications prescribed from a variety of providers, over-the-counter medications, herbal remedies and dietary supplements is difficult and time-consuming. Clinicians must then determine which medications to continue; which medications to convert to different doses or routes; which ones to discontinue; and which ones to hold. During the patient’s hospital admission, the medication regimen changes over time. At discharge, the provider must identify and appropriately prescribe which medications to continue at home. Medications that were on hold during the hospital stay may need to be resumed, while others may need to be discontinued. Most importantly, the patient needs to understand all of this information and the patient’s ambulatory care providers need to be informed of these changes. This article will review the process that St. Jude Children’s Research Hospital used to develop a comprehensive medication reconciliation process.

St. Jude Children’s Research Hospital is a non-profit, academic research hospital specializing in research and treatment of cata-
strophic diseases in children. St. Jude provides comprehensive care for patients internationally. The institution provides both ambulatory and inpatient care.

St. Jude has some unique patient-flow mechanics that may seem to make elements of the medication reconciliation process easier. Patients are referred to this institution by their local pediatrician or primary care provider, and then receive full services for the duration of their treatment protocol and follow-up period. This results in a patient population that is relatively encapsulated for an extended period of time.

In the normal acute-care setting, the patient population can be made up of a large number of older patients with multiple chronic diseases that are being managed medically by multiple healthcare providers. The pediatric population has fewer chronic diseases with the accompanying medication regimen than typical acute-care hospitals. St. Jude provides care, including medications, at no cost to the patient and dispenses medications to self-administered through its own retail pharmacy. All inpatient and outpatient medication orders are captured electronically in a single-source EMR. All outpatient orders are entered electronically by clinical care providers. Medications administered within the hospital are ordered in a mixed process, with most being entered by CPOE, but complex chemotherapy regimens being administered in the inpatient setting are written on paper and then entered electronically by clinical pharmacists.

Having a single source of truth for medications that are administered on site as well as self administered makes the process much easier, but there are some exceptions that need to be considered. There are also unique patient flow processes that make other components of the medication reconciliation process very difficult. Patients are seen in the ambulatory setting on a recurring basis. Patients may be seen daily, weekly, monthly, every few months or even annually. This generates another set of questions. Should medication reconciliation be completed formally for each outpatient visit? This has limited value if a patient is seen daily, but how often should reconciliation be completed to be valuable? Patients may be seen by different levels of providers or by different services at each visit. Which role or service should accept responsibility for assuring the reconciliation process is done?

The vendor for our EMR provides a solution for medication reconciliation at admission, transfer and discharge; however, we are unable to utilize this functionality. The medication reconciliation reports provided by our vendor only include medications from the patient’s current encounter and our patient flow is such that the facility assigns a different encounter number to our outpatients each day they are present for an appointment. Since we order medications on various outpatient encounters, the admission and discharge reports would not include all active medications.

Over time, a good process evolved for reconciling medications at discharge. A custom discharge summary report was developed by programmers within the Clinical Informatics department. This report includes future scheduled return visits, discharge medications and outpatient supplies. A process that includes review by the nurse and updates by the clinical pharmacists prior to printing and reviewing with the patient results in a clean medication profile for the patient at discharge. This process using the custom report was developed in May, 2008 and has been fine tuned into an effective discharge process. Could we utilize a similar process for the patients other points of transition of care?

METHODS

The Quality and Patient Safety Council (QPSC) of our organization identified medication reconciliation as the number one improvement priority for 2009. The Quality Management department was charged with implementing a performance improvement project focused on medication reconciliation. This project was selected for numerous reasons: implementation of recent changes to the Joint Commission National Patient Safety Goal, the need to ensure safe patient care by creating a medication reconciliation process that can easily be incorporated into current workflow; benchmark data showing compliance nationally of less than 90 percent and locally of less than 80 percent; and current institutional processes that saddled the clinical pharmacists with responsibility for this process.

The senior leadership stakeholders for this project were: clinical director, chief nursing officer, chief pharmaceutical officer, clinical pharmacist lead (team leader), CIO, director, quality management, patient care services quality manager and the risk manager (team facilitator). The charge to the team was to develop and implement a plan for addressing medication reconciliation that will bring the organization into total compliance with the Joint Commission National Patient Safety Goal requirements. The scope of the project includes inpatients and outpatients receiving medications from the organization. The outcome for the team is no medication misadventures related to a failure to reconcile medications at admission, discharge and transfer, and a process for medication reconciliation that is consistent, simple, understood by all clinical staff and utilized more than 95 percent of the time at each transition of care.

Utilizing the reconciling medications tools from the Massachusetts Coalition for Prevention of Medical Errors, the team leader and facilitator identified the team members. The team included a physician leader and a fellow, nursing leadership and staff from all shifts (day, night and weekend) and pharmacy representatives who were most familiar with the current process. Since we are transitioning from paper to electronic records, the team also included representatives from clinical informatics and patient care services informatics. The total membership was more than 15 members. This may seem like too large a team to get anything accomplished, but it actually allowed the work to continue even if not all members were present, because each discipline was represented. It also ensured that what was actually happening was discussed.

