The Impact of Pharmacist-led Medication Reconciliation in Surgical Ward targeting high risk patients in a local hospital

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INTRODUCTION

Medication errors are highly prevalent upon hospital admission and discharge. Implementation of an established medication reconciliation (MR) process has been shown to reduce medication errors. For this reason, MR has been prioritized as one of the top five patient safety strategies, within WHO Action on Patient Safety: High 5s Project. Clinical pharmacist involvement in MR is effective in identifying and rectifying medication errors. However, pharmacist involvement at all stages of the reconciliation process for every patient may not be feasible at individual institutions. This study evaluated a targeted approach in selecting high-risk patients in an effort to reduce unintended medication discrepancies.

OBJECTIVES

To determine the percentage of incidence and the severity of unintended medication discrepancies before and after targeting high risk patients in surgical wards.

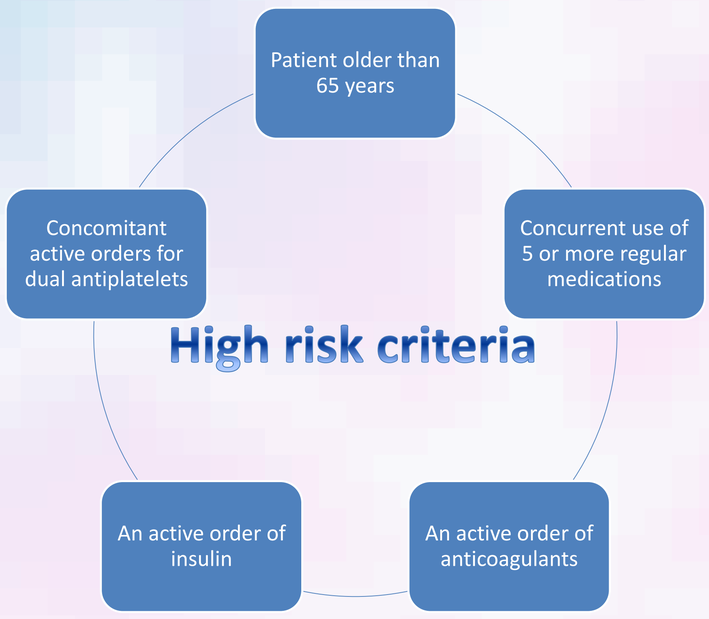
METHODOLOGY

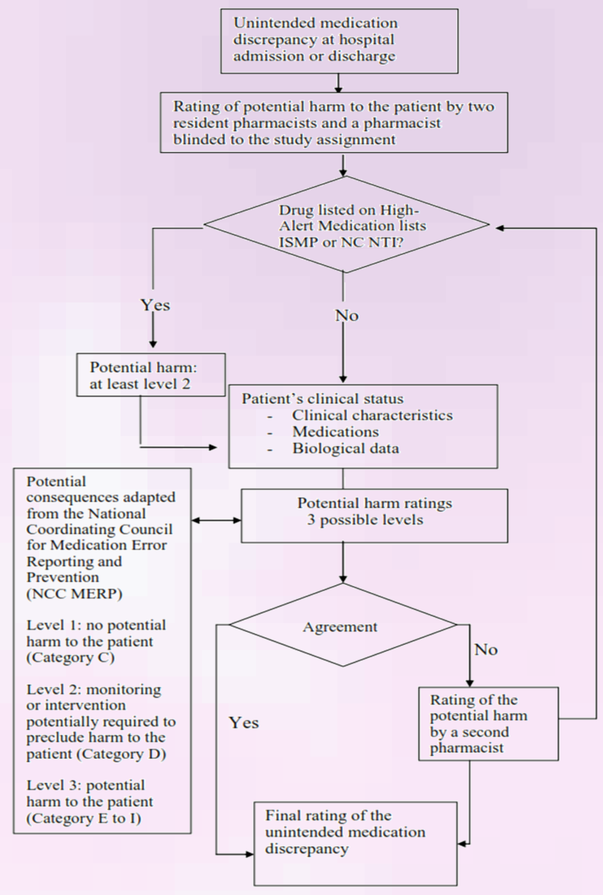
This was a single-center, pre-post intervention study conducted at the surgical wards in the United Christian Hospital, Hong Kong. Following institutional review board approval, pre-intervention data (From ward A) were collected retrospectively over 3 months from December 2013 to February 2014; while post-intervention data (From ward A and B) were collected prospectively over 3 months from December 2014 to February 2015. The potential severity of the unintended medication discrepancies were rated by pharmacists and classified into 3 levels according to NCC MERP index.

Phase 1
- Conduct MR in a surgical ward **(Ward A)**
- Best possible medication history (BPMH) was obtained from multiple sources

Intervention
- Training prior to targeting high-risk patients:
  - High-risk patient screening criteria
  - Use of documentation form of drug-related problems and interventions based on PCNE version 6.2

Phase 2
- Conduct MR in 2 surgical wards **(Ward A and B)**
- Pharmacists screened patients daily by using e-PR to determine if they met the inclusion criteria





RESULTS

During the study period, a total of 1183 and 1033 cases (admission/discharge) in the pre-intervention and post-intervention group were screened for medication discrepancies respectively. When comparing the pre-intervention (From ward A) and post-intervention group (From ward A and B), the percentage incidence of unintended medication discrepancies increased from 5.32% to 7.35% (p-value 0.056). Statistical significance was shown when comparing ward A patients only in both groups, the percentage of incidence increased from 5.32% to 8.15% **(p-value 0.021)**.

