Implementing a Medication Reconciliation & Order Form on a Surgical Unit
Does it Reduce Discrepancies?

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Introduction

Medication Reconciliation is defined as a formal process of obtaining a complete and accurate list of each patient's medications (including name, dosage, frequency, and route) and comparing the physician's admission, transfer, and/or discharge orders to that list.

It is well-known that discrepancies can lead to Adverse Events (AEs). AEs are **unintended** injuries or complications that are caused by health care management, rather than by the patient's underlying disease. AEs may lead to death, disability at the time of discharge, or prolonged hospital stays. Preventing AEs is the driving force of medication reconciliation. The focus of this project was to decrease medication discrepancies upon admission to a surgical unit by implementing a Medication Reconciliation and Order Form (MROF).

This project is part of a larger Vancouver Island Health Authority (VIHA) initiative sponsored by the Canadian Patient Safety Institute known as the Safer Healthcare Now (SHN) campaign. It is a Canadian initiative that enlists healthcare organizations in implementing six patient safety interventions to improve quality of patient care.

Medication discrepancies were categorized* as follows:

Type	Discrepancy	Description
0	No discrepancy	
1	Intentional Discrepancy	Physician has made an **intentional** choice to add, change or discontinue a medication and it is clearly documented
2	Undocumented Intentional Discrepancy	Physician has made an intentional choice to add, change, or discontinue a medication but this choice is **not clearly documented**
3	Unintentional Discrepancy	Physician **unintentionally** changed, added, or omitted a medication the patient was taking prior to admission

*SaferHealthcareNow

Type 3 discrepancies were classified* by their potential to cause harm as follows:

CLASS	DESCRIPTION
1	Unlikely to cause patient discomfort or clinical deterioration
2	Potential to cause moderate discomfort or clinical deterioration
3	Potential to result in severe discomfort or clinical deterioration

* Cornish P, et al. Unintended medication discrepancies at the time of hospital admission. Arch Intern Med 2005;165:424 -29

Objectives

1. To reduce the number of Undocumented Intentional (Type 2) and Unintentional discrepancies (Type 3) of a patient's home medications within 24 hours upon admission to a surgical unit by 50%.

2. To reduce the number of Unintentional Discrepancies (Type 3) that have the potential to result in severe discomfort or clinical deterioration of home medications by 50%.

Methods

Design
- Single center: Royal Jubilee Hospital, Victoria, BC
- Prospective: October 17, 2005 through May 4, 2006

Subject Inclusion Criteria
- Patients booked through Pre-Admission Clinic **and**
- Admitted to 2 Royal Surgical Unit **and**
- Expected to be on the unit for a minimum of 48 hours

Medication Inclusion Criteria on MROF
- All prescription medications, including PRN
- Select over the counter (OTC) products
  (eg. Nitro spray, acetaminophen, ASA 81mg, laxatives, NSAIDs)

Medication Exclusion Criteria on MROF
- Any herbal preparations
- Other OTC medications
- Vitamins and supplements

Methods

Project Phases

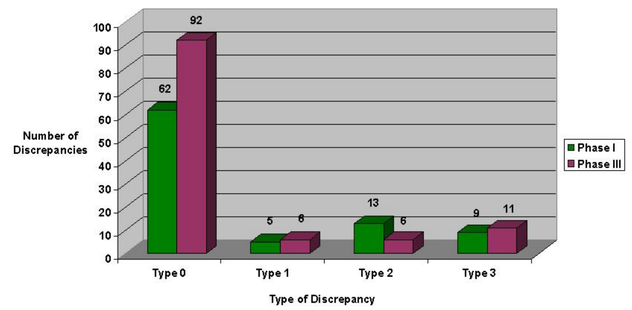
PHASE	DATE	DESCRIPTION
I	Oct 17/05-Jan12/06	**Baseline data collection** • Pharmacist completes best possible medication history as per inclusion criteria • Discrepancies identified, resolved, and recorded
II	Jan 12-Mar 6/06	**Implementation of MROF** • Preadmission clinic (PAC) RN completes their section of MROF • Day of surgery, surgical day care nurse fills out "time and date of last dose" section • Post-op, physician completes the order by reviewing MROF and checking the appropriate column • MROF faxed to pharmacy and processed
III	Mar 7-May 3/06	**Post-implementation data collection** • Pharmacist repeated best possible medication history • Discrepancies identified, resolved, and recorded

Results

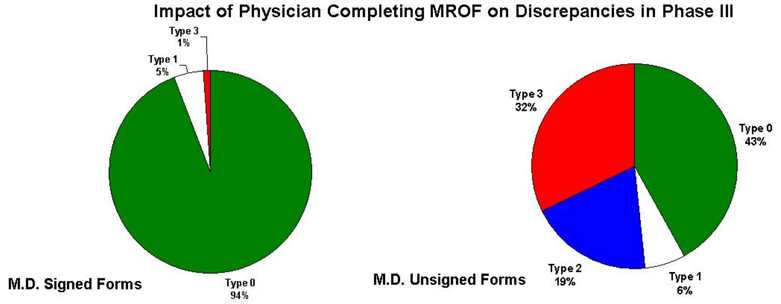
Table 1:
Medication Discrepancies Broken Down by Type