The plan called for a total of four meetings. The first meeting
brought the team together for introductions, review of the project to include the current requirements from the Joint Commission, review of current policy and identifying our “one source for truth” where medications are concerned. This information was used by the team to develop a flow chart of the current process. The second meeting was spent reviewing and clarifying the flow chart developed in the first meeting and discussion of the role of the various disciplines in that process. The forms currently used by the different staff were also reviewed. The team identified several gaps in the current process and discussed how best to fill those gaps. Through this discussion, it was identified that the process for reconciling medications at discharge was well developed and effective. This process was:

• Generate the discharge report.
• Review and discuss the medications on the list with the patient/parent.
• Indicate the appropriate actions to take on each medication.
• Write orders for any new medications in the designated area on the report.
• The report is reviewed by a clinical pharmacist and nurse.
• After review, the clinician will enter any prescriptions for discharge in our EMR, but medication orders to be carried out in our clinic or infusion center will remain on the report as a paper order.
• The document is signed by the clinician and pharmacist.
• The document is faxed to our outpatient and inpatient pharmacies for processing.
• The original is placed in the patient chart.
• The clinical pharmacist documents completion of medication reconciliation in our EMR.
• The nurse provides the parent/family with a printed discharge medication list. The medication list includes all outpatient prescriptions and directions for medication administration which are presented in a patient friendly language.

The group identified a plan to capitalize what worked best with this process and apply the same concepts to the admission and transfer processes. The consensus of the team was to investigate the possibility of developing a form similar to the discharge form to use for admission and transfer. This form would be used by all disciplines and would pull information from the medication profile, which is the “one source of truth” for medications. It also was identified that the parents/patients needed to be asked more than once to review the list, because they seemed to remember additional information at different times. A draft policy was developed.

The team realized after reviewing the complexity of the inpatient process that attempting to do both inpatient and outpatient at the same time was not feasible. The decision was to focus on the inpatient process, and after it had been implemented, bring the team together to review its success. The team will then use the lessons learned from implementing the inpatient process to develop the outpatient process.

At the same time that this group was meeting to address the medication reconciliation process, a group was also meeting to develop an electronic nursing admission assessment form which included medication review at admission by the nursing staff. There was cross representation by one team member on both of these groups, so the work of each group was discussed in each team so that comparable solutions were developed.

**RESULTS**

The current results of this performance improvement group are the development of a draft policy that indicates what part of the reconciliation process each member of the care team is responsible for at differing points of patient care and how each is supposed to complete this task. The team also recommended the development of unique medication reconciliation reports that will be used at admission and transfer to complement the one currently used at discharge. Keep in mind that our current state is full CPOE with the exception of medications to be given during the patient’s inpatient stay. We need a paper process for ordering medications and a plan to convert this to an electronic plan in the near future as CPOE is completed with the clinician entering inpatient medication orders.

For admission, the process will be for the admitting clinician to generate the admission medication reconciliation form. This form will include all existing take-home medications on the medication profile in the EMR and allow the clinicians at the time of entering/writing admission orders to indicate whether to hold, discontinue, or convert to an inpatient medication, and the ability to write new medication orders.

The process also includes the nurse review of the medication history with the patient within 24 hours of admission. The electronic admission history has a section that displays the updated medication profile as it appears after the reconciliation was completed by the admitting clinician. The nurse is to review the profile, make sure it is accurate, identify any discrepancies, document the discrepancies and notify the admitting clinician and/or the clinical pharmacist for the patient.

The transfer medication form will allow the same options as the patient is transferred to a new level of care, continuing to identify those medications that were placed on hold for the admission. Discharge medications are entered electronically prior to discharge. The discharge medication form allows the staff to review and restart or discontinue held medications prior to completing all discharge orders. The discharging nurse is to print the patient discharge summary to review all discharge orders with the patient, including medications. This report is signed, a copy is provided to the patient and the form is kept in the medical record.

**CONCLUSIONS**

At the time of this writing, the processes we have identified have been developed and partially implemented. The policy is ready to be reviewed and approved for piloting by the nursing clinical council and the inpatient council. Then it will be piloted on one unit for no longer than one month. Staff will be surveyed to identify opportunities for improvement of the form and the flow. These improvements will be incorporated in the final draft policy which will be presented to the Medical Executive Committee for approval. With final approval of the policy, all inpatient staff will be educated and the process will be implemented. Quality Management will monitor the process during the pilot and after full implementation to identify additional opportunities for improve-
ment. In addition, we will implement CPOE for all inpatient medication orders within the next few months and will need to modify this process so that the clinician will be able to review medications while entering their orders electronically. This may require continued use of the paper reports we developed, or the development of an electronic equivalent.

Additionally, we have not yet addressed outpatient medication review. It is relatively common that an outpatient in our setting require very few inpatient admissions and even possible for an outpatient to never have an inpatient assessment. Relying on medication reconciliation to occur at admission, transfer or discharge would result in a significant part of our patient population being missed. For this reason, a process for periodic medication review for recurring outpatient visits was defined. Our institution is fully utilizing CPOE on our outpatient population, including all medication orders, so this process is completely electronic. Our outpatient population may be seen as often as daily or as infrequently as annually. The proposed process is that every time a patient is scheduled for a physical exam, the examining clinician is expected to review the medication profile with the patient and make the appropriate changes as indicated. Limiting the medication review only to times when a full physical examination is done would eliminate additional follow-up visits during the week and most often occur once a week at the most. If the patient has multiple physical examinations in a week, the reconciliation is to be done no more often than weekly. This visit will often coincide with the patient’s primary care physician, with other visits during the week often taking place with a nurse practitioner, physician assistant or other clinical staff member. This proposed process will not be put in place until the admission/transfer/discharge process has been in place for a while and evaluated.

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