Initial level of agreement on the severity ratings between the raters was moderate (Cohen's Kappa 0.513). No statistical significance was shown when comparing the severity level of medication discrepancies between pre-intervention and post-intervention group. Over 50% of the medication discrepancies had the potential to cause harm to patients in both groups, with severity index of level 2 or 3. The most frequent type of medication discrepancies was medication omission and unnecessary medication, followed by drug duplication and wrong duration of treatment.

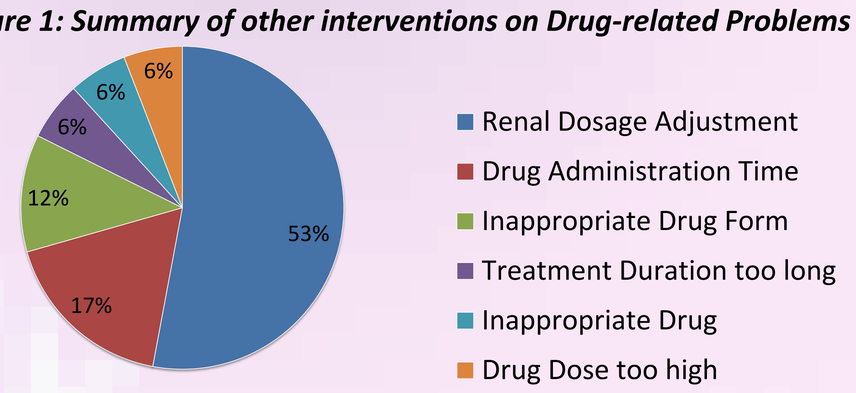
Table 1: Percentage of patients with unintended medication discrepancies in pre- and post-intervention group

Group	Number of patients screened	Patients with medication discrepancies	% incidence of medication discrepancies (95%CI)	p-value
Post-intervention Group (Ward A&B) Pre-intervention Group	1183 1033	87 55	7.35% (5.86%-8.84%) 5.32% (3.95%-6.69%)	0.056
Post-intervention Group (Ward A only) Pre-intervention Group	687 1033	56 55	8.15% (6.10% -10.20%) 5.32% (3.95%-6.69%)	**0.021***

Table 2: Potential severity of the unintended medication discrepancies in pre- and post-intervention group

Group	Total number of discrepancies	Severity Index (Level 1)	Severity Index (Level 2)	Severity Index (Level 3)	p-value
Post-intervention Group (Ward A&B) Pre-intervention Group	150 78	68 (45.3%) 31 (39.7%)	68 (45.3%) 36 (46.2%)	14 (9.3%) 11 (14.1%)	0.295
Post-Intervention Group (Ward A only) Pre-intervention Group	108 78	47 (43.5%) 31 (39.7%)	52 (48.1%) 36 (46.2%)	9 (8.3%) 11 (14.1%)	0.388

Figure 1: Summary of other interventions on Drug-related Problems



Besides detecting unintended medication discrepancies, pharmacists also contribute in detecting other drug-related problems, including renal dosage adjustment (53%), followed by inappropriate drug administration time (17%) and inappropriate drug formulation (12%).

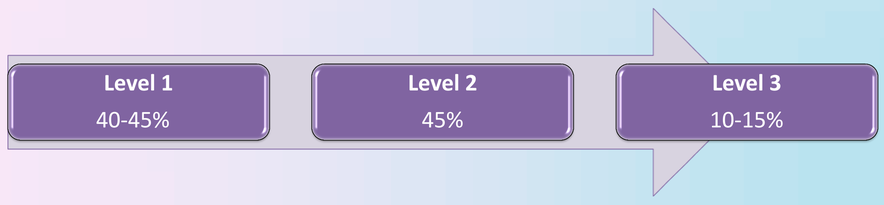


Table 3: Examples of potential harm ratings of unintended medication discrepancies

Potential harm ratings	Examples
Level 1	✓ Omission of Simvastatin 10mg nocte upon admission
Level 2	✓ Patient was taking Rifampicin and Isoniazid from chest clinic, however, both drugs were omitted upon admission ✓ Carvedilol 3.125mg BD was switched to Metoprolol 25 mg BD since last admission, however, both drugs were prescribed upon this admission
Level 3	✓ Digoxin 125 microgram om (For AF) was stopped upon last admission due to poor renal function, however, it was resumed on this admission ✓ Wrong set of medication history from other patients being prescribed upon discharge/ admission

CONCLUSION

Targeting high risk patients in the medication reconciliation process in surgical ward was a feasible approach given the limited time and resources available for pharmacists, allowing a higher percentage incidence of unintended medication discrepancies being detected.

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