Phase	# Pts	Age Range	Sex (% M)	Total # Medications	Type 0	Type 1	Type 2	Type 3	Class 3 Harm
I	21	42-86	57	89	62	5	13	9	3
III	25	25-86	64	115	92	6	6	11	1
% Change							- 37.9%	+ 1.1%	

Figure 1:
Comparison of Medication Discrepancies Pre and Post MROF Implementation



Figures 2 and 3:
Impact of Physician Completing MROF on Discrepancies in Phase III

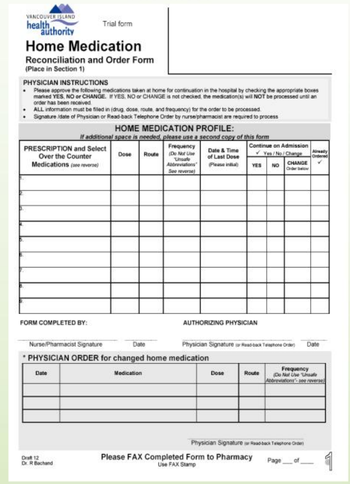


Results

Table 2:
Unintentional Medication Discrepancies (Type 3) by Phase and Class of Harm

PHASE	MEDICATION	CLASS (1: low, 2:moderate, 3:severe)
I		
	levothyroxine	2
	cetirizine	1
	furosemide	2
	amiloride	3
	mometasone nasal spray	1
	zopiclone	2
	atorvastatin	2
	glyburide	3
	amlodipine	3
III		
	ferrous fumarate	1
	ranitidine	2
	vitamin D	1
	ferrous sulfate	1
	simvastatin	2
	levothyroxine	2
	etidronate	2
	metoprolol	3
	sildenafil	1
	oxazepam	2
	loratidine	1

Figure 4:
The MROF


Trial form

Home Medication
Reconciliation and Order Form
(Place in Section 1)

PHYSICIAN INSTRUCTIONS
- Please approve the following medications taken at home for continuation in the hospital by checking the appropriate boxes marked YES, NO or CHANGE. If YES, NO or CHANGE is not checked, the medication(s) will NOT be processed until an order has been received.
- ALL information must be filled in (drug, dose, route, and frequency) for the order to be processed.
- Signature /date of Physician or Read-back Telephone Order by nurse/pharmacist are required to process

HOME MEDICATION PROFILE:
If additional space is needed, please use a second copy of this form

PRESCRIPTION and Select Over the Counter Medications (see reverse)	Dose	Route	Frequency (Do Not Use "Unsafe Abbreviations" - See reverse)	Date & Time of Last Dose (Please initial)	Continue on Admission ✓ Yes / No / Change YES	NO	CHANGE (Order below)	Already Taken ✓
1								
2								
3								
4								
5								
6								
7								
8								

FORM COMPLETED BY: AUTHORIZING PHYSICIAN

Nurse/Pharmacist Signature | Date | Physician Signature (or Read-back Telephone Order) | Date

* PHYSICIAN ORDER for changed home medication

Date	Medication	Dose	Route	Frequency (Do Not Use "Unsafe Abbreviations" - see reverse)

Physician Signature (or Read-back Telephone Order)

Draft 12
Dr. R Bachand

Please FAX Completed Form to Pharmacy
Use FAX Stamp

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Discussion

Prior to the implementation of the MROF, a patient's medication history was taken by a nurse in pre-admission clinic, recorded on a form and placed in the patient's chart. Post-op orders for a patient's home medications often read "re-order home medications." Often, a patient's home medications are listed in different sections of the chart including: the pre-admission clinic consult, the surgery consult, anesthetic consult, GP history, and pharmanet. This created a problem for nurses, pharmacists, and patients; which list of home medications is accurate? The medication reconciliation and order form was a tool we introduced to accurately identify home medications and help resolve this problem. Feedback from nurses and physicians who worked with the form was that it was very useful and decreased their workload.

There are some limitations to our project and these include:
- Trial period short, results based on 4 months of implementation, ideally would like to implement for 1 year
- Patient sample small, results too preliminary to calculate statistical difference
- New process for physicians (not yet routine), 1/3 of forms unsigned, contributed to more unintentional discrepancies (Type 3)
- New process for nurses, unsure what to do when form was unsigned, so left alone and not resolved

Conclusions

Medication reconciliation using a MROF is a potentially useful tool to reduce the number of discrepancies upon admission to a surgical unit. The results of our study showed a decrease in the number of unintended intentional discrepancies (type 2) as well as a decrease in the potential to cause severe harm. Although the number of unintentional discrepancies increased, this was due to the study limitations as described.

In order to show a significant difference, the medication reconciliation form must be implemented on a larger scale, following more patients for a longer period of time. The study was important to VIHA in that they are committed to patient safety and have chosen medication reconciliation as one of their interventions to improve patient care.

The medication reconciliation and order form will continue to be used at the Royal Jubilee Hospital. It is anticipated that with greater exposure, and with more routine use, physicians will sign the form and ultimately reduce the number of both type 2 and type 3 discrepancies.