

# Comprehending and Ameliorating Medication Reconciliation in a Community Hospital

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## Introduction

Medication reconciliation is the process of creating the most accurate list possible off all medication patients is taking including drug name, doses, frequency and route, and comparing that list against the physician's admission, transfer and/or discharge order with a goal of providing correct medication to the patient at all transitions [1].

The average hospitalized patient is subject to at least one medication error per day. More than 40% of medication errors are believed to result from inadequate reconciliation in hands-off during admission, transfer and discharge of patients. Of these errors about 20 % are believed to result in harm. Many of these errors could be averted if medication reconciliation processes were in place [2]. There are various types of medication errors that can happen ranging from wrong drug administered to wrong route or even the wrong patient. Depending upon the type of error there can be no harm to severe harm done to the patient.

Quality improvement (QI) is a systematic, formal approach to the analysis of practice performance and efforts to improve performance. QI involves both prospective and retrospective review. It is aimed at improvement – measuring where you are and figuring out ways to make things better. It specifically attempts to avoid attributing blame, and to create a system to prevent errors from happening [3].

## Objectives

Our hospital is a community hospital located in the rural area of Pennsylvania just in the border between New York and Pennsylvania. Because of its location it acts as a referral center for most of the small community hospitals nearby thereby getting multiple patients which are new to our system. With that arises a risk of incomplete medication reconciliation. Most of the patients and their families are not aware of a complete list of medications the patient is taking, as well as the frequency and the dose. A large portion of patients are admitted from nursing homes and are on many medications. In these patients there sometimes arises disparity between the list of medications in our hospital records compared to what the patient is taking in the nursing home. Changes during their nursing home stay are not always provided to update in our hospital system. There was a dire need for some changes in the medication reconciliation process so that we can avert as much harm to patients as possible.

The main objective of this QI project was to improve the ongoing medication reconciliation process mostly in patients with multiple medications in whom errors are most likely to occur. Medication reconciliation would ultimately decrease the patient safety error due to medication error. This objective was targeted to achieve by educating the medical staff about medication reconciliation and the harm it can cause if not done properly and making them aware of different ways of doing proper medication reconciliation.

## Methods

The quality improvement project was conducted from September to October 2017 on a specific targeted patient population who were admitted on 2 floors of our hospital. The criteria for the patient selection was that the patient should be on at least 8 medications excluding the PRN medications and OTC medications. Only patients who were admitted or transferred to two floors, cardiac floor known as 6NW and the floor where hospitalist patients are admitted most which is also called 7 Main, were included. The main objective of only including these patients was that these are the patients with many medical problems and cardiac problems and who are on many medications which get changed frequently.

The project was divided into 2-time periods. Pre-intervention and post-intervention. Initially charts were reviewed during pre-intervention period, where a total of 50 patient charts were reviewed. During that period, we looked for the incompleteness of medication reconciliation, which included but was not limited to no dose entered for home medication, no last taken date, medication not removed that the patient is not taking and no removal of duplicate medication from the MAR. We also looked for the errors including not resuming the important home medication even if it was not contraindicated, and resuming medication which the patient should have stopped taking.

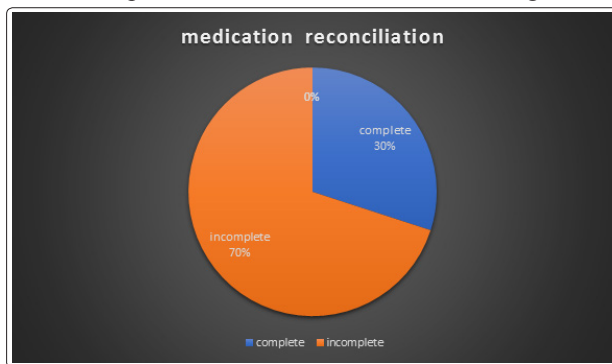
The intervention was conducted on 19<sup>th</sup> September and consisted of an educational program for residents and nurses. A small lecture was given to the residents about the medication reconciliation process and the proper way to do it. Education was conducted on the targeted floors and the ED to educate the nurses about the medication reconciliation process. Also, flyers were distributed to the nurses and were posted in the floors. Flyers contained different ways that can be utilized for proper medication reconciliation.

