



39th Annual Meeting

*Mastering Person-Centered Care
Through Improved Communication, Care Transitions, and Palliative Care*

Medication Reconciliation Panel

Panelists

Nancy Beecham, RN-BC, FACDONA/LTC

Flora Brahmhatt, PharmD, CGP

Jay Luxenberg, MD

Disclosures

Nancy Beecham and Jay Luxenberg have no relevant financial relationships with commercial interest to disclose.

Flora Brahmhatt, PharmD, CGP is on the speakers bureau for Avanir Pharmaceuticals, Forest Pharmaceuticals, Inc, and Optimer Pharmaceuticals, Inc.

Learning Objectives

Participants will be better able to:

- Differentiate review of medications from medication reconciliation
- Recognize the role of medication reconciliation in inpatient versus outpatient settings.
- Review evidence supporting patient benefits from reconciling medications
- Using cases, identify how medication reconciliation can prevent unintended inconsistencies in medication regimens and adverse consequences.

Making the Case

Case Example #3: External Transfer Medication Reconciliation

A 49 year old female with history of Type I Diabetes Mellitus, kidney transplant and recent diagnosis of breast cancer with spinal metastasis was admitted for a vertebroplasty and kyphoplasty secondary to spinal fractures due to metastatic disease. She was discharged home on 9/3. On 9/6 she presented to a different healthcare facility with fevers and was transferred to the primary healthcare facility on 9/8. Records from secondary facility stated that the patient had a low-grade fever and blood cultures were positive for gram positive cocci and gram negative rods. Transfer medications of note, included Vancomycin and Gentamicin. Upon arrival the patient was afebrile. The physician reviewed the records sent with the patient but did not note the gram negative blood cultures in the history and physical and did not continue the gram negative antibiotic coverage. The hospitalization was prolonged and required surgical intervention due to the infection at the previous surgical site.

Critical Thinking

- 1) Would medication reconciliation have avoided this error from occurring? If so, how?
- 2) What is the process at your organization for external transfer patients and would it have been able to prevent a similar event from occurring?
- 3) What disciplines are expected to reconcile medications for external transfer patients at your organization?

Case Analysis

External transfer situations can be extremely complex. Any time a patient is transferred from another institution or a different level of care within the same institution, they are at risk for medication errors. There is so much information in the medical record on each patient that it can be very time consuming and difficult to identify exactly what medications a patient was receiving at another institution. The case above highlights the need for a complete review of the patient's medication regimen at the outside institution as well as a careful check that no medications were omitted from the patient's care plan at the new care setting. Depending on how an organization addresses external transfer patients, a physician, nurse and/or pharmacist must pay very close attention to all medications at the outside institution compared to what has been ordered at the new care setting and the patient's home medications.

Conclusions

- External transfer is a vulnerable process for medication error

- Thorough review of a patient's medication given at an outside institution is crucial in order to make decisions about what medications need to be ordered at the new care setting
- Medication reconciliation is an essential process for external transfer patients to ensure the patient's medications at the outside hospital are ordered appropriately at the new care setting
- A process can be established so that physicians, nurses and/or pharmacists can help ensure that all medications are reviewed and ordered appropriately for external transfer patients

Making the Case

Case Example #2: Medication Reconciliation on Discharge

An 87 year old male with a past medical history of coronary artery disease, heart failure, atrial fibrillation, hypertension and severe mitral regurgitation presented on 4/17 for a colonoscopy/esophagogastroduodenoscopy (EGD) to rule out bleeding after an acute drop in hemoglobin. A complete medication history was obtained on admission and documented in the medical record. Of note this patient was on various medications including warfarin therapy. The patient's warfarin had been held since 4/10 in preparation for the procedure. He tolerated the procedure without complications. The patient was discharged home with written instructions not to take aspirin/non-steroidal anti-inflammatory drugs (NSAIDs) for 10 days after the procedure. The patient followed up with the cardiologist on 4/19 but missed an appointment in the warfarin clinic on 4/26. On 4/31, the patient's spouse found him unresponsive. He was admitted with left sided weakness, slurred speech and mental status changes. A computed tomography (CT) scan on admission was negative and his INR was 1.2. The family informed the medical team that the patient had not resumed the warfarin after his 4/17 colonoscopy. A repeat CT scan on 5/1 revealed large right frontal/temporal/occipital ischemic stroke. The patient was emergently intubated and treated for elevated intracranial pressure. A CT scan confirmed a large right cerebral hemispheric infarct, and the patient's condition was determined to be inoperable. Care was withdrawn and he expired later that evening.

