A Multi-Incident Analysis on Medication Incidents Associated with Patient Harm

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Objectives

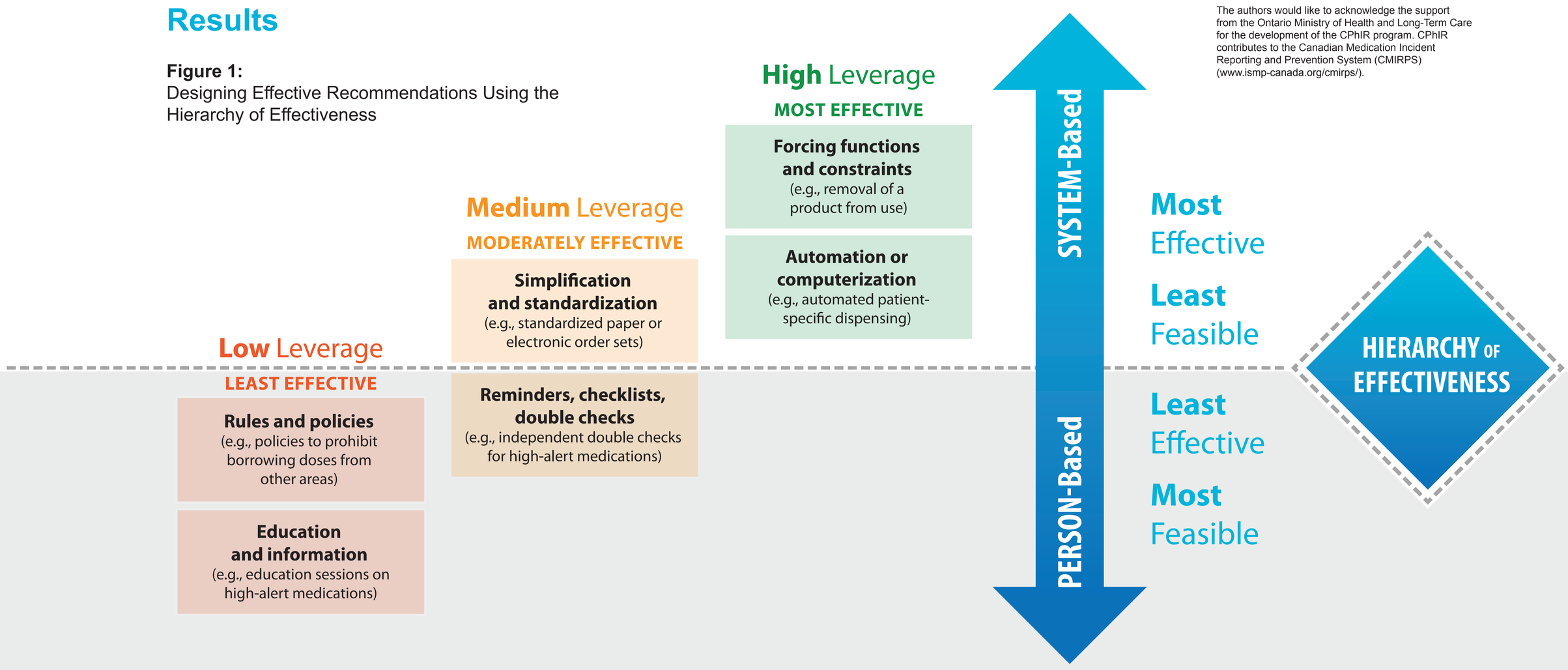
- Medication incidents associated with harm are rare, but potentially devastating events with significant implications for patients and healthcare providers.
- The objective of this multi-incident analysis was to gain a deeper understanding of the possible contributing factors to incidents associated with patient harm, and to develop recommendations to prevent incident recurrence.

Methodology

- A total of 971 medication incidents associated with patient harm were extracted from the Institute for Safe Medication Practices Canada (ISMP Canada) Community Pharmacy Incident Reporting (CPhIR) Program from 2009 to 2017.
- Following exclusion criteria, we conducted a qualitative, thematic analysis on 909 incidents, and provided recommendation to address patient safety gaps corresponding to harm related incidents.

Results

Figure 1:
Designing Effective Recommendations Using the Hierarchy of Effectiveness



Conclusion

- Independent double checks are an effective strategy for preventing incidents associated with high-risk processes.
- Clear communication within the circle of care is necessary for safe and effective medication use.
- Clinical decision support system in conjunction with professional judgment can help avoid preventable adverse drug reactions.
- Findings from this multi-incident analysis can provide a platform for reflection and shared learning.

References: Available upon request

ISMP Canada
Institute for Safe Medication Practices Canada
www.ismp-canada.org

CMIRPS
Canadian Medication Incident Reporting and Prevention System
www.ismp-canada.org/cmirps/

CPhIR
Community Pharmacy Incident Reporting Program
www.cphir.ca

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- Adrian Boucher – Nothing to disclose
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Table 1: Theme 1 – High-risk Processes in the Pharmacy

METHADONE MAINTENANCE THERAPY

Incident Example:
A patient was mistakenly given another patient's dose of methadone. The dose given was significantly higher than the patient's normal dose. Both patients had similar names and the incident was discovered when the second patient arrived for his dose, but it could not be found.

