Risky business: An analysis of high-risk processes in community pharmacies

By Adrian Boucher and Certina Ho

Although pharmacy professionals and healthcare organizations aim to provide error-free health care, medication incidents are often inevitable. Medication incidents include known, alleged or suspected medication errors that reach the patient (e.g., incorrect drug, quantity, dose, or patient) and may have significant negative implications to patients and healthcare professionals. Despite socio-technical advances in pharmacy practice, the dispensing process remains largely a high-volume, manual operation that may be prone to medication incidents. A number of high-risk processes are associated with increased risk of errors and require high-leverage, effective, and system-based strategies (Figure 1) to ensure they are performed accurately and safely.

The Institute for Safe Medication Practices Canada (ISMP Canada) performed a multi-incident analysis to examine medication incidents causing harm in community pharmacy. Incidents were retrieved from ISMP Canada's Community Pharmacy Incident Reporting (CPhIR) program from October 2009 to May 2017. A total of 971 incidents were reviewed independently by two analysts to identify common themes and contributing factors. We identified the following three high-risk processes in pharmacy practice.

1. Methadone maintenance therapy

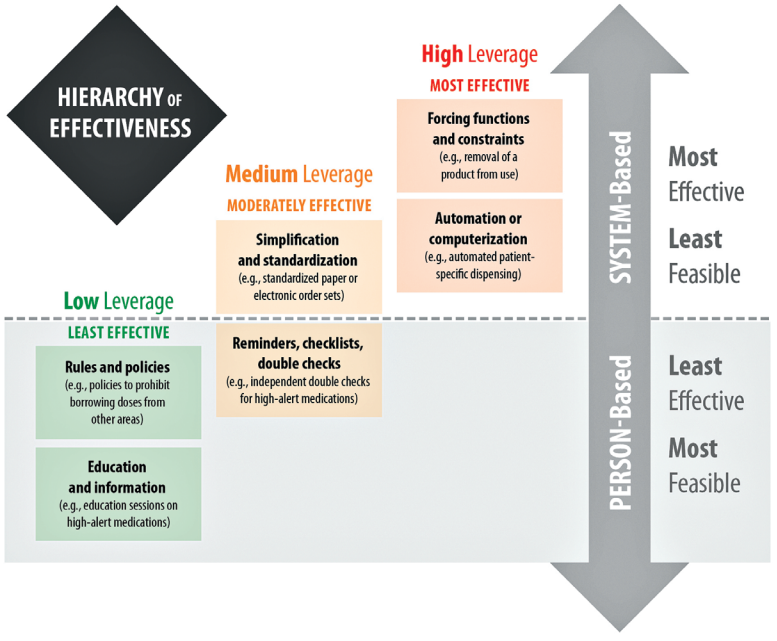
Incident Example: A patient ingested a higher dose of methadone (110 mg) than his intended dose (30 mg). The incident was discovered when another patient arrived for his dose, but it had been accidently given to a previous patient.

Although the benefits and effectiveness of methadone maintenance therapy are well-documented, the safety of methadone dispensing in the medication-use process continues to be a challenge. In addition, methadone is considered a high-alert medication and has been associated with an elevated risk of accidental overdose. Between 2006 and 2008, methadone was involved in 15 per cent of opioid related death and accounted for the highest relative percentage of accidental death in Ontario. We identified a number of contributing factors associated with methadone related errors, including confirmation bias, frequent dose changes, pre-pouring of doses, and knowledge deficit of healthcare providers.

Table 1. Recommendations to Prevent Medication Incidents Related to High-Risk Processes in Pharmacy Practice

Summary of Recommendations *Aim for high-leverage, effective, and system-based strategies*	Hierarchy of Effectiveness	More Effective / Less Feasible
Implement barcode scanning to ensure correct selection of medication.	Automation and Computerization	
Develop standardized procedures and documentation for high-risk processes.	Simplification and Standardization	
Perform independent double checks throughout all steps of the medication-use process.	Reminder, Checklists, Double Checks	
	CHECKS	
Ensure staff members are not interrupted when performing a high-risk process.	Rules and Policies	
Ensure designated staff members are adequately trained and equipped to perform high-risk processes.	Education and Information	Less Effective / More Feasible

Figure 1



2. Compliance packing or multi-medication compliance aids preparation

Incident Example: A patient noticed that he had extra pills in his compliance pack and notified the pharmacy. Upon further investigation, it was determined there was a Rosuvastatin 10 mg tablet in both the AM and PM slot; and it was supposed to be only in the PM slot.

Compliance packs or multi-medication compliance aids are commonly prepared by community pharmacies to help patients organize their medications according to the date and time of administration. They have been found to have positive effects on adherence and disease management, as well as a reduction in patient and caregiver stress. However, one study found that manual packing of multi-medication compliance aids was associated with an error rate of approximately seven perc cent of packs, with the most common errors involving incorrect halving of tablets (49.1%), omission of a medication (22.0%), and inclusion of an extra dose (9.8%).

Continued on page 31

Adrian Boucher is an Analyst at the Institute for Safe Medication Practices Canada (ISMP Canada) and a PharmD Student at the Leslie Dan Faculty of Pharmacy, University of Toronto; Certina Ho is a Project Lead at ISMP Canada.

Risky business

Continued from page 24

The contributing factors associated with compliance packs incidents include frequent changes to drug regimes, preparation of packs several weeks prior to pick-up or delivery, and inadequate verification of current orders with multi-medication compliance aid contents.

3. Preparation of compounds or compounding

Incident Example: A patient reported that the menthol compound he/she received caused burning. The pharmacy technician who prepared it did not get another staff member to double check the amount of menthol measured. After re-compounding the prescription, the resulting compound had a weaker menthol smell.

Compounds are most frequently prepared for patients who require a dose or dosage form that is not commercially available. They often require specialized knowledge, equipment, and sufficient time to prepare. Although case studies related to compounding errors were well reported in the literature, limited information is available on the rates and types of incidents that occur in community pharmacies in Canada. In this analysis, we identified contributing factors that include inadequate staff training, expertise, and equipment, and inadequate standardized process for compound preparation.

The medication distribution system is generally safe. Yet, it is prone to medication incidents that may adversely impact patient safety. By systematically examining and reviewing medication incidents, we have identified potential contributing factors and made recommendations to prevent similar errors from happening in the future (Table 1). This analysis highlights the importance of continuously reporting, analyzing, and sharing medication incidents to improve patient/medication safety. H