Critical Thinking

- 1) At what point in the hospital stay was medication reconciliation done?
- 2) When is medication reconciliation required by the Joint Commission?
- 3) What could have been done differently, avoiding this medication error from occurring?

Case Analysis

On admission a complete medication history was taken for this patient. The patient had appropriately stopped the warfarin therapy prior to an invasive procedure. A full medication history was documented in the medical record at the time of admission. On discharge, the process did not work effectively. The patient was instructed not to take aspirin or non-steroidals but no instructions were provided for the other medications. Due to the lack of communication and appropriate documentation, the patient assumed he was to continue to hold his warfarin.

This case highlights the need for medication reconciliation on discharge. Although a medication history was obtained and documented for this patient in the medical record, it was the lack of discharge medication reconciliation caused this error. This case highlights that it is imperative that every patient leaves the clinical setting with an

updated list of home medications. This updated list should include all new prescriptions as well as a detailed list of what previous home medications are to be continued, continued with modifications or discontinued. This updated list should always be given to the patient as well as the next provider of care. In addition to giving a patient an updated medication list, counseling the patient on the changes in the medication regimen will reinforce what changes were made as well as allow the patient and/or patient's family to ask questions about the new medication regimen.

Conclusions:

- Medication reconciliation is important at ALL transitions in care
- An updated home medication list must be given to the patient and communicated with the next provider of care
- Counseling patients on recent changes made to their home medication list at discharge will increase compliance with medication regimens and decrease harm associated with medication reconciliation failures at discharge

Making the Case

Case Example #1: Medication Reconciliation on Admission

A 40 year-old patient presented with complaints of chronic left upper arm pain and swelling. Patient's past medical history included: end-stage renal disease (ESRD), multiple deep vein thromboses (DVTs), hypertension (HTN), bone fractures secondary to renal bone disease, anemia, and hypothyroidism. On admission, the physician interviewed the patient to obtain a history and physical. The patient had brought in prescription bottles to the hospital and the physician recorded all the medications and doses. The physician then placed the admitting medication orders. Following the physician-patient interview, a pharmacist interviewed the patient to obtain a medication history. The pharmacist also referenced the patient's medication bottles previously used by the physician. Below are the medication histories from the physician and pharmacist and the admitting medication orders. All medications were documented and ordered as oral medications.

Medication Reconciliation Case #1

Physician H&P	Admitting Orders	Pharmacist Interview
Prednisone 1mg Daily	Prednisone 1mg Daily	Prednisone 2mg Daily
Synthroid 0.025mg Daily	Synthroid 0.025mg Daily	Synthroid 0.1mg Daily
Sirolimus 6mg Daily	Sirolimus 5mg Daily	Sirolimus 6mg Daily
Warfarin 7.5/5 Daily, alternating schedule	Hold Warfarin	Warfarin 7.5mg MWF, 5mg Tu/Th/S/S
Nifedipine XL 60mg Daily	Nifedipine XL 60mg Daily	Nifedipine XL 60 mg BID
Enalapril 10mg Daily	Enalapril 10mg Daily	Enalapril 10mg Daily
Furosemide 40mg Daily	Furosemide 40mg Daily	Furosemide 40mg Daily
Calcitriol 0.5mcg Daily	Calcitriol 0.5mcg Daily	Calcitriol 1mcg in AM and 0.5mcg in PM

Critical Thinking

1) In Case #1, what were the discrepancies between:

- The physician medication history and the admitting medication orders?
- The physician and the pharmacist medication histories?
- The medication histories documented by the physician and pharmacist and the admitting medication orders?

2) If the physician and the pharmacist were both interviewing the same patient and both referenced the patient's medication bottles, what would cause such discrepancies in the medication histories obtained and the admitting medication orders placed?