Contributing Factors:
- Pre-pouring of daily methadone doses.
- Similar patient names and/or doses.

COMPLIANCE PACKS

Incident Example:
A patient was prescribed hydrochlorothiazide and her blister packs were repackaged to include the medication. When the following month's blister packs were made, hydrochlorothiazide was omitted. The patient experienced higher than normal blood pressure as a result.

Contributing Factors:
- Change of drug regimens in the middle of a pack.
- Frequent changes in medication regimens.
- Preparing of packs weeks in advance of pick-up.

COMPOUNDING

Incident Example:
A patient reported that the menthol and hydrocortisone cream compound she had received caused burning, which did not happen previously. The technician who prepared it did not get another staff member to double check the amount measured and initial for it. The compound was re-made and the patient reported no burning.

Contributing Factors:
- Lack of standardized compounding process.
- Inadequate training of personnel.

SYSTEM-Based

More Effective / Less Feasible

Recommendations:

1. Implement barcode scanning to ensure correct selection of medication **[Automation and Computerization]**.
2. Develop standardized procedures and documentation for high-risk processes **[Simplification and Standardization]**.
3. Perform independent double checks throughout all steps of the medication-use process **[Reminders, Checklists, Double Checks]**.
4. Ensure staff members are not interrupted when performing a high-risk task **[Rules and Policies]**.
5. Ensure designated staff members are adequately trained and equipped **[Education and Information]**.

PERSON-Based

Less Effective / More Feasible

Table 2: Theme 2 – Communication Gaps

PATIENT-PROVIDER ENGAGEMENT

Incident Example:
A patient experiencing cough was given a new prescription for valsartan to replace ramipril. The patient discontinued metoprolol instead of ramipril and brought the metoprolol back for destruction. The incident was discovered when the patient called for a refill of his ramipril and stated that he has been experiencing increased heart rate.

Contributing Factors:
- Complicated medication directions.
- Inadequate check of patient understanding.

INTERPROFESSIONAL COLLABORATION

Incident Example:
A nursing home contacted the pharmacy to refill a patient's prescription for Arthrotec® (diclofenac/ misoprostol), and to increase the dose of his hydrochlorothiazide. There was no record of Arthrotec® on the patient file, but there was a prescription for diclofenac. It was discovered that, in addition to receiving diclofenac, the patient was taking a sample of Arthrotec® that he received from the doctor, potentially contributing to his elevated blood pressure.

Contributing Factors:
- Limited sharing of medical information between providers.
- Lack of an up-to-date medication list.

SYSTEM-Based

More Effective / Less Feasible

Recommendations:

1. Implement Electronic Health Records and E-prescribing in pharmacy practice **[Automation and Computerization]**.
2. Have standardized documentation for follow-up of problematic orders and hand off between health care professionals **[Simplification and Standardization]**.
3. Use "show and tell" and "teach back" technique to ensure understanding during counselling **[Reminders, Checklists, Double Checks]**.
4. Conduct regular medication reviews to identify real and potential drug therapy problems **[Rules and Policies]**.
5. Encourage patients to carry an updated medication list when interacting with health care professionals **[Education and information]**.

PERSON-Based

Less Effective / More Feasible

Table 3: Theme 3 – Preventable Adverse Drug Reactions

DRUG-DRUG INTERACTION

Incident Example:
A patient was started on lithium carbonate and was prescribed metronidazole 7 days later without cautioning about the interaction. The patient called the pharmacy reporting side effects consistent with lithium overdose.

Contributing Factors:
- Knowledge deficit of the practitioner.
- Too many insignificant alerts resulting in "alert fatigue".
- Inadequate alert to indicate drug-interactions.

DOCUMENTED DRUG ALLERGY

Incident Example:
A patient complained of tight throat over several days. He/she went to emergency and was diagnosed with an allergic reaction to moxifloxacin. The pharmacist had missed the allergy caution when dispensing.

Contributing Factors:
- Free-form entry of allergies.
- Too many insignificant alerts resulting in "alert fatigue".
- Inadequate alert to indicate drug allergy.

SYSTEM-Based

More Effective / Less Feasible

Recommendations:

1. Clinical decision support systems (CDSS) for prescribers and pharmacists should have the functionality to detect drug-drug interactions/ drug allergies and be updated regularly to prevent missing alerts and "alert fatigue" **[Automation and Computerization]**.
2. Develop standardized procedures and documentation when a drug interaction or drug allergy is identified **[Simplification and Standardization]**.
3. Double check allergy status at order entry and pick-up **[Reminders, Checklists, and Double Checks]**.
4. Require documentation when a drug interaction or allergy override occurs, and audit it regularly **[Rules and Policies]**.
5. Subscribe to a drug information service and post information in the pharmacy on known dangerous drug interactions **[Education and Information]**.

PERSON-Based

Less Effective / More Feasible