Safety First: The Role of the Pharmacist in Medication Reconciliation
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Learning Objectives
Upon completion of this activity, participants should be able to:
1. Discuss how pharmacists improve patient outcomes as a result of medication reconciliation
2. Describe the process of medication reconciliations
3. List strategies for identifying medication discrepancies

Improving Patient Safety through Medication Reconciliation
Background

Medication reconciliation is defined by the Institute for Healthcare Improvement (IHI) as “the process of creating the most accurate list possible of all medications a patient is taking — including drug name, dosage, frequency, and route — and comparing that list against the physician’s admission, transfer, and/or discharge orders, with the goal of providing correct medications to the patient at all transition points within the hospital.”

Medication reconciliation is currently performed by many different professions, some of which include physicians, nurses and pharmacists. The benefits of a pharmacist led medication reconciliation, as well as methods of performing medication reconciliations, will be discussed in this article.

Medication reconciliation is included as a part of The Joint Commission’s National Patient Safety Goals (NPSG). These goals are set forth by The Joint Commission and must be addressed in order for a health-system to receive accreditation. NPSG 03.06.01 deals specifically with medication reconciliations and is summarized as follows: “Record and pass along correct information about a patient’s medicines. Find out what medicines the patient is taking. Compare those medicines to new medicines given to the patient. Make sure the patient knows which medicines to take when they are at home. Tell the patient it is important to bring their up-to-date list of medicines every time they visit a doctor.”

Gathering Information for a Medication Reconciliation

There are many different sources to consider when gathering information for medication reconciliation. The most obvious source is the patient, who can verbally provide what medications they take; however, this method is often inaccessible. If a patient is admitted impaired or unresponsive it will not be possible to gain an accurate medication history from him/her. Additionally, it is common for patients to not know his/her medications by name but instead by shape, size or color.

Another, and probably the most useful source to consider, is the patient’s pharmacy. Obtaining a medication history from a community pharmacy indicates exactly what the patient is taking and is the most accurate source of information. However this source of information is not without its own issues. If the patient shops at multiple pharmacies, they may be taking other medications that the pharmacy would not
A study performed by Look and colleagues examined this issue of multiple pharmacy use, or MPU. It was discovered that during the study period of 2003-2009, “multiple pharmacy users used between 2 and 17 different pharmacies per year to obtain prescription medications.” Additionally, Look et al. found that the percentage of patients who use multiple pharmacies increased from 36.4% to 43.2% during the study period. The investigators in this study attributed this increase in multiple pharmacy use to mail-order pharmacy services. Another item to consider when obtaining information from a community pharmacy is the patient’s provider. The provider may have increased the dose of a particular medication, and rather than providing the patient with a new prescription, is just instructing him or her to take an increased number of tablets. Information such as this will not be reflected in the pharmacies record.

Some sources often overlooked are insurance or health plan claims. Medicare Part D Medication Therapy Management (MTM) programs often utilize prescription fill data to determine whether or not a patient is eligible for a comprehensive medication review (CMR). Essentially, a CMR is the community pharmacist’s equivalent of medication reconciliation. Community pharmacists have the ability to identify duplications, interactions, omissions or inappropriate medication therapy during a CMR.

A final source of information for medication reconciliation would be the health-system’s records. This route is ideal for patients who see providers that are within network; however, this method too is not without fault. Frank Federico, R.Ph., Institute for Healthcare Improvement (IHI) director, states, “The physician’s office has records, but they are difficult to keep current, especially if the patient has prescriptions from multiple specialists.” This method may also become less useful if a patient has not been seen for an extended period of time. Canada’s Institute for Safe Medication Practices’ (ISMP) Best Possible Medication History (BPMH) initiative states that gathering information from the patient, or patient’s family, should be verified by one other reliable source. Given the potential issues with each of the methods presented, it would be a good idea to follow Canada’s ISMP’s BPMH and use a combination of at least two of these sources to obtain the most accurate record.

