University of New England College of Osteopathic Medicine,
Northern Light Family Medicine and Residency

Identifying Barriers to Successful Medication Reconciliation in a Family Medicine Outpatient Setting

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Background

Inaccuracies in medication reconciliations correlate with over 100,000 preventable hospitalizations yearly and amass nearly one billion dollars in healthcare costs.

In an outpatient setting it is particularly essential to accurately manage medications as patient conditions evolve, particularly with the growing number of chronic disease requiring polypharmacy or previous failed medication trials. The World Health Organization (WHO) recommends a multidisciplinary team-based approach to reconciliation.

- Common medication discrepancies reported by medical assistants include changes to dosage, patients reporting or bringing in incorrect medications, and misunderstandings between generic and name brand medications.

- Discrepancies reported by physicians include conflicting dosages, unverified medications, and polypharmacy with patient uncertainty.

- Barriers reported in outpatient settings include lack of time, EMR challenges, patients' misunderstanding, lack of standardized workflow and communication.

Objectives and Methods

Project Aim:

To gather quantitative and qualitative data on medication reconciliations within the Northern Light Family Medicine and Residency outpatient clinic. Our aim is to first determine if medication reconciliations are being completed by the medical assistant staff. Secondly, in cases where reconciliation is not accurately performed, out aim is to explore potential driving factors.

Methods:

Population: Patient subjects were selected based on the schedules of medical students. Factors affecting selection include time availability, patients' preferences for interacting with medical students, and the nature of the patients' visit.

Intervention: Medication reconciliation may be completed with the patient by reviewing medications one by one to identify any discrepancy between the active medication list and what the patient is actually taking from their list.

Outcome: Identifying discrepancies during medication reconciliation to ensure an accurate and complete medication list so that information can be used for continuum of care.

Comparison: Analytical study to determine the relationship between a completed medication reconciliation and an accurate reconciliation.

Procedure:

- Medical students in the family medicine rotation completed medication review on the EMR of patients they are scheduled to see that day.
- After the Medical Assistants see the patient, medical students confirmed that medical reconciliation was completed by the medical assistant according to the EMR.
- During the patient encounter, the medical student explained the project and personally reviewed the medication list with the patient to identify discrepancies on the EMR. If the medication list was accurate and completed by the medical assistant, it qualified as an "accurate" medication reconciliation. If the medication list was inaccurate, it qualified as an "inaccurate" medication reconciliation.
- Medical students recorded the number of accurate and inaccurate medication reconciliations. They recorded the patient's age, gender, and the number of medications on the list. If the MA medication reconciliations were inaccurate, the inaccuracies are recorded. If possible, they proposed reasons why the medication reconciliation was inaccurate based on patient encounter and analysis.
- Data collection is performed using secure Microsoft form. Results are not stored on any desktop.

Results

Data Summary:

- Sample size: 45 total medication reconciliations (45 patients)
- Mean # of medications per list: 9.09 medications
- Mean age: 53.4 years
- Total accurate medication reconciliations: 24 (53.3%)
- Total inaccurate medication reconciliations: 21 (46.7%)

Summary of medication reconciliation verifications per student			
Student	N	Total accurate medical assistant medication reconciliations	Total inaccurate medical assistant medication reconciliations
CAL	9	6	3
LP	11	4	7
MA	14	12	2
NN	11	2	9

Number of inaccuracies by type of inaccuracy	
A total of 409 medications were reviewed, 45 medications were inaccurately reconciled	
Type of inaccuracy:	# of medications:
Medication listed as "still taking", patient is not taking the medication	14
Medication listed as "still taking", patient is taking the medication but not as prescribed	3
Medication listed twice in two different doses as "still taking" both doses, but the patient was only taking one dose	2
Medication not checked and left blank	21
Patient taking a medication that was not on the medication list	5

Results

Accuracy of medication reconciliation by patient age:

Group	Accurate Reconciliations	Inaccurate Reconciliations
n	24	21
Mean age	47.7	59.9
SD	23.3	18.5
SEM	4.75	4.04

Accuracy of medication reconciliation by # of medications on the patient's list:

Group	Accurate Reconciliations	Inaccurate Reconciliations
n	24	21
Mean # of medications on list	5.83	12.81
SD	3.94	7.16
SEM	0.80	1.56

Accuracy of medication reconciliation by gender:

Gender	F	M	Non-binary
Total medication reconciliations	27	17	1
# Accurate medication reconciliations	12 (44.4%)	11 (64.7%)	1 (100%)
# Inaccurate medication reconciliations	15	6	0

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Discussion

Number of Medications on the Patient's List:

- The mean number of medications on patients' lists for an accurate medication reconciliation was 5.83, whereas the mean number of medications on the list for an inaccurate reconciliation was 12.81. This highlights that as the number of medications on the list increases, the accuracy of reconciliation decreases.

- This result may be due to shorter lists taking less time than a list that is longer.

Patient Demographics:

- Medication reconciliations done with male patients were more accurate than medication reconciliations with female patients. In addition, medication reconciliations were more accurate in younger patients compared to older patients.

- It is possible that, if these differences are statistically significant, this could highlight inherent biases in the medication reconciliation process or medical system as a whole. Further investigation would need to be done on this topic.

Verification by Medical Students:

- There is a discrepancy in the accuracy reported between medical students.

- One possible reason for this may be related to the limited data collected during the project. Another reason may be uncertainty between students regarding how to define and accurate medication reconciliation.

In observing 45 patient encounters, an accurate medication reconciliation occurred in 53% of visits. Common themes and reasons for successes and failures that emerged during this QI study are discussed.

Type of Inaccuracy:

- Of 409 total medications that were reviewed, 45 medications were inaccurately reconciled. Of these 45, a majority (21 medications) were not checked at all and left blank. There may be many reasons for this (e.g. time limitations, inconsistent understanding of role) and further work to identify the reason must be done.

- Of the 45 medications inaccurately reviewed, 14 of the medications listed as "still taking" in the EMR, the patient reported to the medical student that they were not actually taking them. This may be due to misunderstanding and barriers in communication.

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Conclusion & Considerations Moving Forward

Overall, the rate of accurate medication reconciliation was 53%. There are several areas to explore for future research for improvement in the reconciliation.

Barriers to successful medication reconciliation have been identified and serve to guide future efforts for quality improvement, however, more information is needed:

- Information regarding type of patient visit should be assessed in the future, as this category may influence whether reconciliation is completed.

- Further information regarding number of staff vs. number of patients (and thus, amount of time with each patient), and type of staff involved for understanding of team roles in this process.

- It may be helpful to understand how physicians and medical assistants define inaccuracies and communicate discrepancies in the reconciliation process

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References

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