Analysis of Medication Incidents in Community Pharmacy

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Objectives

The Community Pharmacy Incident Reporting (CPhIR)[1] program has been designed by the Institute for Safe Medication Practices Canada (ISMP Canada) with support from the Ontario Ministry of Health and Long-Term Care, Canada. CPhIR contributes to the Canadian Medication Incident Reporting and Prevention System (CMIRPS)[2].

SafetyNET-Rx[3] is a continuous quality improvement (CQI) program for community pharmacies in Nova Scotia, Canada.

A component of this pilot project is to determine the underlying system-based contributing factors to medication incidents in community pharmacies and focus on the need for learning from incident reporting.

Methodology

From August 2008 to January 2010, 1544 incidents were voluntarily reported by 13 community pharmacies participating in the SafetyNET-Rx Phase I pilot project. There were 12 duplicates or test entries, so 1532 incidents were analyzed, with a focus on the severity of outcome of the incidents and medication-use areas associated with these incidents in community pharmacy.

Results

Severity of Outcome

- 84% (1281 of 1532) of the incidents were near misses (**Figure 1**).
- 16% (250 of 1532) of the incidents resulted in no harm, of which 36% (90 of 250) involved patients who actually received and ingested the medication (**Figure 1**).
- Only 0.07% (1 of 1532) resulted in temporary patient harm, which required the intervention of contacting the physician immediately (**Figure 1**).

Medication-Use Areas

- The majority of incidents occurred during the Order Entry/Transcription and the Dispensing/Delivery stages – the two most common stages in community pharmacies (**Figure 2**).
- The most common types of incidents reported were incorrect dose, incorrect duration of treatment, incorrect strength/concentration, incorrect drug, and incorrect patient.
- More than one medication can be reported for a single incident. There were 1799 medications reported. The top five medications reported were *metoprolol*, *amoxicillin*, *rosuvastatin*, *lorazepam*, and *metformin*. (**Note**: It is possible that the likelihood of a medication to be involved with an incident is correlated with the frequency the medication is dispensed in community pharmacy.)
- Possible cause(s) of medication incidents (**Figure 3**).

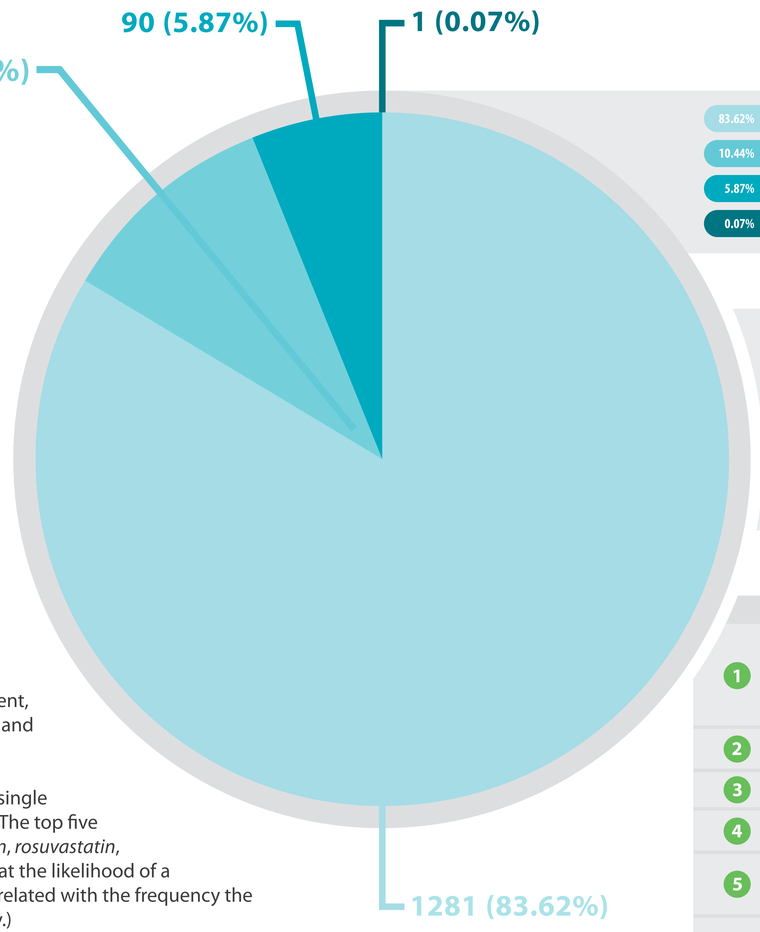

FIGURE 1.
REPORTED MEDICATION INCIDENTS **CLASSIFIED BY OUTCOME (n=1532)**

- 83.62% No Error
- 10.44% No Harm – Patient received the medication but did not ingest it
- 5.87% No Harm – Patient received and ingested the medication, but did not cause patient harm)
- 0.07% Harm

FIGURE 2.
REPORTED MEDICATION INCIDENTS **CLASSIFIED BY STAGES**

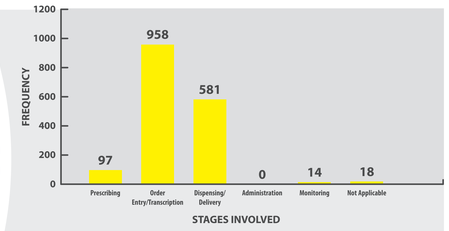

FIGURE 3.
MAIN THEMES AND POSSIBLE CAUSES OF MEDICATION INCIDENTS DERIVED FROM ANALYSIS

Main Themes	Possible Causes of Medication Incidents
1 Product Mix-Ups	Medication name with suffixes
	Combination products
	Look-alike / sound-alike medications
	Incorrect strength
	Incorrect drug in stock bottle
2 Incorrect Instructions	Dangerous abbreviations or illegible handwriting
	Wrong label
3 Changes in Treatment	Use of the "copy" feature in dispensing system as a time-saving mechanism during order entry
4 Compliance Aids	Transcription
	Specialized Dispensing Process
5 Wrong Patient	Same or similar patient name
	Incorrect medication in basket or bag
	Incorrect medication due to storage
6 Drug Therapy Problem	Drug interactions
	Allergies
	Incorrect dose prescribed

Conclusion

This analysis of medication incidents serves as an initial attempt to study factors that may contribute to medication incidents in community pharmacies.

It is impossible to infer the probability of specific incidents based on voluntary reporting, but this analysis suggests that there is a potential to significantly reduce preventable patient harm by focusing on several or specific high-risk medication-use areas.

Through the analysis of incidents and sharing of findings, practitioners can learn from reported incidents and implement safeguards.

Creating a culture of patient safety with the support of a non-punitive reporting system needs to be encouraged within all areas of pharmacy practice.

As the ISMP Canada CPhIR Program continues to accumulate data over time, trends and changes in medication incident patterns can be identified. CPhIR will continue contributing to CMIRPS, and help identify new areas of focus to enhance medication safety.

References

1. ISMP Canada Community Pharmacy Incident Reporting (CPhIR) Program. www.cphir.ca
2. Canadian Medication Incident Reporting and Prevention System (CMIRPS). www.ismp-canada.org/cmirps
3. Pharmacy CQI Program - SafetyNET-Rx – Canada. www.safetyNETRx.ca

Institute for Safe Medication Practices Canada

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SafetyNET-Rx