Once all of the information about the patient is gathered, then it should be compared against the patient’s list of medications in his/her medical record. Any differences between these two lists, also called a medication discrepancy, should be corrected. Medication discrepancies can occur at any transition of care in the hospital setting. A medication discrepancy may include omitted medications, out-of-date dosages and non-active medications. It is thought that these discrepancies are, among other factors, the result of poor communication. Ideally, medication reconciliation will help to identify these medication discrepancies and correct them before they reach the patient thus preventing any potential harm.

Medication Discrepancies
Prevalence of Medication Discrepancies

Medication discrepancies are actually quite common in a health-system setting. In a study performed by Lau and colleagues, it was found that medication histories are often incomplete with up to 25% of home medications being omitted. Additionally, one study found that 53.6 percent of patients had at least one medication discrepancy upon admission. In this particular study 61 percent of these discrepancies were identified as having little to no potential for harm, while 33 percent had the potential to cause moderate clinical deterioration and six percent were identified as having the potential to cause severe clinical
deterioration. In a separate study performed by Pippins, pharmacists found an average prevalence of 1.4 unintentional medication discrepancies per patient that had the potential for patient harm.\textsuperscript{8}

**Impacts of Medication Discrepancies**

Medication discrepancies have a negative effect on patients. In a study performed by Coleman et al. researchers found that in patients 65 years and older, 14.3 percent of those who had a medication discrepancy were re-hospitalized at 30 days compared to the 6.1 percent of the patients who did not experience a discrepancy.\textsuperscript{9} Additionally over 770,000 people are injured or die every year as a result of adverse drug events.\textsuperscript{10} Every adverse drug event that occurs is associated with a monetary cost of $3,420 and an increased length of stay by 3 days.\textsuperscript{11} In another study, each preventable adverse drug event was reported to cost an average of $8,750 more than a hospital stay without an adverse drug event reported.\textsuperscript{12} Due to the high morbidity, and monetary effects of adverse drug events, it is even more important for pharmacists to become involved in medication reconciliations to prevent these events from occurring.

**Impact of a Pharmacist in Medication Reconciliation**

There are many studies that highlight the benefits of pharmacist performed medication reconciliations. In a study performed by Nester et al., pharmacists initiated more interventions when compared to nurse led medication reconciliation (34 percent compared to 15 percent).\textsuperscript{13} Nester also found that pharmacists confirmed the use of herbal or non-prescription medications more frequently (98 percent versus 70 percent). Another study performed by Lancaster and colleagues found that student pharmacists found more medication discrepancies compared to physicians and nurses (10.2 per patient, 7.1 per patient, and 6.8 per patient respectively).\textsuperscript{14} Additionally, Mergenhagen et al. found that pharmacists document more changes than physicians following completion of a medication reconciliation (3.6 versus 0.8).\textsuperscript{15} Pharmacists not only discover more medication discrepancies, but they also have more interventions and document more changes than other healthcare providers.

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**STOP and Reflect**

**Scenario:** Johnathon is a 31 year-old male who presents to the ED with a complaint of abdominal pain. While interviewed, he states that his Metoprolol dose is 50 mg taken orally twice daily. He also states that he was started on Lantus 10 units subcutaneously at bedtime. In the medical record it states that his Metoprolol dose is 25 mg PO BID, and Lantus is not listed. Upon further questioning, Johnathon states that his blood pressure medication dose was recently increased and he only just started on Lantus last month. What kinds of discrepancies have occurred in this case?

**Answer:** The discrepancy with Metoprolol is an out-of-date dosage, while the issue with Lantus is an omitted medication. Both of these discrepancies should be accounted for and corrected in the medical record.