The first approach on the medication reconciliation should be asking the patient about their medication, their doses and timing. Some of the patients are very knowledgeable and can provide complete information. If the patient is not able to provide the information patient relatives can be asked to bring the bottles of medication. If the patient is coming from rehab we can ask for a list of medication from the rehab and compare it with ours. The next approach would be to call the pharmacy and ask about the medication the patient has been prescribed. Medication reconciliation can also be done from PCP notes or if recently discharged from the discharge summary but we must be cautious because they too might have errors.

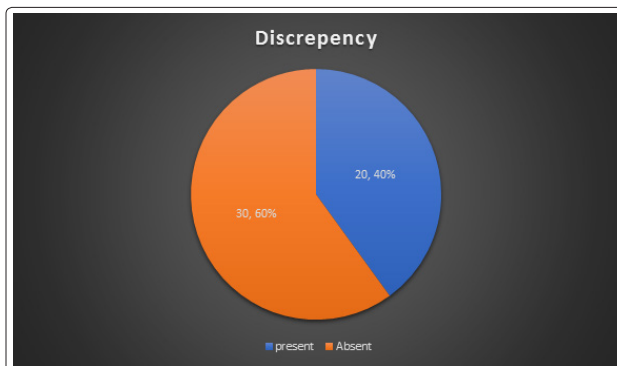
After teaching these ways of medication reconciliation approach, post-intervention data were collected. During post-intervention we looked at the similar things as we did in pre-intervention.

### Results

Data were collected from 6<sup>th</sup> of September to 2<sup>nd</sup> of October. Intervention was done on 19<sup>th</sup> of September. During the pre-intervention period 50 patients chart were reviewed who met our criteria of 8 or more medications and admitted or transferred to the 2 selected floors. Of the 50-patients enrolled in the pre-intervention period, 35 patients had incomplete medication reconciliation. Discrepancies were present on 20 patient's medication reconciliations. Most of the discrepancies were for dosing. Other discrepancies included duplicate medications, old medication not removed and important medication not resumed during admission.



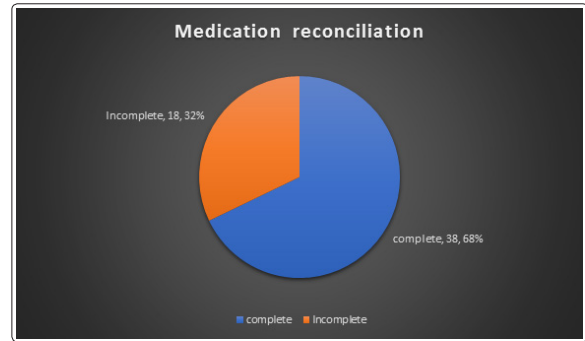
**Figure 1:** percentage of complete and incomplete medication reconciliation during preintervention period.



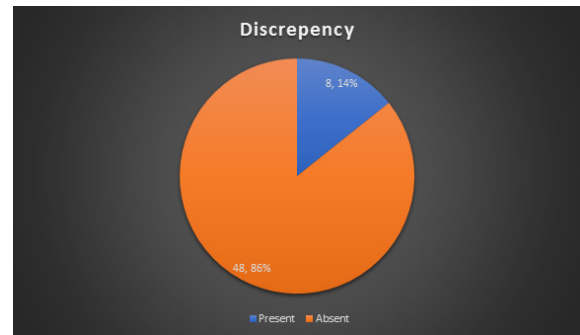
**Figure 2:** number of discrepancies present during preintervention period.

During the post-intervention period, 56 patient charts were reviewed. Among them 18 patient charts had incomplete medication reconciliation and discrepancies were present on 8 patient's charts.