Medication Reconciliation Case #1

Physician H&P	Admitting Orders	Pharmacist Interview
Prednisone 1mg Daily	<i>Prednisone 1mg Daily</i>	<i>Prednisone 2mg Daily</i>
<i>Synthroid 0.025mg Daily</i>	<i>Synthroid 0.025mg Daily</i>	<i>Synthroid 0.1mg Daily</i>
<i>Sirolimus 6mg Daily</i>	<i>Sirolimus 5mg Daily</i>	<i>Sirolimus 6mg Daily</i>
<i>Warfarin 7.5/5 Daily, alternating schedule</i>	Hold Warfarin	<i>Warfarin 7.5mg MWF, 5mg Tu/Th/S/S</i>
<i>Nifedipine XL 60mg Daily</i>	<i>Nifedipine XL 60mg Daily</i>	<i>Nifedipine XL 60 mg BID</i>
Enalapril 10mg Daily	Enalapril 10mg Daily	Enalapril 10mg PO Daily
Furosemide 40mg Daily	Furosemide 40mg Daily	Furosemide 40mg Daily
<i>Calcitriol 0.5mcg Daily</i>	<i>Calcitriol 0.5mcg Daily</i>	<i>Calcitriol 1mcg in AM and 0.5mcg in PM</i>

Above highlights the differences in the medication histories of the physician and pharmacist as well as the discrepancies from the medication histories to the admitting medication orders?

Case Analysis

This case highlights the importance of obtaining a complete and accurate history on admission to the hospital and reconciling the home medication list with the admission orders.

When a patient is admitted to the hospital, he or she is often overwhelmed with everything that is going on. Engaging the patient in a dialogue about their medication regimen may ensure a more comprehensive medication history than asking close-ended questions. If a patient brings in prescription bottles and/or a medication list, we have a good start to obtaining a complete and accurate medication history but it should not stop there. It is very important to go over the prescription bottles and/or medication list with the patient and/or patient's family. It is essential to remember that the bottles or medication list may not be updated to reflect how the patient is currently taking their medications. For example in the case above, the patient's medication bottle read Nifedipine XL 60mg daily which the physician documented in the H&P and ordered on admission. When the pharmacist interviewed the patient, he specifically asked the patient if they were still on that same dose of Nifedipine XL and the patient responded that the

dose had recently been increased to Nifedipine XL 60mg twice daily. A good rule of thumb is that information about a patient's medications found in previous medical records, on prescription bottles or on a patient's own medication list are a great place to start when compiling a medication history but you must always verify with the patient or the patient's family that the information is up to date before making any assumptions about what the patient was taking prior to admission.

The second error occurred when the physician placed an order for sirolimus 5mg daily instead of 6mg daily. This discrepancy was noted when the pharmacist reconciled the medication history to the inpatient orders. Not only is it important to get a complete and accurate medication history, it is important to reconcile that list with inpatient orders to make sure no errors occurred. If this error had gone unnoticed, the patient could have become subtherapeutic on their immunosuppressive medication.

The case example above has other errors:

- During patient interview these discrepancies were identified:
 - Synthroid was 0.1mg not 0.025mg
 - Prednisone was 2mg Daily no 1mg Daily
 - Calcitriol was 1mcg QAM and 0.5mcg QPM not 0.5mcg Daily
- Additional Potential Discrepancies:
 - Warfarin was 5mg Tu/Th/Sat/Sun and 7.5mg MWF but was held on admission
 - Potential for patient to go home on a dose of 7.5/5mg alternating schedule

The same concepts apply to the other medication discrepancies found between the physician medication history, the pharmacist medication history and the admission medication orders.

Conclusions

- Obtaining a complete and accurate medication history on admission is an important step in making sure patient's home medications are documented and ordered appropriately
- There can be multiple information sources to obtain a patient's medication history but it is imperative that the information is only used as a starting point and does not replace a conversation with the patient and/or patient's family to obtain the most up to date medication information
- After obtaining the complete and accurate medication history, it is important to compare that information to current inpatient orders to verify that all medications were ordered appropriately