**Establishing a Medication Reconciliation Program\textsuperscript{16}**
The Agency for Healthcare Research and Quality (AHRQ) provides guidance for establishing or revamping an existing medication reconciliation program for a health-system setting. The following is a list of the guiding principles for designing a successful medication reconciliation program put forth by the AHRQ:

- Develop a single medication list ("One Source of Truth"), shared by all disciplines for documenting the patient's current medications.
- Clearly define roles and responsibilities for each discipline involved in medication reconciliation.
- Standardize and simplify the medication reconciliation process throughout the organization and eliminate unnecessary redundancies.
- Make the right thing to do the easiest thing to do within the patterns of normal practice.
- Develop effective prompts or reminders for consistent behavior if true forcing functions (i.e., required reconciliation step presented to the physician during admission order entry within an electronic health record [EHR] are not possible).
- Educate patients and their families or caregivers on medication reconciliation and the important role they play in the process.
- Ensure process design meets all pertinent local laws or regulatory requirements. Linking medication reconciliation to other strategic goals (e.g., heart failure publicly reported process of care measures related to discharge instructions on medications) and/or other initiatives (e.g., a hospital project working on improving patient satisfaction related to pain management or patient communication regarding medications) when appropriate can also strengthen the importance of this process.

One of the most important concepts in the above list is the idea of the “One Source of Truth.” This medication list should be the singular list that all healthcare professionals should be utilizing. When all healthcare providers work from the same document, errors are minimized and coherence between disciplines is improved.

Another important concept that the AHRQ touches on in regards to setting up a medication reconciliation program is defining the roles and responsibilities of each health profession. AHRQ recommends that the first step in this process is to identify admission points within the organization. Based upon these admission points, determine which discipline(s) would be available to initiate the medication reconciliation process. If a pharmacists is available at an admission point, based upon evidence presented earlier, it would be of benefit to the patient to have a pharmacist initiate the medication reconciliation. Once it is identified what discipline will be undertaking this task, communicate clearly and effectively the roles and responsibilities. The AHRQ states that specifically defining these roles can help to prevent any ambiguity that might prevent medication reconciliation from occurring.

AHRQ recommends that prompts within the electronic health record should remind providers to perform medication reconciliations. This should help providers remember to perform medication reconciliations, and it should also inform other health professionals of changes that may occur in therapy. Some of these changes may include discontinuation or modification of drug therapy. In facilities with paper records, it is encouraged to have medication reconciliation forms in a highly visible area to serve as a reminder. Regardless of the record keeping system, clinicians need to be consistent in order for patients to receive benefits from a medication reconciliation program.
One computer program that may help to facilitate consistency between providers is the Michigan Health Information Network’s (MiHIN) Admit-Discharge-Transfer (ADT) notification service. This service electronically pushes ADT notifications to all healthcare providers that a patient sees. This information is then received by providers, and they can then decide what to do with the information. One of the greatest potentials in this system is the ability to push discharge medication reconciliations directly to other healthcare offices which ensures that providers maintain an accurate medication list.

Finally it is important that the patient understands their pivotal role in medication reconciliation. The patient should be educated on the importance of maintaining a complete and comprehensive medication list. Keeping an updated list should help to increase patient understanding and adherence to medication regimens, which in turn makes patient information gathering more accurate. When patients are actively engaged in their healthcare, everyone benefits.

### STOP and Reflect

**Scenario:** Riley is a decentralized clinical pharmacist a local health-system. During the implementation of a medication reconciliation program, she notices that nurses and physicians are referencing different medication lists throughout the care of the patient. What steps can be taken to increase coherence between professions and improve patient care?

**Answer:** The best option would be to establish a patient medication list to serve as the “one source of truth.” To have all providers referencing the same medication list will improve consistency and ultimately patient care.

### Summary and Conclusions

Pharmacists can have a profound effect on the patients through the simple act of performing medication reconciliation. Because of a pharmacist’s pharmaceutical knowledge, they are the most qualified healthcare professional for the job. For the sake of patient safety, pharmacists should be involved in medication reconciliation.

### References