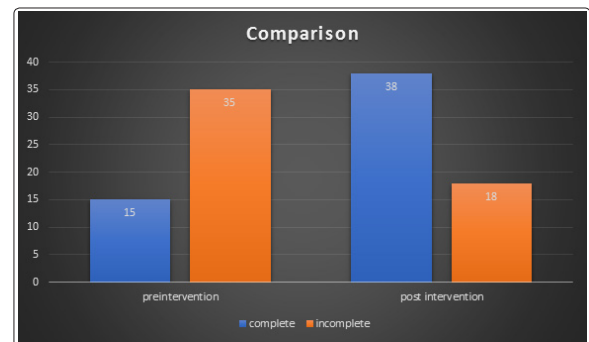
And again, the discrepancies were the similar kinds including dosing, duplicate medication and old medication not removed.



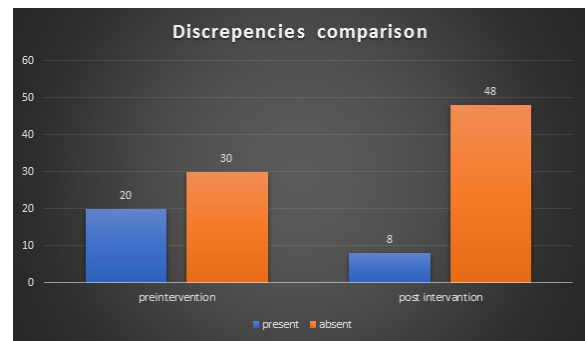
**Figure 3:** percentage of complete and incomplete medication reconciliation during post-intervention period.



**Figure 4:** number of discrepancies present during post-intervention period.



**Figure 5:** comparison between complete and incomplete medication reconciliation during pre and post-intervention.



**Figure 6:** comparison between discrepancies during pre and post-intervention.

So, in comparison to 70 % of incomplete medication reconciliation present in pre-intervention period, it dropped to 18% in post-intervention period. And discrepancies were down from 40% to 14%.

## Conclusion

Error and discrepancy do occur during medication reconciliation. Mostly occurs during transfer to floor from ICU or ED and on those patients who have multiple medications. Other discrepancies occur during admission from the nursing home or discharge to the nursing home.

Medication reconciliation is a multidisciplinary approach. It involves, doctors, Nurses, PA, NP, pharmacist, patients and their relative as well. If all put their effort in proper ways then complete and accurate medication list can be maintained. There are various reasons for improper medication reconciliation. Now we are in the era of EMR, but if the EMR is not user friendly it poses problems. Not knowing every aspect of EMR can have a negative impact on medication reconciliation and discrepancies, and error can occur. Improper documentation during previous admission or improper documentation by PCP can also lead to errors in medication reconciliation. Another problem during medication reconciliation is lack of knowledge between patient and family members, making it difficult to get the complete list of medications.

Communication is another important aspect of medication reconciliation. During our short QI project, we found that there is a lack of communication which can be between, doctor and nurses, health care providers and patients/families, and between health care providers and the pharmacy.

High patient load is another reason for improper medication reconciliation. A single nurse has to take care of multiple patients causing them not to have enough time for proper reconciliation. A

single physician gets many admissions in a short period of time and has to deal with other patients as well, Due to high patient load there will be compromises in proper medication reconciliation.

It is impossible to eliminate medication reconciliation error but some steps can be taken to reduce it. Proper training should be given to health care providers about the EMR and how to do the medication reconciliation completely. Patient and family members can be educated about the need of having a complete list of medications that they are taking along with the dosing and timing. Communication with the pharmacy is another key to proper medication reconciliation.

There is a dire need of appointment of a medication historian whose job would be to do complete medication reconciliation for the patient coming to the ED or the patients who are transferred from other hospitals or nursing homes. This will take away lot of stress from nurses and physicians and they can focus of other aspects of patient management. A perfect fit for a medication historian would be a pharmacist but nurses and other health care aids can be appointed for this job.

Medication reconciliation is one of the important aspects of patient management and it can be achieved if there is a proper historian and coordination between all the people involved in taking care of that patient.

## References

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